



Municipal Infrastructure Support Programme

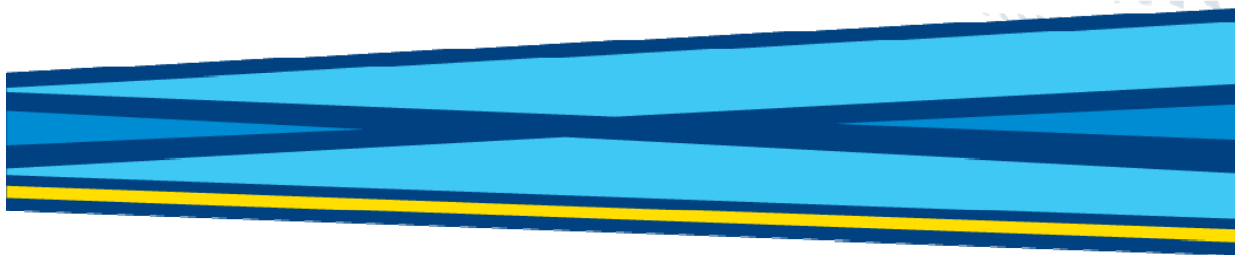
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Industrial zone "Jug" in Vladicin Han

VOLUME 2: FEASIBILITY STUDY



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Municipality Vladicin Han

December 2011

Final version

CRIS 223 – 292 (08/SER01/13/21)

P2011 - 2



A Project implemented by





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Document title	Industrial zone "Jug" in Vladicin Han VOLUME 2: FEASIBILITY STUDY
Document short title	FS IZ Vladicin Han
Status	Final version
Date	December 2011
Project name	MISP Programme
Project number	CRIS 223 – 292 (08/SER01/13/21)
Client	Municipality Vladicin Han
Reference number	P2011 - 2

Drafted by

Checked by

Date/initials check

Approved by

Date/initials





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List of Acronyms and Abbreviations





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Acronyms & Abbreviation	Description
IFI	International Finance Institution
MDG	Millenium Development Goals
MISP	Municipal Infrastructure Support Programme
NES	National Environment Strategy
NTS	Non Technical Summary
PUC	Public Utility Company
RDA	Regional Development Agency
SCTM	Standing Conference for Towns and Municipalities
AIFC	Average Incremental Financial Cost
CBA	Cost Benefit Analysis
CRR	Cost Recovery Ratio
CSR	Cost Service Ratio
DIC	Discounted Investment Cost
DNR	Discounted Net Revenue
DSR	Debit Service Ratio
EBT	Earnings Before Taxes
EBIT	Earnings Before Interests and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EBRD	European Bank for Reconstruction and Development
EC	European Community
EE	Eligible Expenditure
EIB	European Investment Bank
E&M	Equipment and Machinery
ENPV	Economic Net Present Value
ERR	Economic Rate of Return
EU	European Union
FCR	Full Cost Recovery
FIDIC	Fédération Internationale Des Ingénieurs-Conseils (i.e. French for the International Federation of Consulting Engineers)
FOPIP	Financial and Operational Performance Improvement Programme
FNPV	Financial Net Present Value
FRR	Financial Rate of Return
FW	Financial (market) Wage
HH	Household
IAS	International Accounting Standards
IFI	International Financial Institute
IFRS	International Finance Reporting Standard
IPA	Instrument for Pre-accession Assistance
IRR	Internal Rate of Return
K	Capital Invested
KfW	Kreditanstalt für Wiederaufbau
Lcd	Liters per capita per day
LRCD	Land and Road Construction Directorate
NBS	National Bank of Serbia
NCF	Net Current Fund
NIP	National Investment Plan
NPV	Net Present Value





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NRW	Non Revenue Water
O&M.ADM	Operation, Maintenance and Administration
PIU	Project Implementation Unit
PUC	Public Utility Company
RBWC	Regional Bulk Water Company
RSD	Republic of Serbia Dinar
SCF	Standard Conversion Factor
SDR	Social Discount Rate
SFR	Self Financing Ratio
SME	Small and Medium Enterprises
SOP	Sectorial Operational Programme
SPI	Number of Staff per 1000 Connections
SW	Shadow Wage
SWCF	Standard Wage Conversion Factor
TA	Technical Assistance
VAT	Value Added Tax





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1 EXECUTIVE SUMMARY

1.1 Background

The main purpose of this feasibility study is to determine the feasibility for the extension of the existing Suva Morava Industrial Zone in the Municipality of Vladicin Han in southern Serbia.

Harvard Business School Professor Michael Porter's research, as summarized in his book, The Competitive Advantage of Nations, has identified four broad determinants that work together as a system to improve national advantage as follows:

- Positive factor conditions such as infrastructure (transport, communication etc), human resources and raw material are directly linked to the nation's wealth;
- Demand condition, where sophisticated local customers continuous demand for improvements increases the ability of firms to meet foreign customer needs;
- Clustering of related industry which supplies raw materials and components as well as business services which supports the sector, are key elements of the supply chain;
- Institutional context for firm strategy and rivalry, which can influence creation of firms, investment policies,

The feasibility study for Vladicin Han will therefore examine what is required to put in place these 4 determinants and propose a project which will encourage entrepreneurship to install itself in Vladicin Han.

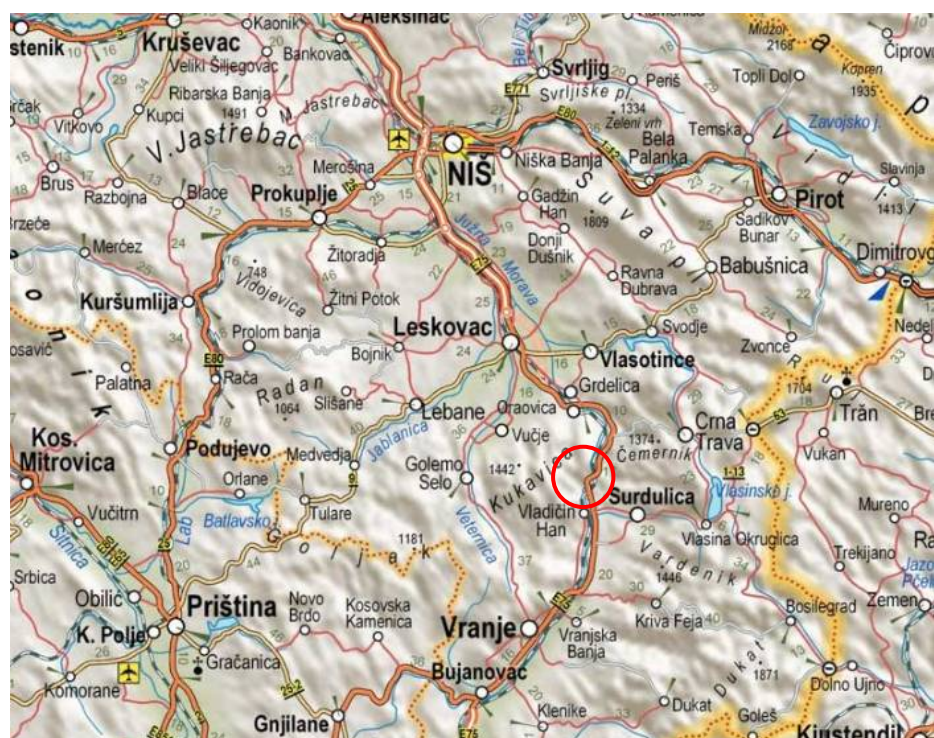
This study has been prepared under the Municipal Infrastructure Support Programme (MISP), an initiative funded through the European Union's Instrument for Pre-Accession (IPA) 2008 to assist the Republic of Serbia in achieving the national objectives.

The existing industrial zone is almost fully occupied and the Municipality is turning down requests from potential investors investigating the possibility of setting up business in Vladicin Han because of a lack of good quality fully services industrial locations.

This project is therefore intended to resolve this issue through making available in phases good quality industrial land.

Figure 1.1-1

Location of the Project





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1.2 Legal and Institutional Framework and Management Options

The project of Industrial zone development in VH fits into national and local legal and policy framework. A set of strategies and legal documents recognize industrial park development as important instrument for socio economic development of the country.

Some of the most important strategies in this context are The Strategy on Free Zones Development in Serbia for the period 2011 to 2016 , The National Employment Strategy (2011 to 2020), as well as the Strategy on Encouraging and Developing Foreign Investment.

At regional and local level development of industrial zone in VH is in line with Regional Development Strategy for the Jablanica and Pcinja Districts and Regional Programming Document (2008-2012) and is also one of the main development forces recognised in Development Strategy of the Vladicin Han Municipality.

Furthermore legal background for establishment and operation of free and industrial zones endow with set of the laws as are: Law on Free Tax Zones, Customs Law, Law on Value Added Tax, Law on Planning and Construction and Law on Regional Development. In addition, there are several Decrees pertinent to industrial zone development in Vladicin Han. These are: Decree on determination of the uniform list of the local self-governments based on level of development for the year 2011, Decree on terms and conditions for attracting direct investment, Decree on the Conditions and Manner under which local self-government Units may sell or lease the building land at a Price Below the Market Price or Lease Fee or without Compensation (Official Gazette of the Republic of Serbia, no. 13/2010).

Equally important at the municipal level is Municipal ordinances on construction land, on land development charge and land use charge and on communal fees.

Observed from the general socio economic point of view, development of industrial zone is justified for the community with strong industrial background as Vladicin Han is, which for a years, has been facing serious socio economic stagnation and/or regression.

In this municipality Industrial zone has been recognized as potential and/or opportunity to mitigate negative economic and social trends originating from long term industrial stagnation and resulting in high unemployment rate and consequent depopulation trend.

From the establishment of Industrial zone is expected to have positive impact on the employment trends (both direct and indirect) and not only in Vladicin Han but also in Surdulica and Vranje. However, the scope of the employment will depend on the size and type of industries which will be installed inside the zone.

From the perspective of potential investor it is important to note that Serbia in general, and Vladicin Han in particular, have several strengths as a destination for investors, but one of the biggest is their workforce, which offers the added advantages of low labour costs and relatively high productivity.

On the other hand, concerning current situation at local labor market, human resources in Vladicin Han may not be sufficient neither per their number nor per their structure (skills required for the certain type of industry). Therefore, future companies will probably have to look for additional, skilled workforce outside Vladicin Han, i.e. from Surdulica and Vranje.

Furthermore, even if the structure of human resource is adequate, familiarizing of qualified employees to new technological trends may be requested. Therefore creation of different specialized trainings will be indispensable. These pre-qualification/vocational and other types of specialized trainings should be organized by enterprises itself (according to specific needs) or by Local Employment Bureaus.

As far as concern the institutional setup for the management of future industrial zone, after in depth analysis two major options are recognized.

The first option assumes direct and more participatory involvement of 3 municipalities located at the same territory (Vladicin Han, Vranje and Surdulica) and the management model which envisages the participation of all municipalities interested in the capital of the company joint





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together in the form of Limited Liability Company. This option assumes complex legal and procedural steps to be taken in order to establish joint company. In this case, political constellation in all three municipalities may have direct influence on establishment and business performance of the company. However, this option is generally considered to be less feasible than option 2.

In the Option 2 separate Company for the management of the industrial park is not foreseen because the management shall be done directly by the Municipality of Vladicin Han.

However participation of Surdulica and Vranje will be ensured through establishment of inter/municipal Commission called *Inter-municipal Commission for Promotion of Industrial Park and Support to Investors*.

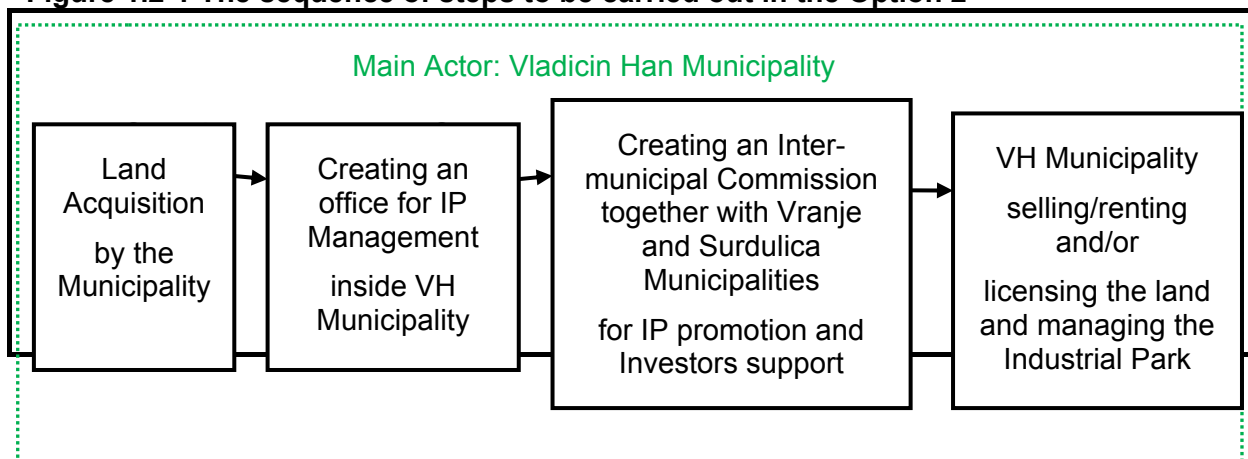
The members of the Commission will be appointed by the municipalities of Vladicin Han, Vranje, and Surdulica. The number of representatives per Municipality should be in accordance to their contributions defined in the agreement previously signed by all parties.

The establishments of the Commission as a separate inter/municipal body will provide the project with regional dimension and will contribute in obtaining adequate political support for the project. Alongside above mentioned, the Commission will have important tasks in promoting the industrial park to relevant national and international institutions (embassies, chambers of commerce, entrepreneurs associations / national and international.) in the way to successfully target potential investors to operate inside industrial park of Vladicin Han.

The Commission will also need to provide administrative, institutional, legal and any other kind of support to potential investors.

Participation of the municipalities of Vranje and Surdulica in the above mentioned Commission doesn't imply their direct involvement and responsibility over management of industrial park.

Figure 1.2-1 The sequence of steps to be carried out in the Option 2



As it can be seen from the table bellow, the greatest risk lies in the 1st position. If there is no land acquisition even this option will not be feasible.

Table 1.2-1 Risks and assumptions in the Option 2

No	ACTIONS	ASSUMPTIONS	RISKS
1	Land Acquisition by VH Municipality	Yes: project go ahead	If not applied : project is not feasible
2	Establishing of an office for IP Management inside VH Municipality	Yes: project go ahead	If not applied or delayed: project is stuck
3	Creating of an Inter-municipal. Commission for IP promotion and Investors support	Yes: project go ahead properly	If not applied or delayed: the project is hampered
4	VH Municipality sells, rents and/or licenses the land and manages the Industrial Park	Yes: Project successful	If not applied or delayed: the project is hampered





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1.3 Existing Situation for Resources and Infrastructure

The provision of industrial facilities is a complex issue which all nations have to face up to. It is usually the case that there is a national level analysis. In a market economy, the answers are not clear at all and depend on factors such as:

- Economic situation at various levels (local, regional, national, global) can be independent but yet interrelated and can thus impact on demand for industrial facilities.
- Complexity of legal and institutional framework which can be business hostile and discourage investors.
- Availability and cost of labor will attract certain sectors but other sectors are less affected.
- Availability of raw material will also attract some sectors and not others.
- Location of key sectors such as automobile which attract to the same location other support industries providing parts and sub-assemblies

1.3.1 Current Economic Situation

The current economic situation in Serbia reflects the generally negative economic situation prevalent in the United States and Europe since 2008. The attempts by the advanced economies to kickstart their economies through quantitative easing and other economic measures have initiated a modest recovery in 2010 which is reflected in the GDP growth for Serbia.

The modest GDP growth for 2010 and the good start in 2011 was very promising for Serbia but it is apparent in the advanced countries of Europe that economic situation has deteriorated compared to 2010 and is starting to show in the Serbian economy during 2011. The crisis has obviously not gone away and demand for manufactured goods have significantly slowed down. The impact of the current economic crisis in Europe on Serbia is still not known but a slow-down during 2012 can be expected.

1.3.2 Industrial Zones in the Spatial Plan for Serbia, 2010 -2020

The development of industrial facilities (zone, park, free zone, business park, science park etc) is entirely in the competence of local government as provided under the Law on Local Self Government. Although each municipality can exercise its prerogatives it is obvious that for economic reasons not all municipalities can build large scale sustainable industrial facilities. The purpose of the state including the municipality is to provide the appropriate framework and incentives whilst reducing the number of barriers. To this effect the Spatial Plan for Serbia as adopted by Parliament in November 2010 and a legal instrument as from 1st December 2010, proposes a strategy and plan for the spatial distribution and development of industry.

The first part of the strategy is being implemented by the government through many initiatives (fiscal, financial etc) prepared by different ministries and with the assistance of many international institutions such as the EU, USAID, SDC (Swiss agency for development and cooperation). However, many other institutional issues (such as setting up a business, construction permitting etc) are still very complex and as evidenced by the Global competitiveness indices and the comparative report prepared by the IFC on "Doing business in Serbia" seem to indicate that in some areas, Serbia is actually becoming more difficult with time.



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The construction of infrastructure is ongoing with support from EU and many financial institutions such as World Bank, EBRD, EIB.

The strategy and policy development for industry has been prepared and adopted by the Government in June 2011 and a summary is presented hereafter.

The last part being the strategy of territorial development of industrial zones and parks as well as brownfield has yet to be completed.

1.3.3 Strategy and Policy Development for Industry of Serbia from 2011 to 2020

The transition from a centrally managed industrial development to a market oriented development has not gone as smoothly as can be expected.

Structural changes in industry are slow and inefficient (as reported by European Bank for Reconstruction and Development – EBRD, 2001-2008), this apply in particular in privatization and restructuring of large economic systems and competitiveness policy. It is recognized that Serbian industry suffers from poor competitiveness as witnessed by the 95th position of Serbia in the 2011 World Economic Forum Global Competitiveness Index out of a total of 142. Although there are many positive indicators for competitiveness in Serbia, there are many areas which have to be addressed, in particular improved competition, protection of minority rights, labour- employer relations.

The degree of manufacturing within an economy is an indicator of industrialization within a nation and in Serbia manufacturing presently accounts for only about 16% of GDP growth, which is very low when compared to other transition economies

Another indicator of industrialization is the volume of export of commodities and manufactured goods from Serbia which is equivalent to about 21.5% of the GDP of Serbia or 45,600MUSD in 2010. The priority export industrial sectors appear to be:

- Agro industry and in particular corn production
- Manufacturing including machinery and some apparel

In order to address the issues identified above “**The Strategy and Policy development for industry of Serbia**” was adopted by the Serbian Government in June 2011. The new strategic approach involves the following:

1. Withdrawal from the old industries, manufacturing industries such as textile and leather processing and in particular raw material production including basic metals and chemical products which are nowadays mostly located in newly industrialized countries
2. Support activities which will encourage the production of sophisticated high technology products, especially in electronic components (semiconductors, electronic computers, communication equipment and devices) and the manufacture of chemical and pharmaceutical products (new materials, new drugs),
3. Develop service industries and in particular the creative arts

The strategy recognizes the abovementioned strength and weaknesses and has selected a certain number of targets as follows:

- Industrial production doubled in 2020 compared to the level from 2010,
- Increasing the productivity of labor in industry and construction by 2020 by at least 50%,
- Increasing the share of exports to 50% of GDP in 2020,
- Maintaining an average annual investment growth of 10%
- Increasing the average annual FDI inflow of 2.35 billion euros
- Increasing employment growth in manufacturing industry by 75,000 workers.



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1.3.4 European Context on Industrial Development

Manufacturing industry is the most important section of the EU economy (75% of all exports) since it drives growth and propels technological and innovation development. The three priorities of industrial development are:

- Modernize industrial structure through improved competition and sustainability
- Encouraging entrepreneurship by strengthening the market and reducing barriers
- Development of human resources with emphasis on innovation and R&D facilities

Through its new strategic framework for an integrated industrial policy adopted in December 2010, the EU is putting emphasis on some key sectors such as development of electronic, car and chemical industry, biotechnology, ICT, and space technology. The policy recognized the importance of value and supply chain management as well as the interaction between all sectors of industry within one state and across states highlighting the impact of globalization on the way business is carried out.

The EU has created special instruments which are intended to finance economic development. The current main instrument for member states of the EU is the European Regional Development Fund (ERDF). For potential candidate and candidate countries, the instrument for pre-accession (IPA) funds have been created to assist these countries to gain experience in accessing the funds which will be available as future member states. The disbursement of IPA funds have been modeled on the same objectives and principles adopted for the ERDF funds and follows the same financing agreement.

1.3.5 Analysis of Existing Production Factors

Road Network

The industrial zone “Jug” in Vladicin Han is settled between river Juzna Morava from the east and main railway corridor from the west side. At the very near distance to the railway track is the existing national road R-214 which connected Vladicin Han city and Vranje city. National road R-214 is intersected with two approaching roads which lead to the industrial zone “Jug”. The two accesses to the industrial zone “Jug” crossing the existing railway line at grade without any barrier. Such access can be dangerous for lorries going to and from the industrial zone.

Along east side of the industrial zone “Jug” passes part of the European road E-75 (national road M-1), Belgrade-Nis-Skoplje-Thessalonika. The E75 is part of the International Road network starting from Vardø, Norway in the Barents Sea and runs south through Finland, Poland, Czech Republic, Slovakia, Hungary, Serbia and Republic of Macedonia to Sitia, Greece on the island of Crete in the Mediterranean Sea. Access to the industrial zone “Jug” from the E-75 road is via national road R-214a and R-214.

Although the E75 is very close to the existing industrial zone, access is via the national road system which are not designed for modern industrial transport. The roads are relatively narrow and the geometric design will limit the access of large modern trucks which are normally used for long distance transport of raw material and finished goods.

Existing Railway Network

The existing railway line Belgrade – Skopje – Thessaloniki runs through the industrial zone. However, this railway system is the oldest in Serbia and although maintenance is average, the modernization and replacement programme has been lacking and maintenance costs are escalating. The Belgrade – Nis section was constructed in 1884 and extended to Vranje in





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1885 eventually connecting to the Skopje – Thessaloniki section completed 10 years earlier. Investment in railways carried on until the Second World War when most investments were directed to road transport.

There is a passenger as well as a fret station at the town of Vladicin Han and at the industrial zone Suva Morava and over a distance of about 1,200m the railway is a dual line with a station allowing loading and unloading of fret. The paper factory has a private line entering its premises.

The rolling stock is relatively old and unreliable. The average age of railway cars is over 30 years and the degree of availability, depending on the type, varies between 26% and 61%.

Existing water supply in the municipality of Vladicin Han

The existing water supply network provides water for some 17,000 inhabitants. Out of the total number of consumers, approximately 50% is located in the town, and 50% in villages.

For the purpose of continuous water supply of Vladicin Han, water is abstracted from two sources - from the reservoir on the Vlasina river and from the wells near the South Morava. At least for ten months a year water is abstracted from the reservoir, treated in the Polom drinking water treatment plant and transported via the main pipeline to the reservoir on the Kalimance hill, near the center of Vladicin Han. Overhaul of the hydroelectric power plant is conducted during July and August and therefore water must be pumped from wells. Thus abstracted water is chlorinated and then pushed to distribution network, and surplus water is accumulated in the reservoir. The hydroelectric power plant overhaul usually takes about a month, but there are indications that in the future it will take 2-4 months. During the regular summer overhaul of the hydroelectric power plant Vrla IV, usually in July and August, it is impossible to use water from the reservoir, and the raw water is abstracted from wells along the Lepenica, off the coast of the Juzna Morava. Raw water is pumped from a total of seven exploitation wells and one collection-exploitation well. The wells provide a total of about 50 l/s. Raw well water is collected in a collection-exploitation well, where chlorination with gas chlorine is done, and then disinfected water is pumped into the town's distribution network. Lepenica pumping operates in this way only during the HP overhaul.

Water supply and water source in the area of Suva Morava

The "Suva Morava" source is located on the left bank of the Juzna Morava River, at about 500m downstream from the mouth of the Lepenica river. The water generally meets the requirements of the Guidelines for drinking water quality, except for occasionally increased turbidity and increased concentration of manganese. Also, the Juzna Morava embankment is not so safe to ensure adequate sanitary protection of sources against the Juzna Morava flood waters. In terms of sanitary protection the source is currently in a very poor condition, because waste material (slag, ash and other waste) is deposited in the source area, as well as exploitation of gravel. The maximum amount of water to be expected from the Suva Morava source in the current and future state is about 60 l/s.

Immediately prior to including this source in water supply during hydroelectric power plant overhaul, the Juzna Morava damming is done and backwater is created in order to achieve the expected flow.

However, this source tends to reduce amount of water during operation period as it comes to depletion of aquifer, and the situation becomes worse as the overhaul period becomes longer each year.

In addition to the wells in the industrial area, there are wells that used to supply water to the industrial facilities "FOP-a", "Sloga", "Metal Industry Juzna Morava". The capacity and characteristics of these wells are not known.





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Existing wastewater collection in the municipality of Vladicin Han

Only 40% of the population discharge waste water into the sewage. Total length of the wastewater sewage in Vladicin Han is 6.5 km, and the storm sewer is 4.5 km long. Not all the facilities are connected to the sewerage system, which applies to large commercial complexes "Nektar" and "Delišes". In addition, there are difficulties in the functioning of certain parts of the existing sewerage network due to small diameter of the main sewer and secondary sewer network. There are no data on the total quantity and quality of wastewater discharged by the industry. There is no pre-treatment of wastewater. There are 4 discharge points of wastewater into the Juzna Morava. Wastewater is discharged without treatment.

Existing wastewater collection and treatment in the area of Suva Morava

There are no valid data on the quality and quantity of the waste water from industrial and other pollutants. The available measurements come from the period when the industry in Vladicin Han worked at full capacity and are not valid because at present the fate of all industrial companies is uncertain and it is unclear for what quantity and quality of waste water and in which period the treatment will be required.

The industrial zone contains several lakes, a channel and a pumping station. The lakes used to serve as lagoons to store waste water, and the pumping station used to pump waste water from lagoons into the Juzna Morava. Such waste water storing was used by the paper industry, which is no longer in operation.

Telecommunication

The telephone exchange is connected with Vranje and Nis by an optical cable. In the area of Vladicin Han all three mobile phone operators are represented (vip, Telenor, Telekom). Basic characteristics of telecommunications systems in the municipality are reflected in insufficient capacity of the transmission system, transmission system stability, large capacity and sufficient number of telephone exchanges in the municipality. The existing telephone exchanges on the municipal territory are digital (Alcatel) and with sufficient capacity.

Gas

There are no gas facilities and pipelines in the project area.

Electric power supply

Power supply on Vladicin Han IZ site is provided through 110kV National Grid, operated by PU Elektromreza Srbije. It supplies transformer substation TS 110/35/10kV Vladicin Han, operated by Power Distribution Company ED "Jugoistok" d.o.o. Niš, section "Elektro distribucija Vranje". The installed capacity of TS 110/35/10kV Vladicin Han is 2x31.5MVA; today it operates with one installed transformer unit rated 1x20MVA. Medium voltage (35kV) side of the transformer substation Vladicin Han is fed from the low voltage side of the 110/35kV transformer by 35kV cable 3xXHP48 1x240mm². Also, there is direct feeding 35kV line from hydropower plant HE Vrla 4, which justified usage of only one transformer unit 110/35kV, as outage of main transformer can be backed up by 35kV line supply. The overall installed capacity of TS 35/10kV in Vladicin Han transformer substation 2x8MVA, today it operates with two transformer units rated 4MVA. All planned IZ consumers will be supplied with electrical power from this 35/10kV substation, from 10kV side.

Based on estimated power demand, calculated in the plan of detailed regulation as:





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	Production Lines and Industrial Zone	Waste Water Treatment Facility	Back up Waterintake – pumping station	Public Lighting	TOTAL
Maximum Peak Load	6.200kW	200kW	500kW	50kW	With usage factor 0.8 $P_{max.simul.} = 5.560kW$

The technical solution for power supply provision on Vladicin Han Industrial zone is conceptualized, for the purpose of this Study as follows:

- the basic power supply unit is prefabricated concrete power substation 10/0.4kVA, 1000kVA capacity. Dimensions in the base are 5.5 x 4.5m.
- Standard transformer unit is chosen to be 630kVA
- Number of transformer substations is 15 – 13 for technological consumers (IZ industries, i.e. future tenants) and 2 for communal purposes (waste water and back up supply water treatment). However, as the phase approach is employed, in the first phase it will be built 9 TSSs (7 for industries – one per each block and 2 for communal purposes)
- Power is to be provided for public lighting system evenly distributed to the transformer substations. Preliminary design shows it is necessary to build roughly 145 public lights luminaries, each mounted on the 8m height pole. Power demand for public light is 35kW.
- All substations 10/0.4kV will be supplied from 35/10kV transformer substation Vladicin Han with planned capacity of 2x8MVA (today 2x4MVA).
- Cabling is to be realized with underground cables 3x(1x150mm²), type XHE 49A.
- Distribution network 10kV will be realized in ring topology, in a way that each set of transformers supplied from one outgoing feeding compartment in the 10kV substation with 10kV cable which goes to the first transformer substation on the “entry / exit” principle and continues to the next substation. From the last substation exit cable will be run back to the transformer substation 35/10kV to the different feeder compartment. That return cable will be, even separately laid down in the cable row on the other side of the street, increasing the system resistance to the mechanical damaging.
- Maximum number of transformer substations 10/0.4kV per one cable is limited on four per required cable.
- For underground cabling it should be envisaged all necessary cable canalization, which consists of proper number of protective PVC or PHE pipes on the road crossing and other obstacles and necessary evenly distributed number of cable manholes, purposed for providing places for connection of the eventual additional substations. In addition, cable manholes should be planned on both ends of the cable protection pipes.

Suggested concept, together with proper high voltage 110kV/35kV supply system (which will soon be even improved with 400kV network interconnection with Macedonia / Greece and additional 400/110kV transformations) will provide reliable and sufficient power supply for all planned industries. Due to two direction supply on TS 110/35/10kV, maximum outage can be estimated at 20 – 30 min/year. In addition, the direct connection with hydropower plant Vrla 4, realized on 35kV level, can provide additional possibility of “island” supply, which is not often encountered in the similar developments. Power Capacity Reserve is enough for full site development, and practically can accommodate high energy consumption industries which may want to populate IZ.

Human Resources

The statistics shows that the numbers of people in employment is about 55% of the labour pool. It is also clear that unemployment is not linked to a lack of skill since only about half of the unemployed is unskilled. There is also no apparent gender discrimination since about half of the unemployed are women. Most of the employment in the region is related to





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manufacturing. The labor pool available in the three municipalities can be summarized in the following table.

Table 1.3-1 Labor Pool available in Vladicin Han and the neighbouring municipalities in 2008

	Pčinja	Project Area	Vladičin Han	Vranje City	Surdulica
Labour pool	61,680	39,049	7,428	25,477	6,144
Employed	33,816	24,596	3,362	18,125	3,109
Unemployed	27,864	14,453	4,066	7,352	3,035
Unskilled Unemployed	14,139	5,788	2,033	2,673	1,082
Women Unemployed	15,201	8,234	2,383	4,213	1,638

Natural Resources

Another important factor of production is raw material and it used to be the case that industries are located close to the source of raw material. This is still the case for primary processing where raw material is converted to semi-processed material which can be transported for secondary processing. However with the advent of good transportation systems the location of factories close to factors of production has become less important. What is therefore important for modern industries is to secure a reliable supply chain of all the subcomponents required to complete the manufactured goods.

The region around Vladicin Han is quite rich in primary resources such as agriculture and forestry with the result that in Vladicin Han there is a predominance of enterprises serving those two sectors.

Population relying on agriculture for a living has been reducing and between 1991 and 2002 the number of active agricultural households reduced from 816,200 to 454,732, a reduction of 44%. This trend has continued resulting in a serious rural depopulation of the region.

Although agro industry is one of the pillars of the Serbian economy this rural depopulation will have a serious consequence on the economy. This negative trend in the region needs to be reversed if the agro industry is to have a future.

One of the natural resource and factor of production is land and Municipalities have the responsibility to provide facilities i.e. land where industries can operate. The existing industries in Vladicin Han are concentrated in the town centre and in the industrial zone to the south. There are about 7 large enterprises in the town centre and located on either side of the Morava river. The existence of industries within the centre of the town is not ideal and their presence should be reviewed. However, given the current economic climate and the financial position of most of these enterprises this situation has to be accepted and managed during the short term. The rest of the larger companies, 5 enterprises are located in the industrial zone "Jug", location Suva Morava, occupying most of the developed site.

Vranje is an important industrial town only 20km to the south of Vladicin Han and is the location for many large companies which operates in the region as well as internationally. The town is therefore an important competitor for the location of any new industrial facilities. However, there is also a lack of quality greenfield industrial area in Vranje just as in Vladicin Han and the city is considering the creation of new industrial park. However, the town is surrounded by steep hills which are not suitable for industrial development.

Surdulica is a small municipality similar to Vladicin Han and its main centre is only about 10km to the east of Vladicin Han. The town is therefore also an important competitor for the location of any new industrial facilities. Being mostly mountainous, much of the land available is not suitable for industrial development.





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1.3.6 Main Findings

The demand for industrial land cannot at present be satisfied by the existing supply situation which includes the following constraints;

- Brownfields which are blocked by failed privatization
- Poor quality of many brownfield premises (poor working condition, poor access etc)
- Lack of quality serviced greenfield sites
- Lack of suitable land in Vranje and Surdulica

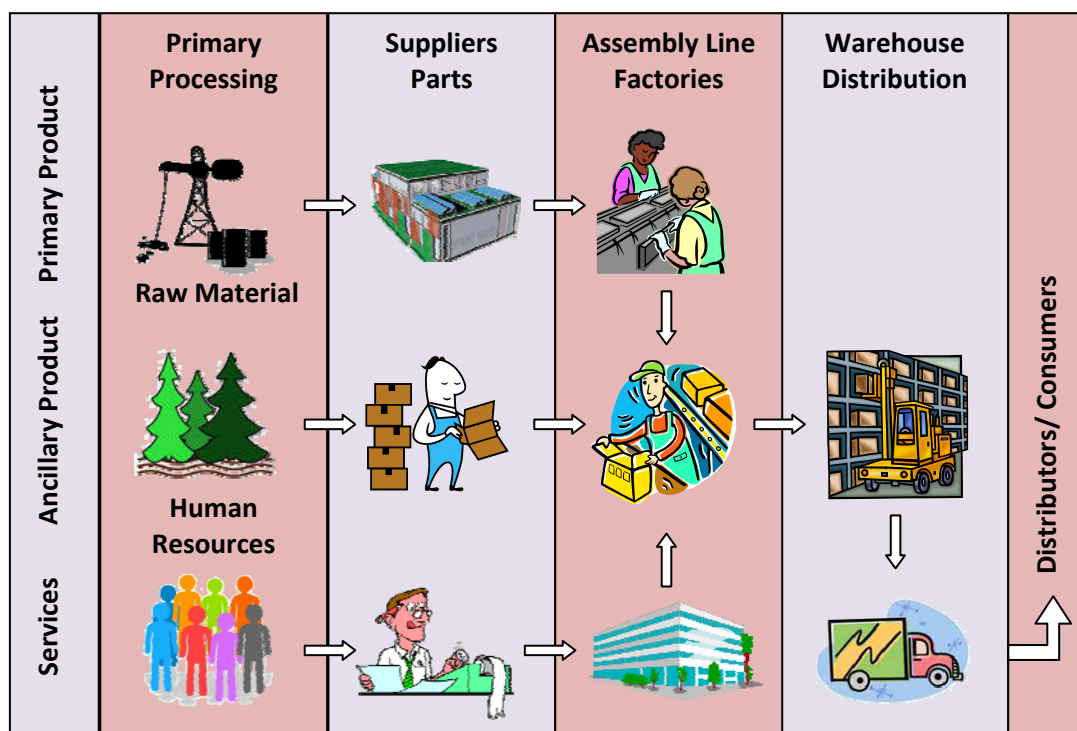
1.4 Market Analysis

The pace of economic development in certain regions and cities is dependent on the economic structure of the region or city which needs to continuously adapt to the demand of investors and the economic outlook.

An understanding of these changes and how these changes impact on the provision of land for industrial development whilst taking advantage of spatial economic dynamics is needed. The necessary analysis is carried out at various geographical level, starting from a European perspective and down to the level of Vladicin Han.

1.4.1 Supply Chain Evaluation

To understand the necessity for industrial land, it is important to understand the efficient production and distribution chains which are adopted by businesses in the different industrial sectors and segments.



The other factors which are important for any potential investor and which have to be considered by any municipality offering industrial facilities are as follows:





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- Distance and time to market
- Type and size of Industrial facilities

Serbia is particularly well located for getting goods to the West European market within 3 - 4 days compared to 4 - 5 weeks from the Far East.

Industrial facilities can be categorized into five main types as follows:

- Medium to large factories for processing raw materials into semi-finished goods requiring specific design and arrangement
- Medium to large factories for large products like cars or machine tools
- Small to medium factories for production of small sub-assemblies
- Medium to large distribution facilities requiring specific layout
- Medium to large facilities for back office operations

The economic and employment structure of the Serbian economy shows that about 50% of people are employed in the services sector and generate more than 60% of the economic production whilst about 25% of employed people are in the manufacturing sector and contribute about 20% to the national income. Agriculture on the other hand employs more than 25% of the working population but only contributes about 15% of GDP.

The major exports for Serbia are metal products, agricultural products, rubber tyres, clothing and pharmaceutical.

1.4.2 Food Industry

The region around Vladicin Han continues to have a high potential for agriculture with a few important companies already operating in the region. Some of these companies dealing with fruit processing are looking to increase their production. Nectar DOO, one of the largest fruit juice producers in the Balkans is already established in Vladicin Han. Coca-Cola HBC Serbia, one of the largest non-alcoholic drinks producer in Serbia bottles a natural spring water called Rosa, which originates from a natural spring located at 1.550 m elevation in the pristine natural landscape of Vlasina within the neighboring municipality of Surdulica. Both of these companies serve the local market and export a large proportion of their production.

1.4.3 Wood Sector

The Wood sector is attracting attention from international companies with Ikea having invested 1.5M€ to improve the production line of Simpo in Vranje and the company has indicated a willingness to invest in additional production facilities subject to obtaining the correct conditions and location.

The production capacity of the forests of Pčinja is about only about 220,000m³. Such a production will barely justify the installation of a primary processing plant. On the other hand much of the broadleaved timber can be used directly with the minimal processing in traditionally made timber furniture. These enterprises tend to be small and do not require large premises. The existing wood industry company Sloga is under bankruptcy proceedings at present and cannot be saved most probably because the company furniture product line is old as is the equipment.

1.4.4 Manufacturing Sector

Most industries do not manufacture from raw materials all the components of a consumer goods for reasons of costs and usually it buys in standard industrial components or outsource to specialist factories the manufacture of special components to its own specifications (original equipment manufacturer). It is expected that this market segment will





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continue to develop as producers continue to seek efficiencies in the supply chain. The proximity of Serbia to the main European manufacturing bases in Germany will improve the likelihood that Serbia will increase its market share as consumer goods manufacturers refine their supply chain.

An important segment of the manufacturing sector is home appliances which include leading and prominent national consumer market products. The largest white goods enterprise in Serbia is the Gorenje group with factories in Stara Pazova producing thermal and heating appliances whilst the Valjevo factory have been manufacturing refrigerators, freezers and cooling equipment since 2006 on a greenfield site. The company is acquiring the brownfield site of ceramic factory, Porcelan in Zaječar with the intention of converting existing buildings into production lines for washing machines and dryers. The company also has plans to extend its Stara Pazova factory. Most of the production of Gorenje are exported. In the region of Vladicin Han a Serbian enterprise (Alphapham) specializing in manufacturing of gas cookers is considering expanding its product line with electrical cookers. The proposed expansion of production by those two companies reflect the buoyant nature of this segment of manufactured goods despite the current depressed growth in the European market for home appliances. The increased production in Serbia provides a good indication of the competitiveness of Serbian labor cost in relation to Asian companies.

1.4.5 Clothing and Footwear Sector

The region has a history of production in the clothing and shoe industry with factories located in most cities and towns such as Nis, Leskovac, Vranje and Vladicin Han, Although many smaller factories have closed following introduction of the market economy, there are still many quite successful companies (Jumko) in the sector. New companies (Yenice jeans, Benetton) are entering both the clothing and the footwear market.

1.4.6 Electronic Industry

The electronics market in Serbia is also quite buoyant with new investors seeking facilities closer to the European market or benefits from the low labour cost base. In 2010, the Embassy Group of India announced the opening of an IT park with 2.5ha of prebuilt in Indijja to attract Indian and other technology companies seeking entry to the European market. In 2011, the German company "Muehlbauer Holding AG & Co.. KGaA" plans to open a technology centre in Stara Pazova for the development of advanced wireless network devices. The Mayor of Vranje has signed a memorandum of understanding with a Chinese company for the installation of photovoltaic panels to generate electricity within the territory of the municipality.

1.4.7 Services and Construction

Services and construction are important sectors which are critical to an industrial nation. Services are required to support the production activities and construction sector is essential to implement the industrial infrastructure.

The Organization for Economic Cooperation and Development, OECD has segmented the service industry as follows:

- Distribution services (commerce, transport, information)
- Business services (financial services, leasing, design, engineering)
- Personal services (hospitality, culture, sport, households)
- Social services (state, health, education, religion)





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Both the construction industry and all the segments of the services industry requires land to execute their activities, Some of the services can and need to be carried out within city centers but others can be located in industrial or business parks.

The construction industry is already represented in Vladicin Han with the presence of 2 factories, one for making blocks and the other one producing concrete components.

Given the location, it is not expected that large primary processors will look for premises in the region. The existing smaller enterprises in Vladicin Han and Vranje may increase their production when construction activities pick up. Other business in the supply chain such as specialists merchants and plant hire are also potential tenants.

All business requires administrative support and other services such as marketing and advertising, design, engineering, consulting, legal services, human resources and staffing, leasing, security and facility management. For many companies these activities are carried out within the company but for the larger companies, the business services industry can provide an efficient alternative. For Vladicin Han, although large corporation are unlikely to set up their offices in the industrial park since the area around the southern industrial zone is already of an industrial nature. However, it is important not to exclude the possibility that business may wish to establish small offices in the industrial park.

1.4.8 Foreign Direct Investment

The analysis of the industrial sectors highlighted the global significance of most industrial development and investments therefore a good indicator of the demand for industrial land is the level of foreign direct investment. In recent years, the service sectors have shown to be the most attractive to international investors with banking and insurance providing the largest FDI inflow followed by manufacturing industries. These indicators confirms the importance of manufacturing in the development of the Serbian economy as already identified in the earlier part of this section.

The creation of free zone will serve to attract foreign direct investments to benefit from convenient location and low labor cost base.

1.4.9 Supply Side Factors

The demand for industrial premises collapsed during 2009 in Europe with the rapid decline in manufacturing output and the decrease in consumption as consumers reduce their spending to counteract the economic downturn. Although the market in Eastern and Central Europe remained relatively flat during 2010, it is expected that the positive outlook in Western Europe will gradually translate into better confidence in the region and an improved share of the market. Of course the stability of the market will also depend on resolution of the ongoing turmoil in financial sector in Greece or Portugal and generally across the Europe.

However, investors are mainly interested in established good quality property with long term potential, low quality properties were not attracting any attention. Most new build are completed to client's specifications and there has been very little speculative ready built units except for logistic centers. The demand for third party logistics is expected to increase as the recovery progresses and companies seeks cost reduction in their supply chain.

The spatial organization of Serbia's industry is a reflection of the previous development policy of distributing industry as widely as possible over the whole territory. This approach meant that there is no coherent national prioritization plan which can be used to locate industrial zone. This issue is partly resolved with the adoption of the National Strategy for industrial development. With the transition from a centrally organized economy to a market economy and the general trend for the transfer of manufacturing facilities towards Asia has resulted in the reduction in the number of the dispersed manufacturing facilities and the





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polarization of surviving industries to the larger and more accessible centers of population such as Belgrade, Novi Sad and Nis. This process has resulted in the relocation of industries to more adapted production locations and accelerating the depopulation of rural areas. The polarization of industries has impacted on land prices and the result is evident in the analysis of underlying land prices for a serviced plot being asked in Serbia is as provided in the following table.

Table 1.4-1 Land Market Estimate in Serbia

Municipality	Lowest Range of Land prices €/m ²	Average Land prices €/m ²	Highest Range of Land prices €/m ²
Belgrade		30	
Subotica		10	
Sombor		9.5	
Indija	11		30
Loznica		5	
Šabac	6.6		7.83
Lajkovac		5	
Batočina		7	
Kragujevac city	60		100
Kragujevac city		1 (with employment conditions)	
Jagodina		Free with employment conditions	
Leskovac	4.5		5.8

Source: MISP 2011 Excludes land development fee

The analysis shows a wide ranging difference of prices for industrial land depending on location. The prime areas around Belgrade are attracting quite high prices of 30€/m² whilst in the Vojvodina region prices range from 8 to 10€/m² and in the south of Serbia prices are of the order of 5€/m². However with the recent installation of Fiat in Kragulevac, land prices in the region have displayed abnormal overheating which the Municipality is trying to contain by creation of new industrial zone.

The earlier part of this section concluded with positive indicators for the productive capacity of the Serbian economy and demand for industrial land. However, it is now generally accepted by most governments that in order to achieve the optimal level of demand and supply, improved supply-side policies are necessary for sustained and balanced economic development.

Supply side policies are designed to serve two broad objectives:

- Improving the labour market
- Encouraging competition and innovation in the product market

In Serbia where unemployment is high, increasing employment is of high priority and therefore the State is proposing different programmes which are designed to improve the labour situation. The areas in which incentives are provided can be grouped in four programmes as follows;

- Incentives for investments of special importance in manufacturing
- Foreign direct investment incentives
- National Employment Service Incentives
- Municipal incentives

The programme for investments of special importance provide Government grants for very large investments in sectors of special importance to the Serbian economy. This programme has been used for instance in attracting Fiat to take over the Zastava automobile factory in Kragujevac.

State Grants are also provided to attract general investments in some key sectors such as manufacturing, tourism and, export oriented investments.





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The Employment Subsidies Programme is designed to encourage creation of employment in the disadvantaged regions of Serbia as defined in the Law on Regional Development. The programme is a grant scheme where creation of employment in the most disadvantaged regions are for obvious reasons provided with higher grants.

There is also competition between municipalities to create jobs within their respective municipalities and many municipalities are also providing job related incentives to encourage investors to locate on their territory.

One of the pillar of the European Union since its creation by the Treaty of Rome is increased competitiveness. For this reason the importance of supply-side policies in product markets has to be highlighted since they are intended to increase competition and efficiency.

Serbia like every other country in the world is competing to attract investors and it has designed a fiscal package which can benefit investors in providing competitive products for the international market. In mature markets, competition will gradually become stifled as the major players gain market share and start to dominate the market. In order to avoid this situation the trend is to encourage new entrants in the different existing product markets and to create new product markets. This approach can also be extrapolated to states and municipalities who wish to break into any particular market dominated by companies from developed nations. The types of measures which could be offered are wide ranging and can be grouped as follows;

- Fiscal incentives
- Improved business environment
- Support to SME
- Creation of free zones

Fiscal measures are intended to provide support to enterprises through a package of tax relief to encourage certain activities. Serbia like every other country in the world is competing to attract investors and it has designed a fiscal package which can benefit investors in providing competitive products for the international market.

Although the fiscal environment may encourage investors, entrepreneurship requires an business friendly environment to flourish and can be easily stifled by many factors such as;

- Ambiguous laws and regulations
- Overtly complex and lengthy procedures

Ambiguous laws and regulations as well as complex and lengthy procedures may lead to petty corruption in order to simplify and accelerate the process. Corruption obviously has a direct impact on fair competition necessary for development of the economy. The International Finance Corporation, a World Bank company regularly prepares benchmarks on the procedures for carrying out a certain number of business activities in all countries of the world. The benchmarking exercise shows that Serbia has still to do quite a lot of improvement to provide a business friendly environment to start a business and to carry out the normal activities of doing business.

This evaluation highlights the following facts:

- The creation of one-stop shop in FYR Macedonia simplified the procedures for setting up a business. Serbia is one of the worst country in the region except for Kosovo in the ease of starting a business.
- The costs of starting a business in the 22 cities in 7 countries , although very different in monetary term, are very similar in percentage of the total cost of setting up a business.
- In general, doing business in Belgrade is more difficult than in the other 4 Serbian cities evaluated.
- The cost of obtaining a building permit is highest in Serbia with an average of 76% of the overall cost or the equivalent of US\$ 83,278 of the whole process. However the





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average cost is still less than the amount necessary in Podgorica where it costs the equivalent of US\$ 100,221.

- Serbia is the most difficult country to obtain a building permit and within Serbia the situation is worst in Belgrade compared to the other 4 cities.

The World Bank report on “Doing Business in South East Europe” of 2011 proposed the following institutional reforms:

- Consolidate government approvals at a single access point (one stop shop)
- Simplify registrations with municipal authorities
- Introduce a single tax and business identification number
- Introduce modern building codes
- Introduce risk based approvals of building permits

The position of Serbia in the Doing Business benchmarking exercise shows that there are many areas which require attention and these weaknesses can easily put off potential investors even though they were attracted by the FDI, employment and fiscal incentives.

The necessity to ensure that the Laws and regulation are simplified and clarified, is evident and this study is not intended to identify all the weaknesses or to propose amendments. This exercise has to be properly carried out by a proper survey of businesses in conjunction with the relevant technical experts and experienced jurists.

Supply side policies to encourage business start ups and entrepreneurship include:

- Loan guarantees for new businesses;
- Advisory services for new firms
- Business incubators

The National strategy on industrial development is putting a strong emphasis on export to boost the economy and has set an objective of increasing the share of exports to 50% of GDP in 2020 from the current 31% as can be seen in the following figure which shows the export trend in Serbia compared to large exporting countries. As part of this export oriented drive the Government of Serbia has adopted in 2011 a strategy to create and promote free zones.

Free trade zones are areas fully enclosed (by a fence or wall, with a controlled entry and exit), within which are granted certain economic and financial incentives in order to facilitate trading, such as:

- Exemption from import duties and taxes, and other trade restrictions and formalities;
- Tax exemption, such as VAT, excise taxes, property taxes, income taxes, etc;
- Exemption from regulation, which relates to minimum wages, social payments, working conditions, etc;

1.5 Long Term Development Plan

All the issues which investors consider in selecting a location for their projects have been evaluated earlier and it has been demonstrated that Vladicin Han has the necessary advantages to attract potential investors.

This section therefore considers the long term development of industrial zones, parks and free zones in Vladicin Han and is effectively a strategic development plan for industrial development in the municipality and the region mentioned as a requirement within the Spatial Plan for Serbia 2010 – 2020.

1.5.1 Demand Factors

Demand for industrial land is determined and influenced by many factors such as.

- Economic situation
- Fiscal and other incentives





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- Quality of location
- Availability and cost of finance
- Cost of land
- Ease of doing business

The European Economic and Monetary Affairs Commission has recently revised downward its 2012 growth forecast in the Euro zone from 1.8% to 0.5%.

This is likely to have a direct impact on Serbia with potential investors less likely to embark on any expansion plan in the short term.

Many companies in the Pcinja district have expressed the intention to expand production but are still seeking appropriate land to initiate the expansion plan. Although the latent demand exists, the present economic uncertainties are causing investors to rethink and delay their expansion plan.

As a result the demand in the short term is expected to be restrained but expected to recover in the medium to long term.

The Municipality of Vladicin Han has received enquiries on availability of land from the potential investors as described earlier.

Although Vladicin Han is not close to large metropolitan conurbations, the location of Vladicin Han on E75 road linking Greece to the main centres of Western Europe is beneficial for imports of raw materials and exports. Improvements of the E75 road which is part of the transport Corridor X will make Vladicin Han even more integrated into the European transport network and increase the demand.

The proximity of Vranje with a population of about 90,000 ensures a relatively large pool of potential labour despite the limited population of about 20,000 in Vladicin Han.

The convenient location of Vladicin Han will increase the demand in the medium term and continue in the long term.

The short term forecast on availability and cost of finance is pretty negative as bankers are becoming very pessimistic and very stringent on the quality of their investments. This pessimism will take a long time to disappear and the optimism of the recent years is not expected to return fully in the medium to long term.

The report on Doing business in Serbia highlighted many areas which require improvements in order to increase entrepreneurship in Serbia. These hindrances are not expected to disappear in the short term but it is expected that as Serbia moves forward in its transition to membership of the European Union, many of these hindrances will disappear as Serbian Laws and regulations become aligned with those of the EU.

A summary of the trends in the demand for industrial land for each of the above demand factors is presented in the following figure.

Figure 1.5-1 Summary of Demand Side Trends

Forecasts	Economic Outlook	Location	Availability /Cost - Finance	Fiscal/ Other Incentives	Cost of Land	Doing Business
Short Term 1-3 years	↓	↑	↓	↑	↑	↓
Medium Term 1-3 years	↔	↑	↔	↑	↔	↔
Short Term 1-3 years	↑	↑	↔	↔	↔	↑

1.5.2 Job Creation

The structure of new jobs in Vladicin Han can be assumed to be the same as that at national level as presented in the strategy and policies for industrial development and as a result the percentage of jobs can be split in the following proportion.

- Manufacturing 21%
- Construction 24%





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- Wholesale and Retail 42%
- Transport and Storage 13%

The projection shows the highest growth in jobs will be in the environment with recycling, in the automotive and transport related goods. It is unlikely that Vladicin Han will benefit from the clustering effect of the automobile industry because of its location in relation to Kragulevac.

The next group of industry segments with important job projections are in the electrical and pharmaceutical industries. The largest Serbian manufacturer Hemofarm (large holding by Glaxo Smith Kline) is already installed in Vrsac and the number two Zdravlje-Actavis is locating in Leskovac, It is therefore unlikely that Vladicin Han, which does not have a history of pharmaceutical industry will attract a pharmaceutical company.

The electrical industry is more interesting for the region where there is already an electrical goods manufacturer, Alfaplam of Vranje who is already considering the acquisition of about 20 hectares of land for starting production of electrical cookers, a strategic investment in order to diversify its product line.

The clothing and leather segment is not the focus of the strategy on industrial development but nevertheless still expected to provide about 10% of all the jobs in Serbia. It can be expected that as the more technology jobs are created in the more affluent northern part of the country the more labour intensive jobs will become available for the southern part of Serbia.

The same can be said of the furniture industry which is expected to provide 8% of all jobs in Serbia by 2020. The Pcinja region was an important furniture manufacturing area but the present bankrupt status of many existing privatized furniture enterprises is cause for concern. However, there are new startup enterprises in this segment which provide a positive outlook. Although food industry was important in the region the new job projection in this sector is not promising considering the agricultural production of the region is not very important.

The Serbia Industrial Development Strategy has targeted the creation of 500,000 new jobs in the whole country by 2020 or the equivalent of 14 new jobs per inhabitant. With the current population within the project area of about 130,000, there is a need to create about 9,400 new jobs by 2020 to be in agreement with the strategy. This will leave about 4,600 or about 12% of the workforce which is acceptable long term unemployed.

Table 1.5-1 Job Creation Forecasts and Structure

Sector	Structure	New Jobs Pessimistic Scenario	New Jobs Base Scenario	New Jobs Optimistic Scenario
Manufacturing	21%	1,930	2,100	2,270
Construction	24%	2,210	2,400	2,590
Wholesale and Retail	42%	3,860	4,200	4,540
Transport and Storage	13%	1,200	1,300	1,400
Total Jobs	100%	9,200	10,000	10,800
Structural Unemployment		4,800 (12%)	4,000 (10%)	3,200 (8%)

The above forecasts are for all jobs which will have to be created and not all of the jobs will be created in the proposed industrial zone. Most of the construction jobs (90%) will be on construction sites with 10% on the industrial zone and for the wholesale and retail segment it can be expected that about 30% of the jobs could be in the industrial zone.

1.5.3 Land Requirements Forecast

Based on the Strategy and Policy Development of Industries in Serbia the structure of the jobs to be created in Vladicin Han was estimated earlier and the mix of industries which can achieve the jobs target and the land requirements, excluding areas which investors may wish





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to reserve for future extension, have been calculated. The land requirement for the base scenario is presented on the following table.

Table 1.5-2 Land Requirements for Base Scenario between 2010 and 2020

Sectors	Segments	Structure %	New Jobs in Project Area	% in Industrial Zone	Jobs in Industrial Zone	Jobs by Segment	Jobs/ha	Land Required ha
Manufacturing		21%	2,110	100%	2,100			
	Wood & furniture					110	50	3
	Components Manufacturing					500	100	5
	Home Appliances					500	100	5
	Clothing					500	1,000	1
	Electronics					500	300	2
Construction		24%	2,400	10%	240		30	8
Wholesale & Retail		42%	4,200	30%	1,260		200	7
Logistics		13%	1,320	100%	1,300		100	13
Total		100%	10,000		4,900			44

It can be observed that the land requirement is between 40 and 50 hectares depending on the scenario and for the mix of industries expected in the industrial zone and the average jobs created per hectare is 110 jobs.

Demand can also be complicated by speculation, i.e. investors who buy land for the purpose of selling later at a higher price and the long term planning needs of the investor who buy land for possible extension of the production facility at a later stage. These two demand factors cannot be estimated and their impact will only be estimated through different demand and jobs creation scenarios. Obviously if land is sold and factories are not built the number of jobs per hectare of land sold will be lower.

1.5.4 Land Supply Factors

Demand on its own does not lead to successful completion of any transaction, there has to be an equivalent supply to satisfy the demand. This section will look at the supply side objectives and constraints.

There are a number of important industries located in various parts of the town centre which developed on an ad hoc basis. The present approach to urban development is to propose zoning regulations to control such ad hoc development and protect the living environment of the citizens.

It is expected that future industrial development within the town centre will be restricted to small business related enterprises. In the longer term the relocation of the existing factories to a regulated industrial zone can be considered. No new industry should therefore be allowed in the town centre.

The Spatial Plan for Vladicin Han has already identified three new areas for industrial development and a regulation plan has been prepared for the extension of the existing industrial zone about 4 km to the south of the town.

However, the area is only partly developed to service the existing industries which were mostly State enterprises which were privatized or is still in the process of privatization. Many of the privatized companies were not successful for many different reasons but the results are similar in that the land occupied by these enterprises were blocked for years. It has





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therefore become urgent to provide additional green field site to satisfy the demand which has been building over the years.

The table below provides a summary of the availability of land in Vladicin Han as identified in the Spatial Plan and the level of readiness for occupation.

Table 1.5-3 Land Availability for Industrial Zones in Vladicin Han in Hectares

Location	ha	Land status
A - Suva Morava	145	Detailed regulation in place; land acquisition plan in place; land not procured
B - Stubal	106	Detailed regulation in place and land acquisition plan not in place; land not procured
C - Priboj	108	Detailed regulation in place and land acquisition plan not in place; land not procured

1.5.5 Development Scenarios

Demand analysis shows that there is a need for about 50 hectares of land to satisfy the projected creation of about 5,000 new jobs by 2020 and a need for an extra 50 hectares to ensure flexible development and extension.

The existing regulation plan which covers about 139 hectares of brownfield and greenfield development shows that for greenfield development about 47 hectares net is available for industrial plots. An additional 47 ha of brownfield factories can also be available but the uptake will depend on investor's assessment.

The area covered by the existing regulation plan is not sufficient to cover the long term needs for industrial land of 100 hectares by 2020 and therefore additional land has to be identified, acquisition of which has to start immediately at the same time as acquisition of the land covered by the regulation plan.

Three concepts have been developed to satisfy the potential demand for 2020 and beyond:

Concept 1 – location A - Suva Morava

Concept 2 – locations A - Suva Morava and B - Stubal

Concept 3 – locations A - Suva Morava, B - Stubal and C - Priboj

For all three concepts were made analysis of existing and required infrastructure in order to meet the demand of future customers after completion of phase 1 and phase 2. Details of infrastructure improvements are presented into chapter 8.7 *Design criteria and proposed infrastructure development*. All three concepts are proposed according to the Spatial plan for the municipality Vladicin Han and Detailed regulation plan. As the objective is to mobilize as much as available land, concepts have to present locations where industrial zone could be developed. As Spatial plan contains three locations for industrial development, Suva Morava, Stubal and Priboj and Detailed regulation plan is adopted for the location Suva Morava, first phase of zone development in all three concepts is the same location - Suva Morava and difference between the concepts is the location and size of the second phase.

At present, brownfield occupies 47 ha on the left bank of the river Juzna Morava. On the left bank is the land owned by Republic of Serbia with water source Suva Morava and for flood protection dikes is 34 ha.

Greenfield activated in two phases results in infrastructure improvement and construction in two phases. Access from the zone to the Corridor X is the same for the phase 1 as well as for the phase 2 and has to be constructed into phase 1. Other infrastructure, such as water supply, wastewater collection and treatment, electro power supply and telecommunication has to be constructed in two phases. Details of all infrastructure improvements are presented into chapter 8.7 *Design criteria and proposed infrastructure development*.

According to the concept I, industrial development is planned in one location A - Suva Morava, on the both banks of the river Juzna Morava. Greenfield could be developed on 64 ha on the left bank of the river Juzna Morava and 127 ha on the right bank of the river Juzna Morava. Land for the industrial development in the phase 1 is bounded by the railway





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corridor and regional road and rivers Lepenica and Juzna Morava. Land in the phase 2 is between river Juzna Morava and Corridor X.

Concept II proposes industrial development in two locations - Suva Morava and Stubal, on the left bank of the river Juzna Morava. Greenfield could be developed in location A - Suva Morava on 64 ha on the left bank and 47 ha on the right bank of the river Juzna Morava and 106 ha in location B - Stubal. Land for the industrial development in the phase 1 is in location A - Suva Morava, on the left bank of the river Juzna Morava, bounded by the railway corridor and regional road and rivers Lepenica and Juzna Morava. Land in the phase 2 is in location A - Suva Morava, on the right bank of the river Juzna Morava and in the location B - Stubal.

Concept III proposes industrial development in three locations - Suva Morava, Stubal and Priboj, on the left bank of the river Juzna Morava. Greenfield could be developed on 64 ha in location A - Suva Morava, 106 ha in location B - Stubal and 108 ha in location C - Priboj .

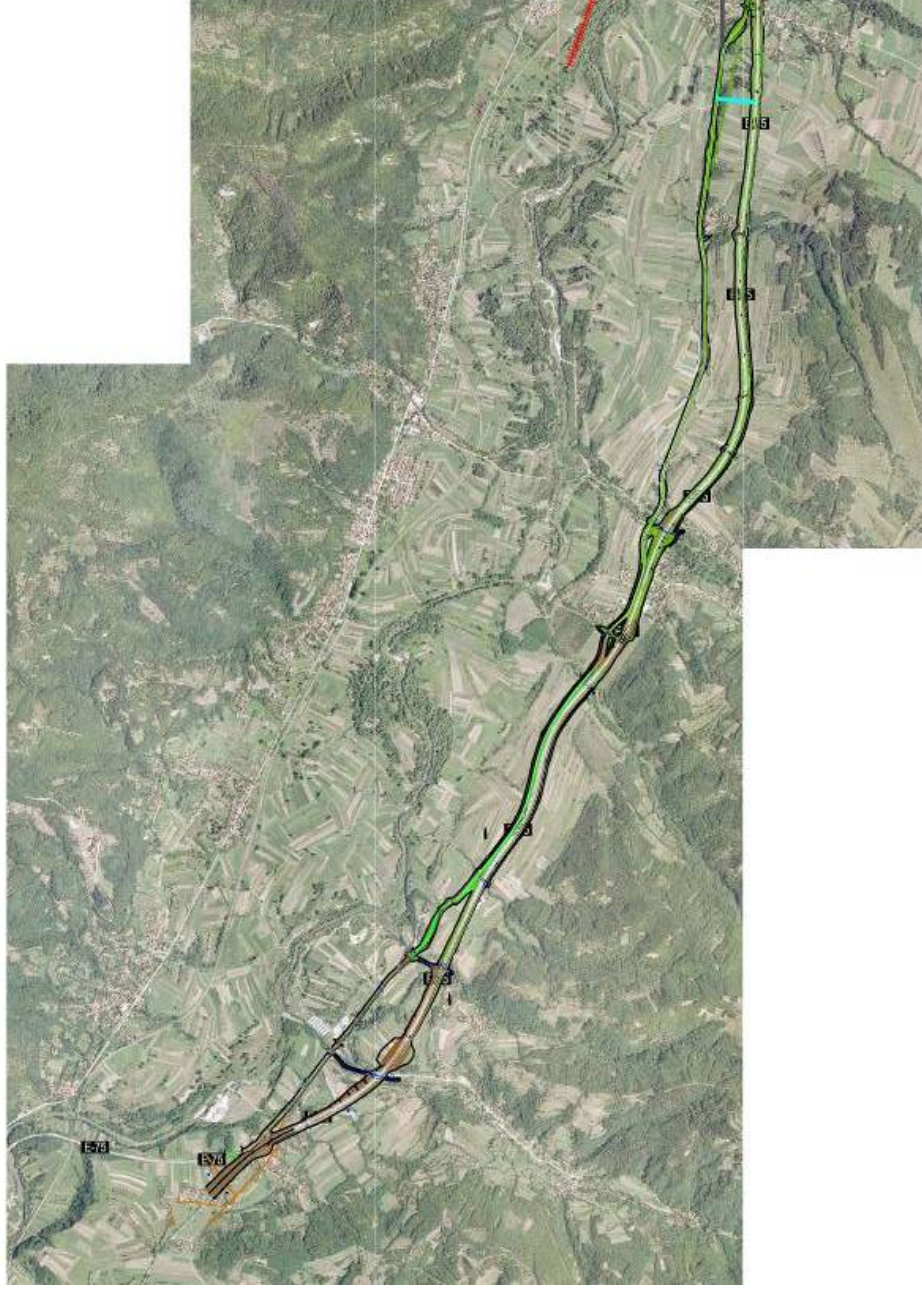
Land for the industrial development in the phase 1 is in location A - Suva Morava, bounded by the railway corridor and regional road and rivers Lepenica and Juzna Morava. Land in the phase 2 is in location B - Stubal and C - Priboj.

Drawings with concepts I, II and III, as well as land acquisition plan are presented bellow.



Industrial zone "Jug" in Vladicin Han

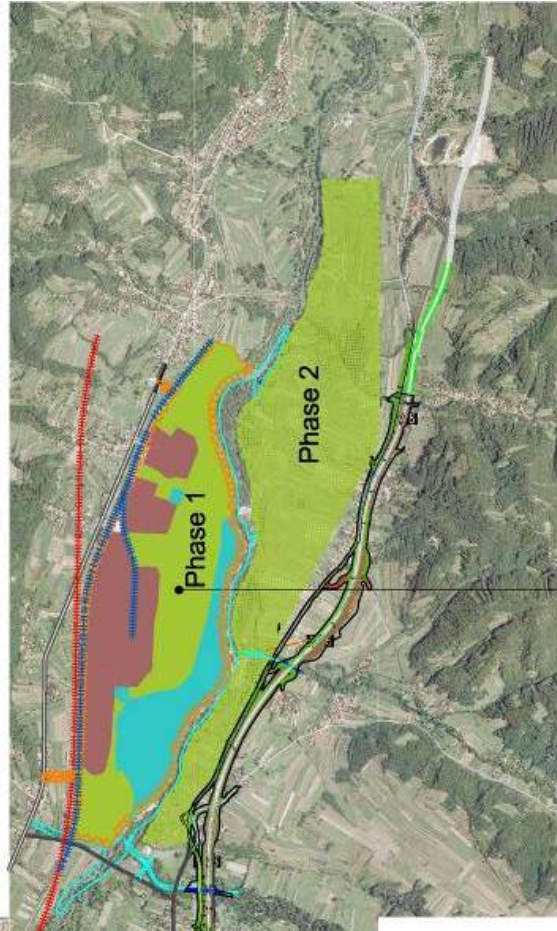
Concept I - location A - Suva Morava



Location A "Suva Morava"

land owned by R. Serbia & other	34.43ha
brownfield	47.06ha
greenfield phase 1	64.10ha
greenfield phase 2	126.89ha

- LEGEND:**
- existing road
 - corridor X
 - existing railway
 - future railway
 - boarder of the ind. zone in phase 1
 - boarder of the ind. zone in phase 2

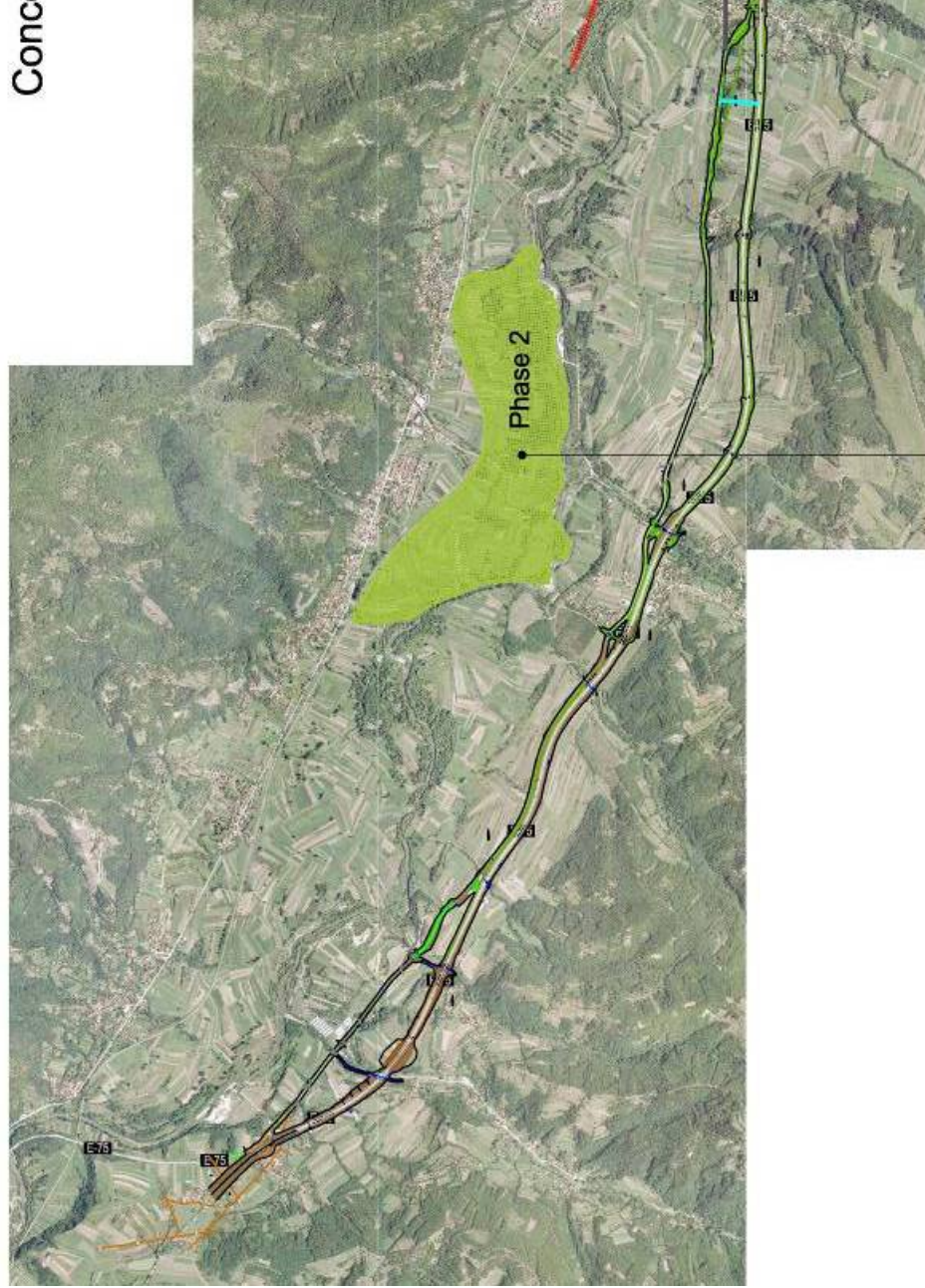


Location A "Suva Morava"



Industrial zone "Jug" in Vladicin Han

Concept II - locations A - Suva Morava and B - Stubal



Location A "Suva Morava"

land owned by R. Serbia & other	34.43ha
brownfield	47.06ha
greenfield phase 1	64.10ha
greenfield phase 2	47.20ha

Location B "Stubal"

greenfield phase 2	106.30ha
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LEGEND:

- existing road
- corridor X
- existing railway
- future railway
- boarder of the ind. zone in phase 1
- boarder of the ind. zone in phase 2

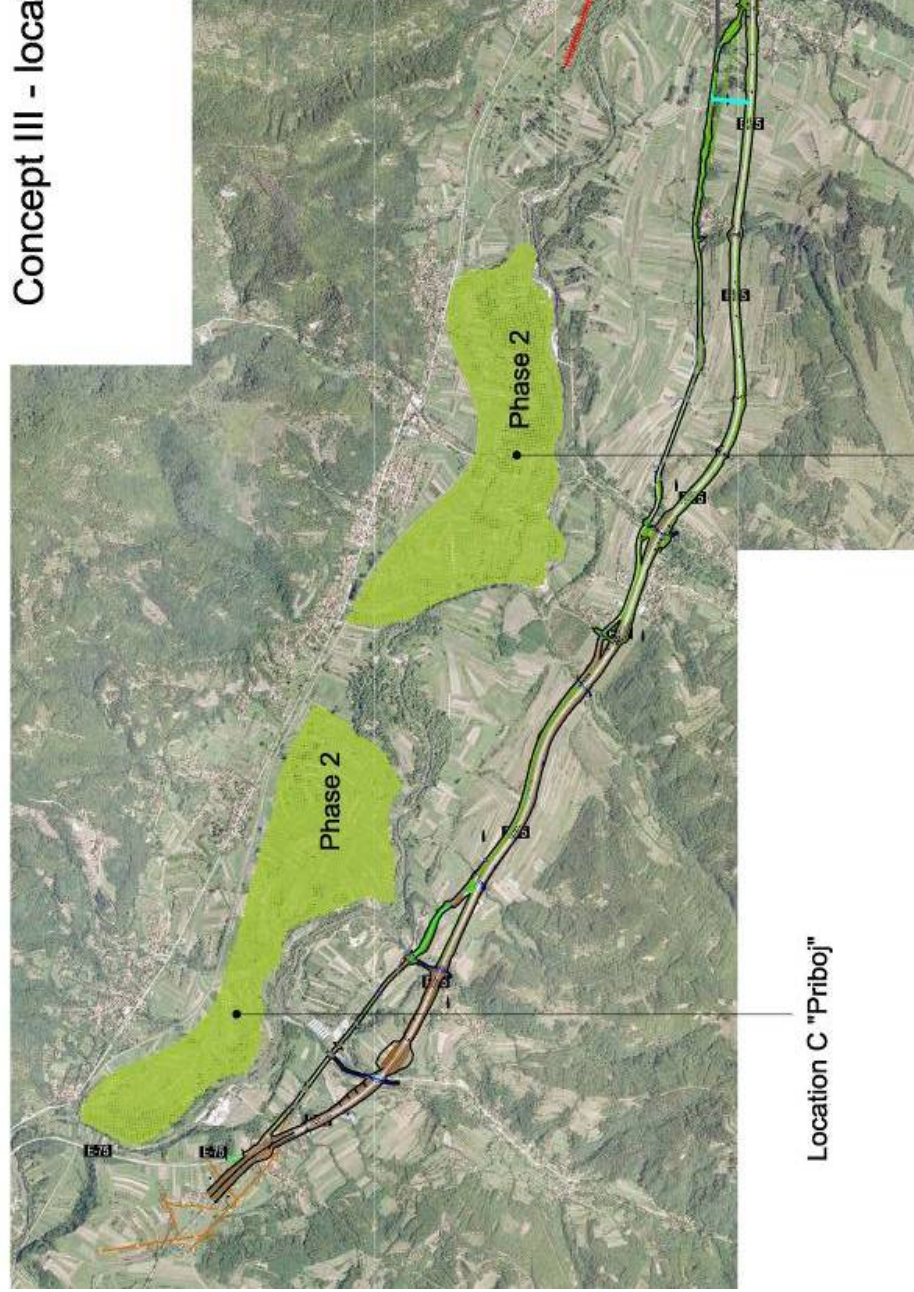


Location B "Stubal"

Location A "Suva Morava"

Industrial zone "Jug" in Vladicin Han

Concept III - locations A - Suva Morava, B - Stubal and C - Priboj



Location A "Suva Morava"

land owned by R. Serbia & other	34.43ha
brownfield	47.06ha
greenfield phase 1	64.10ha

Location B "Stubal"

greenfield phase 2	106.30ha
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Location C "Priboj"

greenfield phase 2	108.10ha
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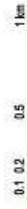
Location C "Priboj"

Location B "Stubal"

Location A "Suva Morava"

LEGEND:

- existing road
- corridor X
- existing railway
- future railway
- boarder of the ind. zone in phase 1
- boarder of the ind. zone in phase 2



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Industrial zone "Jug" in Vladicin Han

Concept I, phase 1 - Land occupation



Industrial zone "Jug" in Vladicin Han

Concept I, phase 1 - Land acquisition plan



LEGEND:

- existing road
- new road
- corridor X
- main entrance to Industrial zone
- emergency exit
- existing railway
- future railway
- future WWTP
- lagoons
- regulation line
- future lot
- 1-water pumping station, 2-transformer station
- boarder of the ind. zone in phase 1

Land acquisition:

	Roads	4.00 ha
	3 WWTP	1.00 ha
	Lot 1	4.80 ha
	Lot 2	4.40 ha
	Lot 3	6.35 ha
	Lot 4	4.45 ha
	Total area	25.00 ha





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1.5.6 Other Services to Provide Added Value

Vladicin Han is in competition with other municipalities offering similar or better advantages or facilities. The attractiveness of the Vladicin Han industrial zone can be enhanced by offering prospective investors additional facilities and services which may tilt the balance in favour of Vladicin Han in preference to other locations. The possible services which can be considered are as follows:

- Marketing and communications
- One Stop Shop
- Business incubators and ready built factories
- Clusters
- Free zones

The creation of the one stop shop unit must be started immediately if only to start communicating to potential investors the information on the progress being achieved on the completion of the industrial zone.

The municipality can seek assistance from special funds which are available for such facilities. For ready built factories the Municipality may seek the partnership of a developer who has the capital to invest in such a speculative venture.

There are special funds available for hosting business clusters and as new business starts to set up within the industrial zone, the Municipality is recommended to seek assistance for such a service.

It is recommended that the existing free zone company is reactivated when new investors seeking free zone status become active on the industrial zone.

1.5.7 Proposed Infrastructure Development

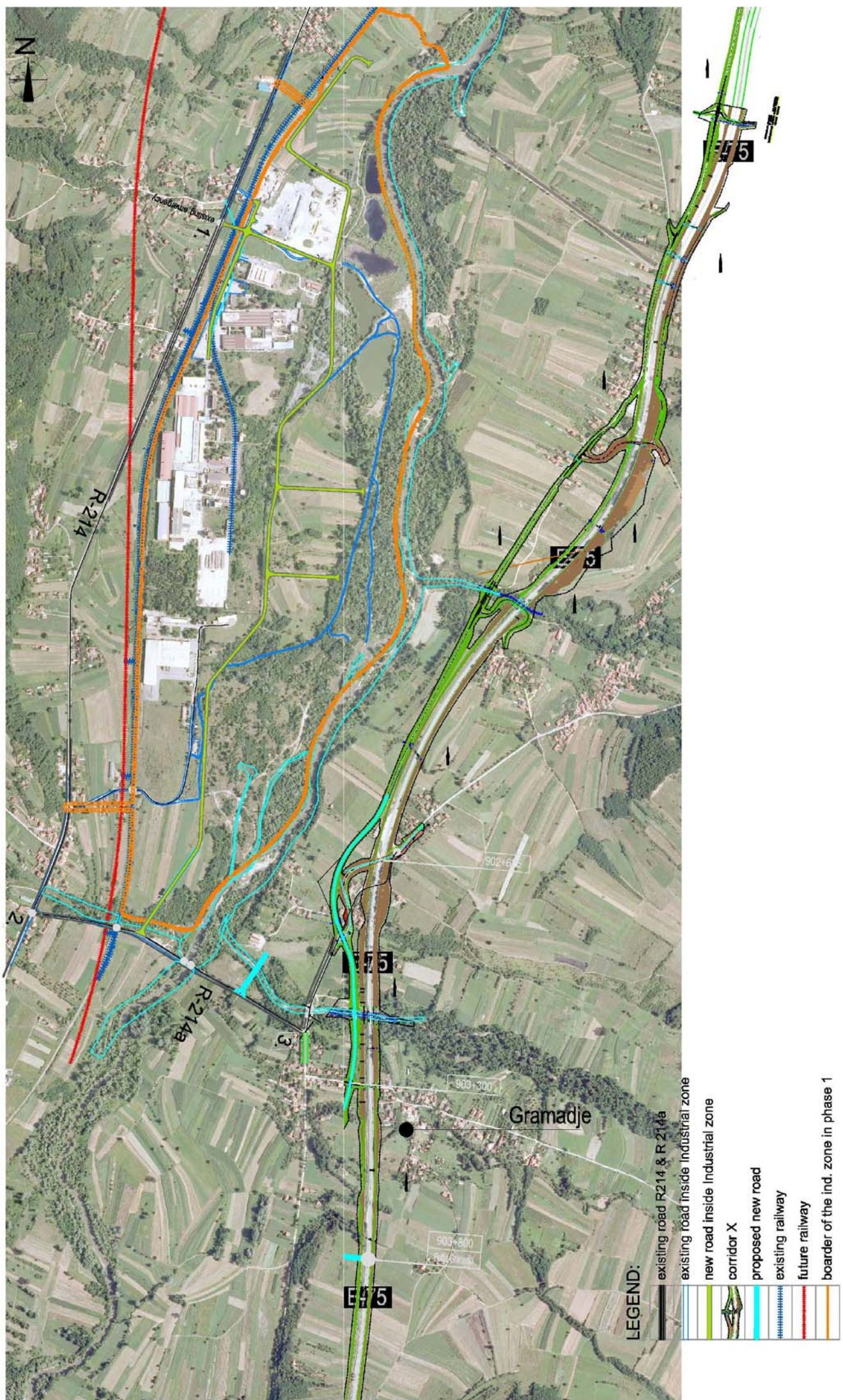
This Study concerns all technical aspect that are required to construct and connect basic infrastructure services in Industrial zone „Jug“ of the Vladicin Han (145.6 ha – total industrial zone area; total useful area of 92.71 ha – greenfield+brownfield). Proposed infrastructure development is :

- Improvement of 1 km of existing road access to the industrial zone
- Construction of about 5km of internal roads with street lighting
- Construction of flood protection
- Development of about 50 hectares of farmland into disposable plots
- Construction of 5km of new underground 35kV and 110kV electricity cable
- Construction of 9 new transformer stations 10/0.4kV, 630kVA and 16.200km of 10kV underground cable network
- Construction of street light lightning with 150 pole mounted luminaries supplied by 5.6km of 0.4kV underground cable
- Installation of 3km of ducts for telecommunication system
- Construction of new wellfield with initial capacity of 50l/s
- Construction of about 5km of water supply pipelines
- Construction of about 6km of surfacewater drainage network
- Construction of about 4 km of wastewater network with a 3000 population equivalent WWTP

Proposed infrastructure development is presented on the drawings bellow.

Industrial zone "Jug" in Vladicin Han

Concept I, phase 1 - Traffic infrastructure



Industrial zone "Jug" in Vladicin Han Concept I, phase 1 - Traffic facilities



LEGEND:

- existing road
- new road
- corridor X
- main entrance to Industrial zone
- emergency exit
- existing railway
- future railway
- Gramadja junction
- greenfield
- boarder of the ind. zone in phase 1

greenfield phase 1	64.10 ha
Traffic	4.00 ha
location A	145.60 ha



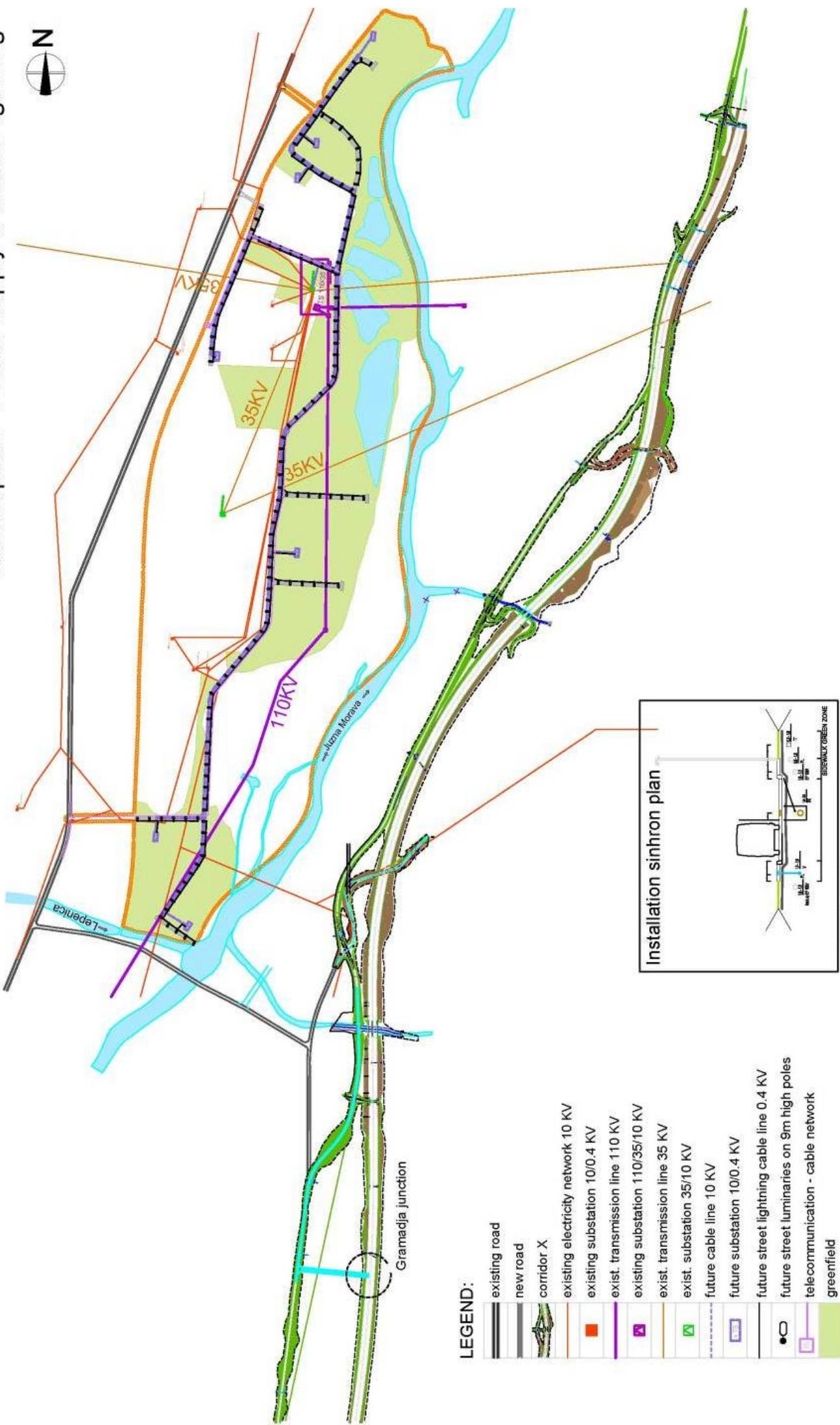
Regional industrial zone "Jug" in Vladicin Han

Concept I, phase 1 -Water supply, sewerage, stormwater drainage and flood protection



Regional industrial zone "Jug" in Vladicin Han

Basic option - Power Supply & Street Lighning



LEGEND:

- existing road
- new road
- corridor X
- existing electricity network 10 KV
- existing substation 10/0.4 KV
- exist. transmission line 110 KV
- existing substation 110/35/10 KV
- exist. transmission line 35 KV
- exist. substation 35/10 KV
- future cable line 10 KV
- future substation 10/0.4 KV
- future street lighting cable line 0.4 KV
- future street luminaries on 9m high poles
- telecommunication - cable network
- greenfield
- boarder of the ind. zone in phase 1





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Proposed electrical supply development is as following:

- a. the basic power supply unit is prefabricated concrete power substation 10/0.4kVA, 1000kVA capacity. Dimensions in the base are 5.5 x 4.5m.
- b. Standard transformer unit is chosen to be 630kVA
- c. Number of transformer substations is 15 – 13 for technological consumers (IZ industries, i.e. future tenants) and 2 for communal purposes (waste water and back up supply water treatment. However, as the phase approach is employed, in the first phase it will be built 9 TSSs (7 for industries – one per each block and 2 for communal purposes)
- d. Power is to be provided for public lighting system evenly distributed to the transformer substations. Preliminary design shows it is necessary to build roughly 145 public lights luminaries, each mounted on the 8m height pole. Power demand for public light is 35kW.
- e. All substations 10/0.4kV will be supplied from 35/10kV transformer substation Vladicin Han with planned capacity of 2x8MVA (today 2x4MVA).
- f. Cabling is to be realized with underground cables 3x(1x150mm²), type XHE 49A.
- g. Distribution network 10kV will be realized in ring topology, in a way that each set of transformers supplied from one outgoing feeding compartment in the 10kV substation with 10kV cable which goes to the first transformer substation on the “entry / exit” principle and continues to the next substation. From the last substation exit cable will be run back to the transformer substation 35/10kV to the different feeder compartment. That return cable will be, even separately laid down in the cable row on the other side of the street, increasing the system resistance to the mechanical damaging.
- h. Maximum number of transformer substations 10/0.4kV per one cable is limited on four per required cable.
- i. For underground cabling it should be envisaged all necessary cable canalization, which consists of proper number of protective PVC or PHE pipes on the road crossing and other obstacles and necessary evenly distributed number of cable manholes, purposed for providing places for connection of the eventual additional substations. In addition, cable manholes should be planned on both ends of the cable protection pipes.

Proposed water supply, waste and stormwater collection and treatment is as following:

Water supply: Construction of internal water supply network and connection to public water supply system. The system will include a full fire hydrant network.

Waste Water Discharge: Construction of internal sewage network as well as main pipeline leading to collector pipeline leading to the Waste Water Treatment Plant (WWTP), after treatment is going to be discharged into the lake in the zone area, and finally to the end recipient river J.Morava.

Storm Water Discharge: Construction of internal storm water drainage network and main pipeline leading to the final discharge point at the lake in the area of the zone, and after it going to be pumped to the J.Morava

The Industrial zone is subdivided into plots. The regulation width between parcels is defined and it will be appropriate for all expected vehicular access. However given the limitations of this dimension it will be necessary to construct and install water supply, sewage and stormwater drainage systems directly under the road, with other services to be constructed under paved areas. Connection to potable water, sewerage and stormwater drainage system for all parcels will be provided.





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All future tenants of the industrial zone shall be supplied with water from the town water supply system. The designed network will be connected to the network at two points (one on the location of the emergency exit, and second at the location of the pumping station in the period of supplying from the suva morava water source).

The water supply network shall provide potable water for all tenants in the zone and for a network of fire fighting hydrants of adequate diameter and pressure. Since there are no adequate stormwater drainage or sewer system in the zone both of these systems will be new constructions including the collectors, WWTP and discharge into the J.Morava river from the lagoons.

The Industrial zone is intended to become the main focus for the Municipal local economy development. From technical perspective the zone represents a classic infrastructure project with a technical summary of the works being:

- Water supply network, total length around 4300m; Ø150, Ø250;
- Sewage network with WWTP, total length around 4200m; Ø250, Ø300; wwtp capacity: 2x3.000PE
- Stormwater drainage network, total length around 5600m; Ø300, Ø500, Ø600;
- Flood protection – construction of the dikes; total length around 2100m

All infrastructure installations should be properly designed according to the design requirements issued from responsible public utilities.

From the technical perspective all planned works being well known, standard works which are daily performed by number of international and local construction companies.

1.5.8 Cost Estimates

A summary of the cost estimates on a nominal basis for year 2011 is provided hereafter and exclude all taxes and duties.

Table 1.5-5 Summary of Cost Estimates

		Total per Phase	2012	2013	2014	2023	2024	2025
		M EUR	M EUR	M EUR	M EUR	M EUR	M EUR	M EUR
	Total Investment Costs		Phase 1	Phase 1	Phase 1	Phase 2	Phase 2	Phase 2
1	Land	1.66	0.83	0.83		0.83	0.83	
2	Planning / design (4% of main works)	0.36	0.18	0.18		0.18	0.18	
3	Capital Works	9.07		4.57	4.50		4.57	4.50
4	TA & Training (5% of main works)	0.44		0.22	0.22		0.22	0.22
5	Supervision (7% of main works)	0.62		0.31	0.31		0.31	0.31
6	Public Relation	0.04		0.02	0.02		0.02	0.02
7	Contingencies (10% on 2 to 6)	1.06	0.02	0.53	0.51	0.02	0.53	0.51
	Total Investment Costs	13.25 Per phase	1.03	6.66	5.56	1.03	6.66	5.56

Note: All costs are constant Euro 2011 excluding duties and taxes



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1.6 Environmental and social impact assessment

Environmental and Social Impact Assessment (ESIA) Report was undertaken by MISP environmental team as a part of this Feasibility Study (FS)

Redevelopment of the existing industrial zone is regarded as an important prerequisite for economic recovery of the municipality. On one hand, the redevelopment is expected to provide the conditions for increase of industrial activity. On the other hand, although the environmental sensitivity of the project site can be assessed as moderate to low (given that it is located out of settlements and sensitive receptors), it is still related to certain environmental concerns, necessary to be identified and assessed. The main purpose of the ESIA has been to identify those concerns and to propose measures to prevent their potential further degradation as a result of the future industrial zone operation.

The major environmental concern is related to the water supplying source “Lepenica”, comprising 6 groundwater wells for water supplying of the Vladicin Han town, usually operated only for 35-40 days in the summer season as an alternative solution when the major source is out of operation. “Lepenica” is located inside the boundaries of the proposed industrial zone. Located in its southern part it is generally upstream of the major industrial activities but still close to the potential pollution sources. Current management of the “Lepenica” water supplying source is not sustainable, not in compliance with regulation and the sanitary protection standards and has to be improved.

The second important issue is the water quality of the river Južna Morava running in the vicinity of the proposed industrial zone’s eastern boundary. Besides the diversity of pollution sources upstream of Vladicin Han, the river’s seasonal flow rate is highly fluctuating, resulting the water quality of the South Morava to be heavily degraded and non-suitable for any purpose (“out of class”). It is necessary that development of the industrial zone involves the measures to prevent the further river pollution by the future occupants.

Given that “Suva Morava” industrial zone has incorporated several industrial facilities that have operated for decades and have been involved in metal processing and paper and wood production, the potential presence of historical contamination of soil and groundwater in the area cannot be fully excluded. Long term storage and usage of hazardous substances in the facilities (e.g. oil for heating, solvents) and discharge of wastewater into the nearby lagoons presents a reasonable concern for the risk of soil and groundwater contamination that need to be investigated and followed by an appropriate remedial action.

It is certain that redevelopment of the industrial zone is primarily oriented towards the economic aspect of the Vladicin Han development. It is likely, as well, that once the economic activity in the industrial zone is started, diverse positive social changes may be expected, such as increase of employment, increase of local incomes, development of commercial facilities, increased value of properties, development of retail properties, etc.

But equally important benefit of the redevelopment project is that it will result in improvement of environmental conditions in the area. In order to develop a competitive industrial zone which might attract the potential investors, the existing infrastructure will have to be improved. This will result in improvement of the sanitation of the area: (1) protection of water supply source will be improved, (2) uncontrolled discharge of untreated domestic and industrial wastewater into the South Morava will be ceased, (3) waste management will be improved, (4) hazardous substances management will be improved, (5) potential historical contamination in the “Suva Morava” area will be identified and removed.



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1.7 Municipality Vladicin Han Creditworthiness Assessment

According to the current Budget System Law, Municipalities could borrow up to 50% of current revenues from the budget revenues realized in previous years. The Ministry of Finance regularly publishes these limits and they are applied very strictly. According to the last official release from the Ministry of Finance, valid for the year 2011, the Municipalities can borrow up to the following limits:

Table 1.7-1 Borrowing limits for the Municipality Vladicin Han (2011 /€ 1 = RSD 100)

Municipality	Realized revenues 2010 RSD million	Borrowing limit 2011 RSD million	Borrowing limit 2011 (€ 000) based on revenue 2010	Realized revenues 2010 (€ 000)	Outstanding principal amount of current debts (€ 000) 2010	Max borrowing capacity 2011 50% (€ 000)	Max borrowing capacity 2011 (RSD m)
1	2	3	4	5	6	7 (4-6)	8
VLADICIN HAN	303	151	1,514	3,028	200	1,314	131

Source: Ministry of Finance Serbia

Because of the loans already taken during previous years, the remaining total borrowing limit of the Municipality Vladicin Han as of 2011 is limited to **RSD 131 million** or **€ 1,314,274**.

1.8 Cost Benefit Analysis

1.8.1 Investment Costs

1.8.1.1 Physical Investment Components of the Project

The table 1.8-1 provides the spread of the investment of the project for which EC support is being sought, in constant prices and in million EUR.

Table 1.8-1 Project Investment Costs (M EUR, Constant Prices, 2011)

Project Investment Cost	eligible	life-time	Total 2012-2014	2012	2013	2014
Main works	yes	50	8,413	0,000	4,239	4,174
Equipment & machinery & commissioning	yes	15	0,646	0,000	0,323	0,323
Sub-total 1 (w/out land)			9,059	0	4,562	4,497
thereof Administration Buildings	no		0,000	0,000	0,000	0,000
Land acquisition	no	-	1,964	0,982	0,982	0,000
Sub-total 2 (including land)			11,023	0,982	5,544	4,497
TA: Support for Project Mgmt., Design & Publicity	yes		0,854	0,180	0,427	0,247
TA: Supervision of Construction	yes		0,630	0,000	0,315	0,315
Sub-total 3 (w/out contingencies)			12,507	1,162	6,286	5,059
Technical Contingencies (10% of Sub-total 1)	yes		1,054	0,018	0,530	0,506
Sub-total 4 (with contingencies)			13,561	1,180	6,816	5,565
Total eligible cost including contingencies			11,597	0,198	5,834	5,565
% of contingencies contained in eligible project cost			9,09%	9,10%	9,08%	9,09%
ineligible cost including contingencies			1,964	0,982	0,982	0,000





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The total eligible project investment cost (including contingencies) in constant 2011 prices amounts to 11,597 million EUR. Ineligible cost for support from the EU is the land acquisition which will have to be acquired from own resources or a bank loan to be contracted by the Municipality of Vladicin Han within the legal boundary for such loan.

The specific per capita project investment cost amounts to around 464 EUR/ municipal population or 4.217 EUR/ Expected job created within a 5 years period in the realistic scenario.

The table 1.8-2 shows the eligible and ineligible cost breakdown in current prices (including price adjustments), according to the structure required by the EC Service for IPA funding.

Table 1.8-2 Project Investment Costs (Current Price, M EUR)

Item	Total Project Costs (A)	Ineligible Costs* (B)	Eligible Costs (C)=(A)-(B)
1. Planning/design fees	0,379	0,000	0,379
2. Land purchase	2,076	2,076	0,000
3. Building and construction	9,206	0,000	9,206
4. Plant and machinery	0,692	0,000	0,692
5. Contingencies	1,339	0,000	1,339
6. Price adjustment (if applicable)	0,000	0,000	0,000
7. Technical assistance	0,488	0,000	0,488
8. Support to PIU and publicity	0,049	0,000	0,049
9. Supervision during construction implementation	0,677	0,000	0,677
10. Sub-TOTAL	14,906	2,076	12,830
11. VAT (here: eligible local taxes, permits, fees)**	0,000	0,000	0,000
12. TOTAL	14,906	2,076	12,830

* Ineligible costs comprise (i) expenditure outside the eligibility period, (ii) expenditure ineligible under national rules (Article 56 (4) of Council Regulation 1083/2006), (iii) other expenditure not presented for co-financing. ** VAT is not included under this item; item consists only of eligible local legal taxes, fees and permits (for more details see explanation on previous page)

Ineligible cost under EU rules would be land acquisition and the rehabilitation or development of a management buildings and workshops for the management of developed industrial zone by the Company "Slobodna Zona Vladicin Han".

All cost are expressed in current prices, i.e. price adjustments are already included (therefore, item 6 is shown as "0" in the table 1.8-2).

The estimated cost breakdown of eligible cost **by currency** results in 73,22% of total cost in local currency (RSD) and 12,89 % in foreign currency (EUR), as shown in the table 1.8-3.

Table 1.8-3 Eligible Cost Breakdown in Local & Foreign Currency, Current Prices

Cost Item	Unit	Total	2012	2013	2014
Eligible Cost	M EUR	14,906	1,323	7,405	6,178
Local Currency	M EUR equivalent	11,327	1,272	5,630	4,425
Local Currency	% of Total	75,99%	96,15%	76,03%	71,63%
Local Currency	M RSD	1.155,383	129,772	574,268	451,344
Foreign Currency	M EUR	3,578	0,051	1,775	1,753

1.8.1.2 Technical assistance

The Technical Assistance Support proposed to be deployed for the implementation of the project is spread into two packages, for which separate Consultants will be contracted:

- Support for Project Management, Design & Publicity
- Construction Supervision





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The Support for Project Management, Design & Publicity will aim at strengthening the institutional capacities of the Company “Slobodna Zona Vladicin Han” in the design, marketing and development of the industrial zone to become a model modern industrial zone in the region.

The Construction Supervision will be responsible for managing and supervising the works and supply contracts and in general will fulfill all duties of the Engineer as defined in the FIDIC Yellow and/or Red Book Conditions of Contract for Construction.

The cost breakdown and phasing of the Technical Assistance Services are as reflected in the table 1.8-4.

Table 1.8-4 Cost Breakdown of Technical Assistance Services (Current Prices, M EUR)

Technical Assistance	Total 2012-14	2012	2013	2014
Support for Project Management, Design & Publicity	0,916	0,186	0,457	0,273
Supervision of Construction	0,677	0,000	0,334	0,343
Total	1,593	0,186	0,791	0,616

1.8.1.3 Funding Sources for the Capital Investment

The Table 5 summarizes the financial sources assumed to be needed in first approximation for the capital investment of the project as a basis for discussion with the ministries and the international donor community. The municipality will need to mobilize own resources for the acquisition of the land. According to the assessment of the finance of the municipality of Vladicin Han presented in Chapter 10.2, its current financing capacity includes 1,314.000 Euro for a loan (legal borrowing limit) and 970.000 Euro from the local budget.

Table 1.8-5 Project Tentative Financial Sources

Financing Source	Investment Values (current price, x1000€)	Percentage %
Grant (potential EU IPA)	11,551	77%
Central / Regional Government grant	1,071	7%
Loan for land acquisition	1,314	9%
Local Budget for land acquisition	970	7%
Others	0	0%
Total	14.906	100%

For the loan component, conditions corresponding to lending conditions applied by EBRD for other infrastructural investment in Serbia were retained. They are summarized in the table below.

Table 1.8-6 Tentative Loan Conditions

Loan interest	%, EUR real	5
Loan duration	years	12
Grace period	years	3
Upfront fee	%	1
Commitment fee	%	0,5

The table 1.8-7 provides an overview of the resulting loan repayment schedule for the municipality.





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Table 1.8-7 Loan Repayment Schedule (M EUR)

	Total	2012	2013	2014	2015	...	2020	2021	2022	2023
Interest	0,468	0,049	0,057	0,066	0,062	...	0,026	0,018	0,011	0,004
Principal Repayment	1,314	0,000	0,000	0,000	0,146	...	0,146	0,146	0,146	0,146
Total	1,782	0,049	0,057	0,066	0,208	...	0,172	0,164	0,157	0,150

1.8.2 Revenues from the sell/long term lease of industrial plots

The plot of land developed in the industrial zone will be sold/ or leased long term to industrial companies. To attract industrialists the municipality is interested to sell/ lease at the lowest possible price to provide some incentive to companies considering settling into the industrial zone.

Based on the current country legal fiscal framework and flows of funds the following assumptions were made regarding the income taxes that can be expected to flow back to the municipality:

- 1) Income tax is 12% of gross earning of jobs created in average
- 2) 80% of income taxes is expected to be transferred back to the Municipality
- 3) Approximately 30% of jobs created will be for workers living in Vladicin Han. The other workers are expected to come from neighbouring municipalities and therefore their tax are expected to benefit those municipalities not Vladicin Han.

The table 8 below summarizes the resulting possible discount that the municipality can offer on the land market price and which are compatible with the decree 13/2010, based on the expected jobs created for the different 3 scenarios. The data indicated in the table 8 aggregate expected public income of new jobs generated for the period 2015-2019, i.e. a period of 5 years after expected industrial investment completion.

Table 1.8-8: Calculation of Discount of Sale/lease Price of land Depending on Scenarios

Item	Optimistic Scenario (cumulated public revenues 2015-2019)	Realistic Scenario (cumulated public revenues 2015-2019)	Pessimistic Scenario (cumulated public revenues 2015-2019)
Jobs created (#)	2.145	1.650	693
Tax Income transferred back to Municipality (Mill Euro)	0,578	0,445	0,187
Fees from industrial construction sites ⁽¹⁾ (Mill Euro)	0,000	0,000	0,000
Fees from building sites arrangement ⁽¹⁾ (Mill Euro)	0,000	0,000	0,000
Advertising charges ⁽¹⁾ (Mill Euro)	0,000	0,000	0,000
Total Revenues over 5 years (Mill Euro)	0,578	0,445	0,187
Surfaces of plot sold/leased (m ²)	250.000	250.000	150.000
Revenues/m ² of land sold/leased (EUR/m ²)	2,31	1,78	1,25
Market price of land (EUR/m ²)	5	5	6
Sale/Lease price after Discount/m ² (EUR/m ²)	2,69	3,22	4,75
Discount factor (%) against market price	46,2%	35,6%	20,8%

⁽¹⁾ These fees and charges are estimated to be 0 for first 5 years because the municipality has expressed the intention to waive those fees and charges for the first 5 years of operation for all companies joining the industrial zone.





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1.8.3 Economic Analysis

1.8.3.1 CBA Model

The Model consists of a series of linked worksheets. It develops year on year projections of investment costs, operating costs and revenues in real and nominal terms. It is followed by financial statements incorporating project capital costs, funding sources and investment plan. The worksheets in the Model are summarized below in table 9. While the spreadsheets are listed below in a particular order, this may not necessarily represent the sequence in which calculation is done.

Table 1.8-9 Description of CBA Model Worksheets

Number	Worksheet Title	Description
1.	Inputs	Contains the major input variables and assumptions of the model
2.	Macro	Contains projections of the major macroeconomic variables
3.	Total Costs	Projections of total costs
4.	Investment	Contains projections of total investment costs in real and nominal terms and breakdown in foreign and local currency
5.	Revenues	Contains projections of municipality revenues in real and nominal terms and calculation of possible discount for land selling
6.	Loan	Loan calculation in real and nominal terms
7.	FNPV	Contains output report financial analysis for all components together
8.	Economic elements	Contains calculations of economic elements (conversion factors)
9.	Economic analysis	Contains economic analysis
10.	Sensitivity	Contains sensitivity analysis of main financial and economic output variables
11.	Risk analysis	Contains risk analysis of main financial and economic output variables
12.	Graphs	Contains graphs and charts of main project output variables

The model use a forecast period of 20 years with 2015 the 1st year after the completion of the investment.

1.8.3.2 Economic Benefits

The most significant positive economic impacts considered in the study are additional income for the municipality and the wider region. These income can be conceptualized as coming from three different sources:

- (i) Direct Jobs Effect: These are documented essentially in terms of income from new jobs to be created by companies establishing a production facility in the planned industrial zone;
- (ii) Indirect Jobs Effect: these are new jobs expected to be created in and around Industrial zone "Jug" in Vladicin Han but outside the industrial zone. These indirect jobs are expected to be either in the production of goods (light equipment or raw material and goods used by companies inside the industrial zone) or in services industries to support the productive activities of the industrial zone (restaurants, hotels, supporting services etc.);
- (iii) Private Capital mobilized and invested by industrialists and shareholders of the companies which will settle in the industrial zone to establish production facilities and





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equipments to be used by workers and professionals to produce new industrial goods. These fixed assets will become based in the Vladicin Han industrial zone and represent tangible assets for the township and its surroundings. This capital is commonly expressed as “capital employed” per direct job created. Value may vary widely per industrial sector concerned. IT production for example may require higher and more sophisticated equipments than light industry or agro-processing and wood processing.

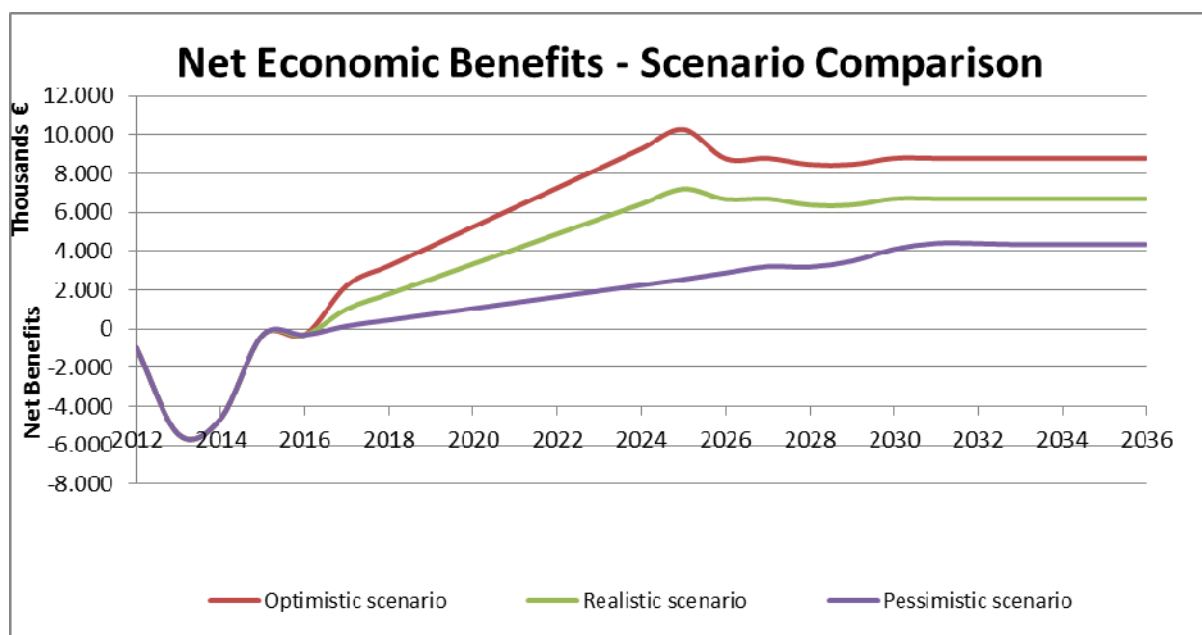
The total effects to the target area are then the sum of income from the three components indicated above.

The table 10 summarizes the economic benefits of the industrial zone for the municipality and the neighboring areas depending on the job creation scenarios contemplated.

Table 1.8-10 Estimation of Economic Benefits of IZ in Vladicin Han (Eur)

Source of Economic Benefits	Present value (2012-2036)	2015	2018	2020	2026	2036
Optimistic Scenario						
Direct Jobs Created	62.246.741	-	772.200	3.088.800	6.949.800	6.949.800
Indirect Jobs Created	18.674.022	-	231.660	926.640	2.084.940	2.084.940
Industrial Capital Invested	9.888.025	-	1.543.685	1.543.685	-	-
Realistic Scenario						
Direct Jobs Created	47.882.109	-	594.000	2.376.000	5.346.000	5.346.000
Indirect Jobs Created	14.364.633	-	178.200	712.800	1.603.800	1.603.800
Industrial Capital Invested	3.582.953	-	559.359	559.359	-	-
Pessimistic Scenario						
Direct Jobs Created	26.487.836	-	498.960	997.920	2.494.800	3.825.360
Indirect Jobs Created	5.297.567	-	99.792	199.584	498.960	765.072
Industrial Capital Invested	1.594.234	-	161.700	161.700	161.700	-

Figure 1.8-1 Net Economic Benefits (K EUR, Constant Prices) – Scenario Comparison





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1.8.3.3 Overall Economic Estimation and Recommendation

The table 1.8-11 summarizes the estimated economic benefits of the three investment scenarios considered.

Table 1.8-11 Comparison of Investment Option in Economic Terms

Indicators	Unit	Optimistic Scenario	Realistic Scenario	Pessimistic Scenario
EIRR	%	25,2%	19,9%	11,1%
PV Benefits	EUR	90.808.789	65.829.695	33.379.637
PV Costs	EUR	14.428.996	14.428.996	14.428.996
ENPV	EUR	76.379.793	51.400.699	18.950.641
B/C	#	6,29	4,56	2,31

The main findings are:

1. The economic return whatever the scenario (between 11 % and 25%) is robust which is common for well structured employment generating investments. The robustness of the returns justify the proposed investment in economic terms for the country.
2. The realistic scenario is considered the most responsive approach considering the current economic constraints of the area.

1.8.4 Sensitivity and Risk Analysis

1.8.4.1 Critical Variables for Financial Analysis

A “critical variable” is a parameter which with 1% change lead to more than 5% change in one or more of the above key outputs financial indicators. The applied methodology was to modify variables in the “with-project” scenario while leaving them in “without-project” scenario unchanged.

The following variables were assessed:

- 1) Investment Cost
- 2) Plot areas sold/leased to industry
- 3) Sale/Lease Price for Industrial Land

The limits within which the model variables were modified were set at -10% to +10% below and above their base case estimate while leaving all other model variables unchanged.

The sensitivity analysis was developed for the realistic job creation scenario only.

The figures 1.8-2 and 3 summarize the sensitivity of the above variables on the FNPV/C and FNPV/K of the project investment considering the period 2012-2036.



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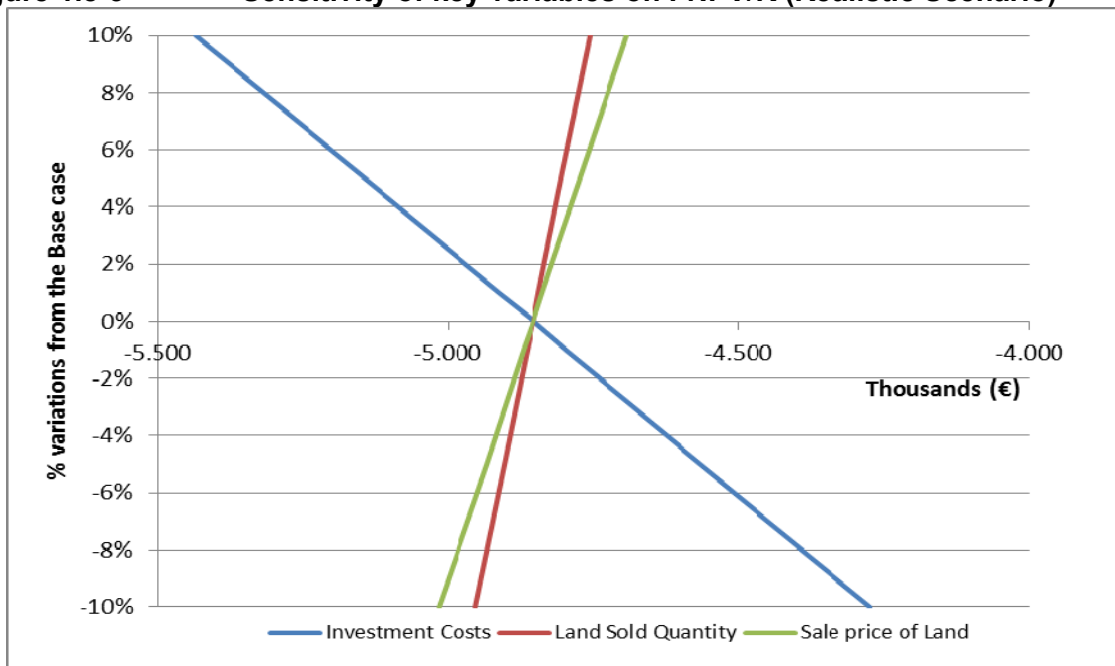


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Figure 1.8-2 Sensitivity of key variables on FNPV/C (Realistic Scenario)



Figure 1.8-3 Sensitivity of key variables on FNPV/K (Realistic Scenario)



The Table 1.8-12 documents the switching values which represent the change of value in percentage of key variables for which the FNPV turn to 0 and “switch” from positive to negative. It requires significant change of value to switch the FNPV, which proves the financial robustness of the proposed investment.





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Table 1.8-12 Switching Values for Key Project Financial Variables

Variable	%
Investment Costs	-93,6%
Plot Areas Sold/ Leased	+1.395,1%
Sale/Lease Price of Land	+849,8%

1.8.4.2 Risk Probability Analysis Financial Analysis

In this assessment, variations in the key variables investment costs, land sold quantity and sale/lease price have been used to conduct a risk probability analysis based on the FNPV/C and FNPV/K. This was done by assuming base scenarios. The tables 1.8-13 to 15 document the probability of occurrence of given variation.

Table 1.8-13 Probability of Various Scenarios of Investment Cost Variations

Scenario	Variation of Values	Probability in %
Optimistic Scenario	-10,0%	10,0%
Realistic Scenario	0,0%	80,0%
Pessimistic Scenario	10,0%	10,0%

Table 1.8-14 Probability of Various Scenarios of Land Areas Sold / Leased Variations

Scenario	Variation of Values	Probability in %
Optimistic Scenario	-10,0%	10,0%
Realistic Scenario	0,0%	80,0%
Pessimistic Scenario	10,0%	10,0%

Table 1.8-15 Probability of Various Scenarios of Sale/ Lease Price of Land

Scenario	Variation of Values	Probability in %
Optimistic Scenario	-10,0%	10,0%
Realistic Scenario	0,0%	80,0%
Pessimistic Scenario	10,0%	10,0%

The Figures 4 and 5 reflect the probability distribution of occurrence of percentage change from base case for FNPV/C (figure 4) and FNPV/K (figure 5) as function of investment costs, land sold quantity and sale/lease price.

Figure 1.8-4 Probability distribution of FNPV/C

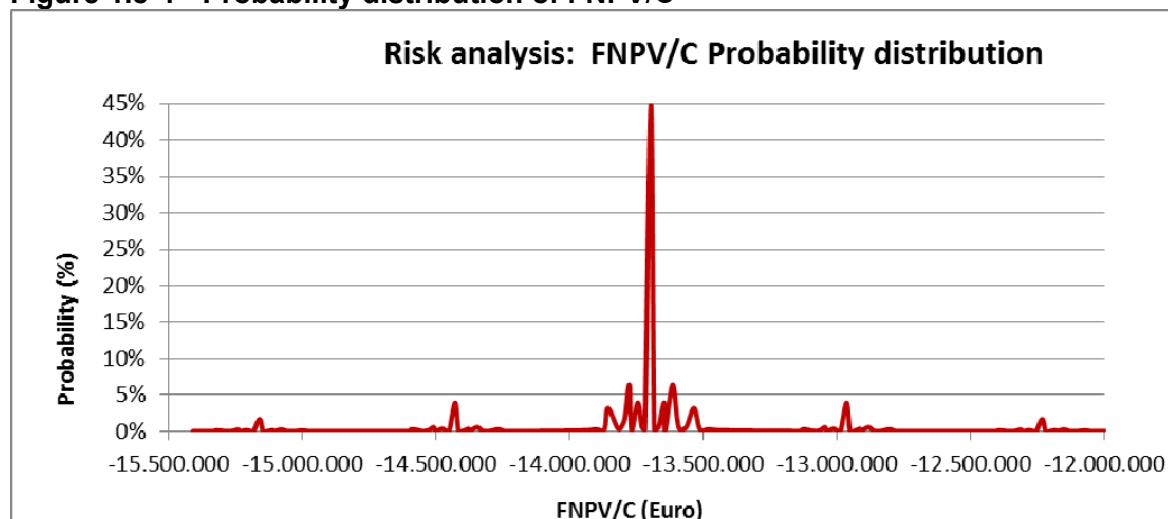
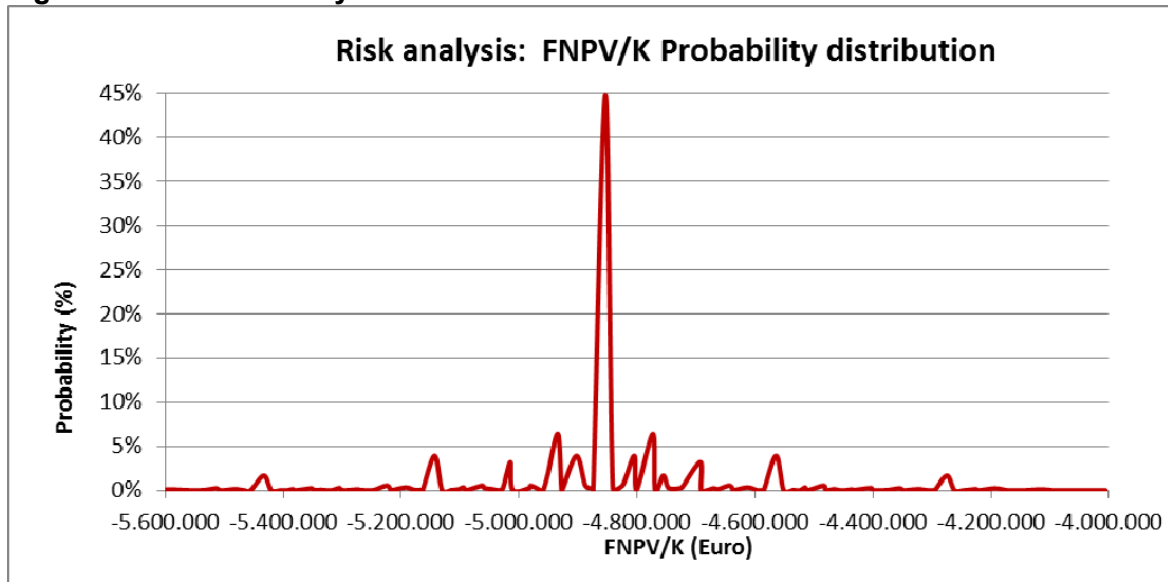




Figure 1.8-5 Probability Distribution of FNPV/K



1.8.4.3 Critical Values Economic Analysis

The applied methodology was to modify variables in the “with-project” scenario while leaving them in “without-project” scenario unchanged.

The following variables were assessed:

- 1) Investment Cost
- 2) Direct Jobs Created
- 3) Overall Economic Benefits

The Tables 1.8-16 to 18 documents the variation ratios of the project Key financial Indicators for a $\pm 1\%$, $\pm 5\%$ and $\pm 10\%$ variation of the selected variables.

Table 1.8-16 Sensitivity of Key Project Economic Indicators – Variation in Investment Costs

Variation in Investment Costs		NPV	ERR	BCR
1	Realistic Scenario	51.400.699	19,9%	4,56
2	Sensitivity case 2 (-1%)	51.504.138	20,0%	4,60
3	Sensitivity case 3 (-5%)	51.917.896	20,5%	4,73
4	Sensitivity case 4 (-10%)	52.435.093	21,1%	4,91
5	Sensitivity case 5 (+1%)	51.297.259	19,8%	4,53
6	Sensitivity case 6 (+5%)	50.883.502	19,3%	4,40
7	Sensitivity case 7 (+10%)	50.366.304	18,8%	4,26



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Table 1.8-17 Sensitivity of Key Project Economic Indicators – Variation in Jobs Created

Variation in Jobs created		NPV	ERR	BCR
1	Realistic Scenario	51.400.699	19,9%	4,56
2	Sensitivity case 2 (-1%)	50.600.192	19,7%	4,51
3	Sensitivity case 3 (-5%)	47.426.894	19,1%	4,29
4	Sensitivity case 4 (-10%)	43.524.912	18,3%	4,02
5	Sensitivity case 5 (+1%)	52.204.078	20,0%	4,62
6	Sensitivity case 6 (+5%)	55.446.327	20,6%	4,84
7	Sensitivity case 7 (+10%)	59.563.778	21,4%	5,13

Table 1.8-18 Sensitivity of Key Project Economic Indicators – Variation in Economic Benefits

Variation in Economic Benefits		NPV	ERR	BCR
1	Realistic Scenario	51.400.699	19,9%	4,56
2	Sensitivity case 2 (-1%)	50.742.402	19,8%	4,52
3	Sensitivity case 3 (-5%)	48.109.214	19,2%	4,33
4	Sensitivity case 4 (-10%)	44.817.729	18,6%	4,11
5	Sensitivity case 5 (+1%)	52.058.996	20,0%	4,61
6	Sensitivity case 6 (+5%)	54.692.183	20,5%	4,79
7	Sensitivity case 7 (+10%)	57.983.668	21,1%	5,02

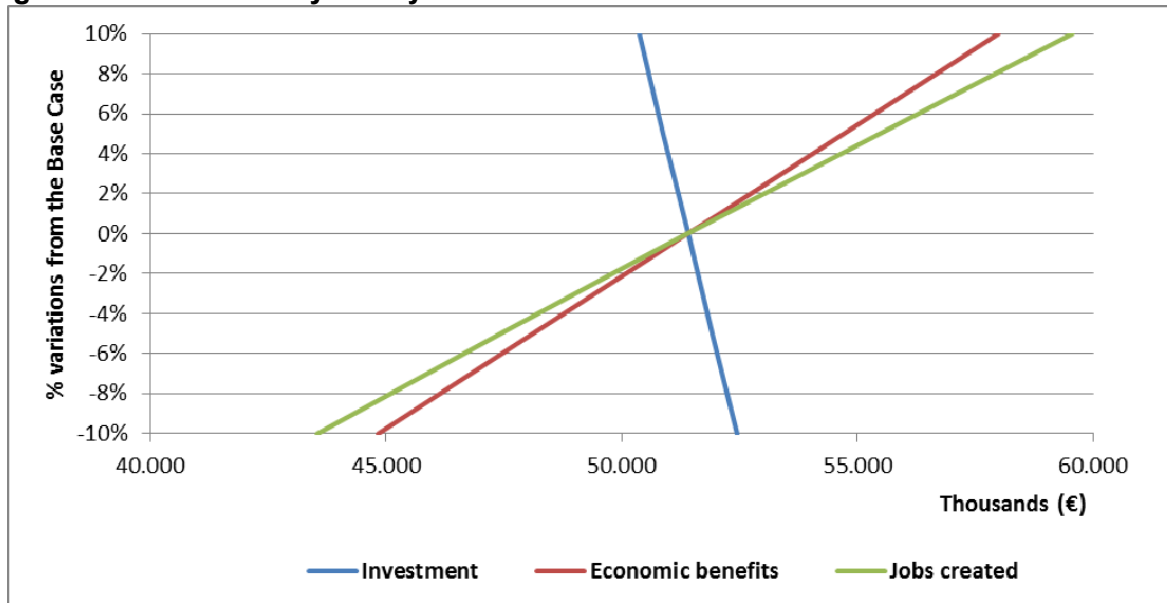
The Table 1.8-19 documents the variation ratios of the project Key financial Indicators for a $\pm 1\%$ variation of the selected variable.

Table 1.8-19 Sensitivity of Economic Indicators

Variable Tested	ERR variation	ENPV variation
Investment costs (increase of 1%)	-0,55%	-0,20%
Investment costs (decrease of 1%)	0,56%	0,20%
Jobs Created (increase of 1%)	0,76%	1,56%
Jobs Created (decrease of 1%)	-0,76%	-1,56%
Economic benefits (increase of 1%)	0,63%	1,28%
Economic benefits(decrease of 1%)	-0,63%	-1,28%



Figure 1.8-6 Sensitivity of Key Variables on ENPV



The Table 1.8-20 documents the switching values expressed as percentage variation of the tested variable for which the ENPV turns to 0.

Table 1.8-20 Switching Values for Economic NPV

Critical Variable	Switching value	
Project investment cost	Maximum increase before ENPV equals 0 (%)	496,9%
Jobs created	Maximum increase before ENPV equals 0 (%)	-73,9%
Economic benefits	Maximum increase before ENPV equals 0 (%)	-78,1%

The assessment of economic risk was carried out by comparing the optimistic (O) and the pessimistic (P) scenario to the realistic base case. In a first step (variant "A" of the scenarios), all three key variables have been considered for the analysis. In the pessimistic scenario, the effect of unfavourable developments in all three key variables show less performance than in the base case, while in the optimistic scenario the opposite is assumed. In a second step (variant "B" of the scenarios), the analysis is limited to two of the three key variables leaving economic benefits unchanged. The rationale is there that the economic benefits will be difficult to document quantitatively in an ex-post evaluation because of the lack of data.

Three scenarios: Optimistic, Base, Pessimistic. The tables 1.8-21 to 22 summarize the assumptions for the scenarios.

Table 1.8-21 Assumptions of Variation for the Scenarios

Scenario	Key Variables Variation		
	Investment Cost (I)	Jobs Created (J)	Economic Benefits (E)
Optimistic (O)	-5,0%	5,0%	5,0%
Realistic Base Case (BC)	0,0%	0,0%	0,0%
Pessimistic (P)	5,0%	-5,0%	-5,0%



Table 1.8-22 Probabilities of Variation for the Scenarios

Scenario	Key Variables		
	Investment Cost (I)	Jobs Created (J)	Economic Benefits (E)
Optimistic Scenario (O)	5,0%	5,0%	5,0%
Realistic Base Case (BC)	90,0%	90,0%	90,0%
Pessimistic Scenario (P)	5,0%	5,0%	5,0%
Total	100,0%	100,0%	100,0%

The results of the assessment yield the results are shown in the table 1.8-23 and figures 1.8-7 and 8.

Table 1.8-23 Results of Economic Risk Analysis

Variable	Variation ENPV	Variation ERR
Realistic Scenario	0,00%	0,00%
Optimistic Scenario	+15,67%	+9,87%
Pessimistic Scenario	-14,75%	-9,6%

Figure 1.8-7 Risk analysis: ERR Probability distribution

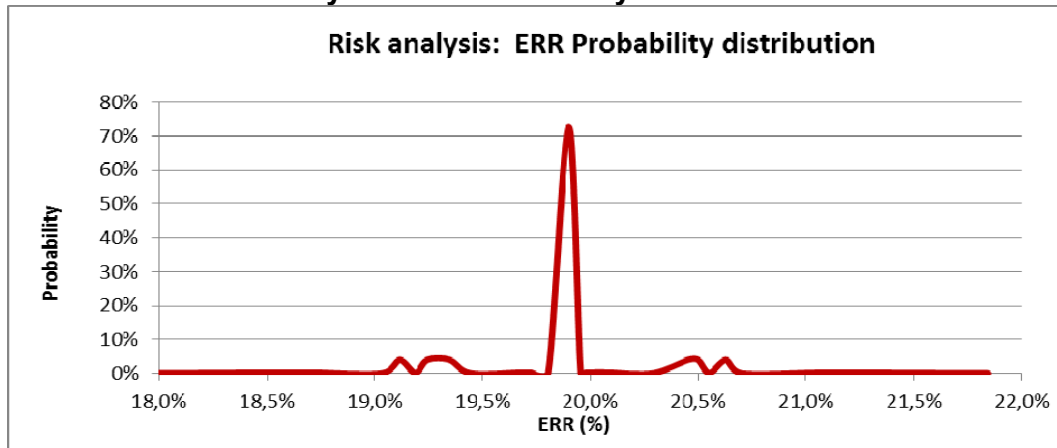
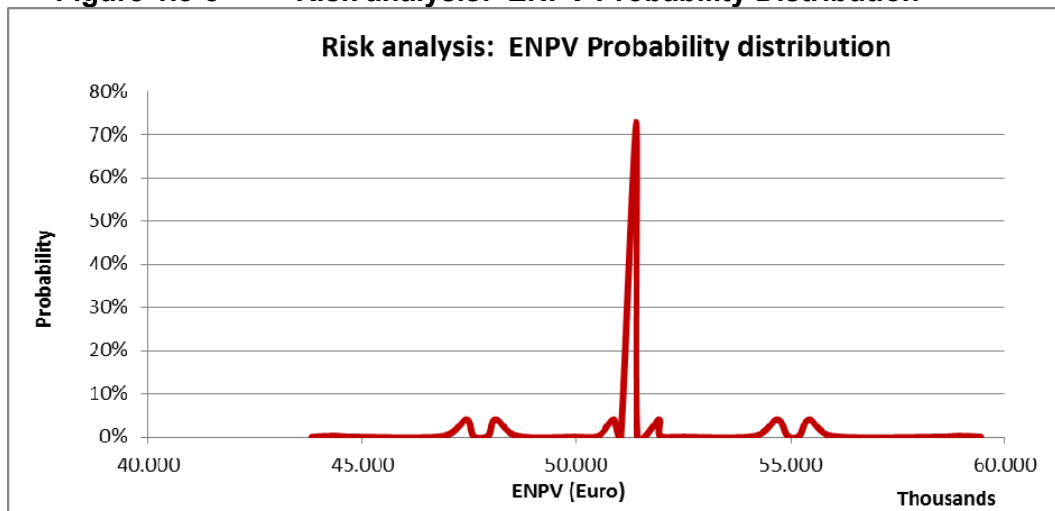


Figure 1.8-8 Risk analysis: ENPV Probability Distribution





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1.9 Financial Assessment of the Company d.o.o. Slobodna zona Vladicin Han

The d.o.o “Slobodna zona” Vladicin Han records a symbolic budget surplus and budget deficit in observing years. The company at present time is purely formally established without any operational activities performed, amount of receives from different sources, actually current subsidies from municipal and republic budget in previous years are recorded also in a municipal final accounts and used for covering of cost of salaries and other services like: fines, penalties and other taxes. Summary of the budget execution presented in a table below does not reflect any significant operational activity of the company in a last two years.

Table 1.9-1 Budget execution report: d.o.o “Slobodna zona” Vladicin Han (RSD ‘000)

Budget execution summary	Amount of realized revenues and receives					
	2009 (RSD 000)			2010 (RSD 000)		
Description / Source	Total	Republic	Municipality	Total	Republic	Municipality
I. Current revenues						
1. Current transfers from other level of government		-	1,569		216	-
A. TOTAL REVENUES & RECEIVES	1,569	-	1,569	216	216	-
II. Current expense						
1. Cost of Salaries		-	1,379	-	-	-
2. Use of services and goods		-	63		-	218
3. Other services		-	124		-	-
B. TOTAL COST & EXPENSE	1,566	-	1,566	218	-	218
C. SURPLUS of revenues-budget surplus (A-B)	3	-	3		216	
D. DEFICIT of revenues-budget deficit (B-A)		-		2		218



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1.10 Conclusion

This feasibility showed that the extension of the Suva Morava industrial zone to provide an initial 50 hectares of serviced greenfield plots could generate about 4,000 jobs in the zone during the period up to 2020. This job creation initiative provides a significant contribution to the 400,000 jobs which are necessary for successful implementation of the Strategy and Policy Development of Industries in Serbia between 2010 and 2020.

The estimated economic internal rate of return for the investment varies between 11% and 25% depending on the rate of job creation and is well over the minimum social discount rate of 5.5% expected for projects of such nature.

The project consists of the following components:

- Improvement of 1 km of existing road access to the industrial zone
- Construction of about 5km of internal roads with street lighting
- Construction of flood protection
- Development of about 50 hectares of farmland into disposable plots
- Construction of 5km of new underground 35kV and 110kV electricity cable
- Construction of new 10kV transformer stations and 16km of 10kV network
- Installation of 3km of ducts for telecommunication system
- Construction of new wellfield with initial capacity of 50l/s
- Construction of about 5km of water supply pipelines
- Construction of about 6km of surfacewater drainage network
- Construction of about 4 km of wastewater network with a 3000 population equivalent WWTP

A tentative funding plan in current terms has been prepared and is presented in the following table.

Table 1.10-1 Funding Plan

Financing Source	Investment Values (current price, EUR)	Percentage %
Potential EU grant	10.314.610	69,20%
Central / Regional Government grant	982.700	6,59%
Loan for initial land purchase	1.314.000	8,82%
Local Budget for further land purchase	2.294.221	15,39%
Others	0	0 %
Total	14.905.531	100 %

Note: All costs in current terms, i.e. includes escalation

The project is presently being considered by the Serbian Government for funding under the European Union's Instrument for Pre-Accession and is in competition with other projects which are also seeking similar very advantageous grant finance. The final decision will depend on many factors which the Government may consider as part of the final selection criteria and of which the status of project preparation is probably the most important.

After successful preliminary negotiation on the funding arrangement there are still many other activities which have to be completed for successful implementation of the project. The status of these activities are evaluated hereafter:

- Land acquisition
- Preparation of project documentation
- Implementation arrangement
- Finalisation of funding agreements

Land acquisition has been a continuous source of delays in the implementation of many projects in Serbia. This project may suffer from the same potential risks because very little of





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the land which are planned to be developed into the industrial zone is actually in the ownership of the Municipality.

It is estimated that at least 25 hectares of land, all farm land have to be acquired by the Municipality and another 17 hectares of land will have to be obtained from the old paper factory in exchange for its liabilities towards the municipality prior to the preparation of the project documentation.

The Municipality has already completed a detailed regulation plan but the plan has to be updated to include new elements such as connection to the highway E75 which is part of Corridor X.

The preliminary design has to be completed on the basis of the design conditions and the preliminary design has then to be reviewed to confirm adherence with the design and technical conditions.

After completion of this feasibility study and in order that the momentum towards implementation is not lost, there is need for continuing management efforts which includes appointment of consultants for completion of the project documentation such as preliminary design, detailed design, preparation of the tender documents and supervision of construction.

In parallel to the completion of the project documentation, the administrative activities such as permitting and creation of operational structure have to be completed.

Implementation of the construction requires a preparation period during which the detailed design consultant has to be engaged and the tender documentation completed. The tender process as described by the PRAG procedures has to be adhered to and this process requires a minimum tender period during which proposals can be prepared and presented.

Analysis of the critical activities resulted in the implementation programme as presented hereafter. The minimum period thought possible and normally adopted by EU procurement rules has been allowed for each activity.

Using the above basis the draft implementation programme has been prepared and presented on the Figure 1.10-1.



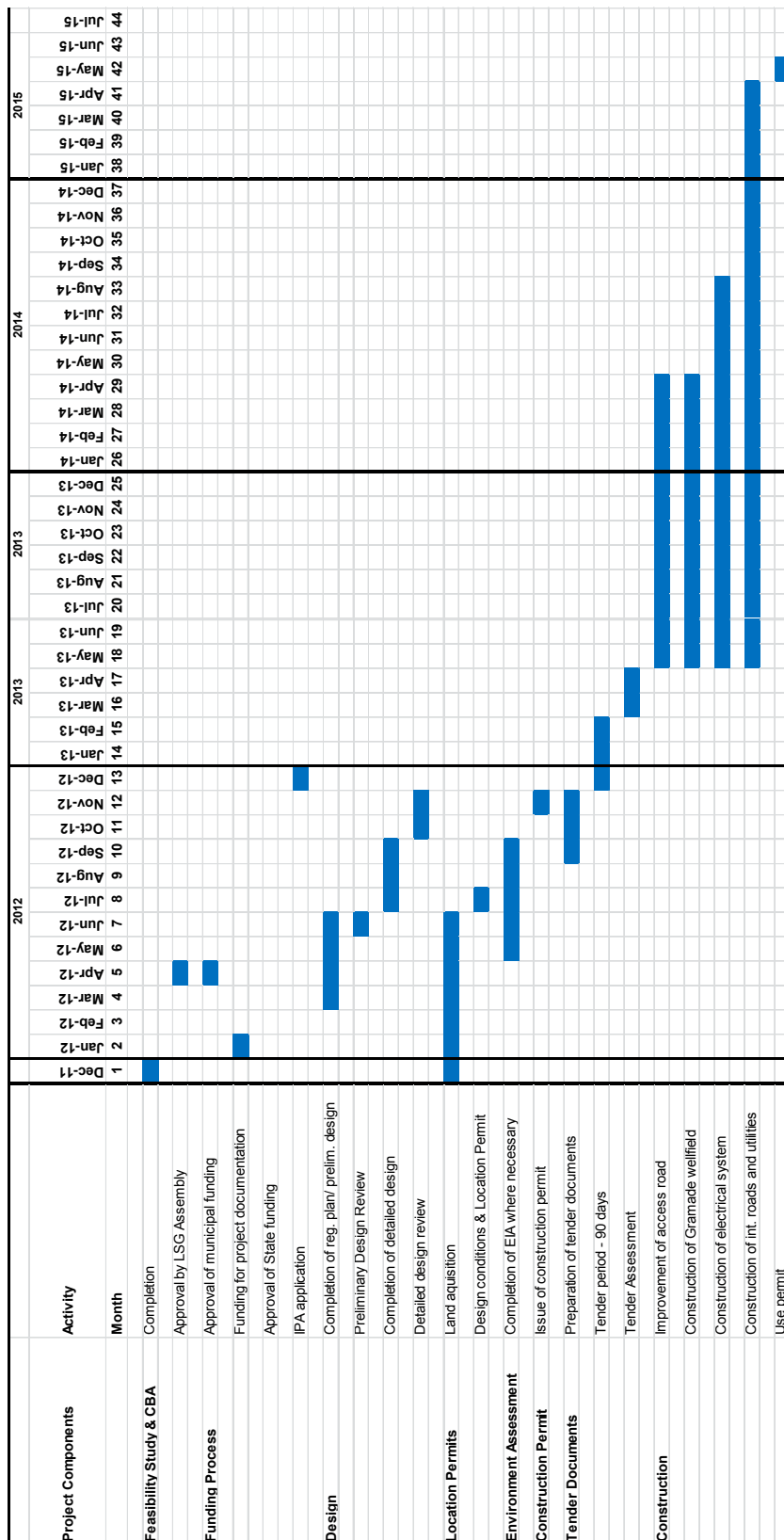
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Figure 1.10-1 Implementation Plan





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2 BACKGROUND

2.1 Objectives

One of the three purposes of the Municipal Infrastructure Support Programme is to improve municipal infrastructure programming and project preparation within local government structure. The quality of feasibility studies has been identified as one of the identified weakness and therefore support in the preparation of feasibility studies is one of the activities included within the programme.

The main purpose of this feasibility study is to determine the feasibility for the extension of the existing Suva Morava Industrial Zone in the Municipality of Vladicin Han in southern Serbia.

Harvard Business School Professor Michael Porter's research, as summarized in his book, *The Competitive Advantage of Nations*, has identified four broad determinants that work together as a system to improve national advantage as follows:

- Positive factor conditions such as infrastructure (transport, communication etc), human resources and raw material are directly linked to the nation's wealth;
- Demand condition, where sophisticated local customers continuous demand for improvements increases the ability of firms to meet foreign customer needs;
- Clustering of related industry which supplies raw materials and components as well as business services which supports the sector, are key elements of the supply chain;
- Institutional context for firm strategy and rivalry, which can influence creation of firms, investment policies,

In nations with internationally competitive industries, they operate as a system, with each determinant vigorously reinforcing the other leading to constant upgrading and change throughout the system.

The factor conditions are dependent on natural resources which are accidents of history but also on other conditions which can be influenced through appropriate investments. The objective of this study is to identify the appropriate investments.

The demand conditions are not entirely in the control of the state but a good understanding of the business needs will help the state to devise incentives for businesses.

The encouragement to create business clusters is important because clusters can be a tool to efficiently manage the supply chain whilst at the same time opening up competition in the sector.

The importance of the institutional context cannot be stressed high enough. Unnecessary and complex rules and regulations create barriers to investments and must be minimized.

The feasibility study for Vladicin Han will therefore examine what is required to put in place these 4 determinants and propose a project which will encourage entrepreneurship to install itself in Vladicin Han.

2.2 Organization of the Report

This chapter presents the background to the project, its location and the environment in which the project has to implemented. Chapter 3 summarizes the legal policy and institutional framework. An evaluation of the socio-economic context is presented in Chapter 4. Management options are analyzed in Chapter 5. Chapter 6 examines the existing infrastructure and the organization of the industrial sector in the region. A market analysis of the supply and demand for industrial land is provided in Chapter 7. The long term development plan for the improvement of public services is presented in Chapter 8. An environmental assessment of the impact of the project is summarized in Chapter 9. Chapter





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10 presents a financial assessment of the municipality, cost benefit analysis and financial assessment of the company Slobodna zona (Free zone). Chapter 11 identifies the priority project which are recommended for implementation.

2.3 Context

2.3.1 International Objectives

This feasibility study and subsequent implementation of the Project is compatible with national objectives which are also aligned with the following international treaties

- Principles of sustainable development, Agenda 21
- Millennium Development Goals, MDG
- National Environmental Strategy, NES
- Paris Declaration on Aid Effectiveness 2005
- European integration and *acquis communautaire*

At the World Summit Meeting in Rio de Janeiro in 1992, the Federal Republic of Yugoslavia signed the final document on sustainable development, as well as the Framework Convention on Climatic Changes and the Convention on Biodiversity. The Republic of Serbia as a successor is bound by these principles of sustainability.

At the Millennium Summit held in New York in September 2000, the Republic of Serbia, together with 189 other signatory countries, adopted a Millennium Declaration which specifies basic values on which international relations in the 21st century should be based: liberty, equality, solidarity, tolerance, respect for nature and the division of responsibility. In May 2005 the Government of the Republic of Serbia adopted the Report on the Realization of Millennium Development Goals in Serbia.

During 2006 the National Environment Strategy was developed and action plans were prepared.

The Republic of Serbia is signatory to the Paris Declaration on Aid Effectiveness in 2005 which provides good practices for implementation of development programmes.

Serbia is a potential Candidate country for EU accession following the Thessaloniki European Council of June 2003. The obligation to harmonize the legal framework of the Republic of Serbia with the EU *acquis* was mentioned for the first time in the Resolution on Accession to the EU and was adopted by the National Assembly on 13 October 2004. A Stabilisation and Association Agreement was signed with the EU on 29 April 2008 and ratified by the National Assembly in September 2008. Serbia officially applied for EU membership on 22 December 2009.

2.3.2 Municipal Infrastructure Support Programme

This study has been prepared under the Municipal Infrastructure Support Programme (MISP), an initiative funded through the European Union's Instrument for Pre-Accession (IPA) 2008 to assist the Republic of Serbia in achieving the national objectives. The Government of the Republic of Serbia has defined five areas for which international assistance is sought: employment generation, the strengthening of institutional capacities, building, reconstruction and modernising the infrastructure, environmental protection and rural development. This feasibility study is just one of many deliverables for this programme which has been designed to address these issues. Details of the other activities are available on the programme's website, www.misp-serbia.rs.





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2.3.3 Selection of Projects for Support

Recent programmes have provided support to the Standing Conference for Towns and Municipalities (SCTM) to set up and manage a national project pipeline facility for infrastructure investments (SLAP). This facility provides a tool for municipalities to organize their project identification and preparation activities and to publish their needs in a structured format.

This facility can then be used by central government, international finance institutions (IFI) as a tool for prioritization and selection of projects on the basis of the prioritization criteria established for a particular programme.

The facility can be viewed at www.slap.skgo.org/Login/Login.aspx and www.misp-serbia.rs.

The SLAP tool was used to preselect a certain number of feasibility projects which corresponds to the programme's policies as contained in the EU Instrument for Pre-Accession financing agreements. The preselected projects were further examined in detail for maturity in project preparation, commitment of the relevant municipality, evaluation of implementation risks and compliance with regional development policies.

Recommendations on the projects to support are made to the Steering Committee for this programme who makes the final selection.

The Steering Committee meeting of 9th March 2011 selected this project for support and a Cooperation agreement was signed by the municipality on 5th April 2011.

2.4 The Project

The project area is located about 330 km south of Belgrade and is located in the town of Vladicin Han, situated in the south-eastern Serbia, in the district of Pcinja. The project area is the existing industrial zone "Suva Morava" located about 4 km south of the town of Vladicin Han.

The total surface of the municipal area of Vladicin Han is 366 km² with total population of 21.000. The town itself has population of 8.300 (Census in 2011). The wider location of the project area is shown in the figure 2.4-1.

The Municipality of Vladicin Han is located within the district of Pčinja to the South East of Serbia. With an unemployment rate of over 40 percent, the district faces a number of challenges in developing its human resource potential to support employment, create jobs, fill vacant positions, and foster learning. The Pčinja Districts is characterised by low levels of employment, high unemployment, a lack of a proactive approach to job seeking, low level of skills in the existing workforce, and weakly aligned systems of education and learning relative to the jobs available. Vladicin Han is one of the municipalities identified in the 5th group of municipalities with a development index less than 50% of the national average.

In order to improve the situation the Regional Development Strategy for the Jablanica and Pčinja Districts (2008-2012) identified the existing industrial zone, Suva Morava in Vladicin Han as an area where regeneration and extension of the existing area will bring about much benefits in encouraging brownfield redevelopment coupled with better availability of greenfield locations for new investors. The location of the project is shown on the following figure.



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Figure 2.4-1 Wider project area

The existing industrial zone is almost fully occupied and the Municipality is turning down requests from potential investors investigating the possibility of setting up business in Vladicin Han because of a lack of good quality fully services industrial locations. This project is therefore intended to resolve this issue through making available in phases good quality industrial land.

2.4.1 Topography

Vladicin Han is located in the South Morava river valley, between the Grdelica gorge (on the north) and the Vranje valley (on the south). The town area is situated at altitudes between 315 and 450 m a.s.l, with the central part of the settlement being at about 340 m a.s.l. Wider area of the town has hilly to mountainous relief, surrounded by the Kukavica mountain (1442 m a.s.l) on the west and the Cemernik (1638 m a.s.l) on the east. The town itself is situated on the both South Morava river banks, in a flat terrain.

The topography of the wider area is shown in Figure 3.2.





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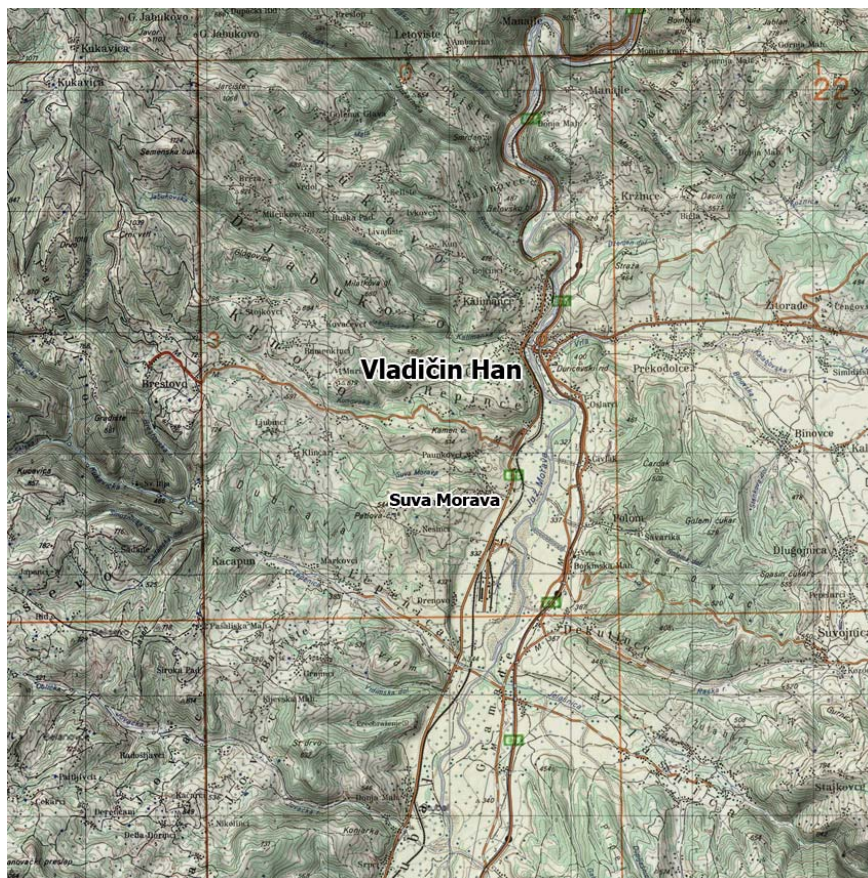


Figure 2.4-2 Topography of the wider project area

2.4.2 Climate

The climate of the Vladicin Han municipality is a semi-continental with minor variations depending on the altitude. Generally, the summers are warm, the autumn is colder than the spring, the winters are moderately cold. The town of Vladicin Han is situated in the valley of the South Morava river, therefore its climate settings differ than the closest mountainous areas of the Kukavica and Cemernik.

The project area is morphologically “protected” by the gorge of Grdelica which reduces the impact of cold air streams in the winter and results in a relatively mild winters. The average annual temperature in the town of Vladicin Han is 11.1° C, the warmest month is August (average temperature is 21.5° C), the coldest is January (average temperature is 0.1° C). Average rainfall in Vladicin Han is 715 mm/m² (November is the highest precipitation month, 92 mm/m², July is the lowest, 35.5 mm/m²). Mean duration of snow cover in Vladicin Han is 38 days.

Given the town of Vladicin Han is situated in the river valley of the South Morava, the area is exposed to permanent wind, during all seasons and in all directions. The prevailing wind directions are north-east and north. Period of silence is the most frequent in the winter.

Period of frost starts between the mid-October and beginning of November and lasts until mid-April. Mean annual humidity is about 70%, particularly in the winter period. Morning haze and fog is frequent in the South Morava river valley.





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2.4.3 Air Quality

Given the low level of industrial activity, no significant air pollution sources are present in the project area. During the winter season, the air quality is impacted in the town area of Vladicin Han by the emissions of particulate matter, SO₂ and NO_x from individual sources for combustion of fossil fuels, for heating purpose. Another air pollution source is traffic along the regional road R-214. However, the overall air quality is good and the assimilative capacity is sufficient for the potential air emissions from the industrial zone.

2.4.4 Hydrography and Hydrology

Hydrographic network of the project area is moderately dense with moderate average discharge. Surface flows in the project area belong to catchment area of the River West Morava (the Black Sea basin). The largest river in the area is the South Morava.

Vladici Han town lies in a valley formed by few rivers: the South Morava river, the Vrla and the Kalimanka. The rivers in the area are characterized by their torrent flow with significant variations depending on the season. In the summer period flow rates are usually low and this has an additional impact on water quality degradation.

The South Morava river is the main recipient of surface waters in the area. The river runs in south-north direction, bending and forming meanders. The South Morava tributaries are mountain rivers with torrential flow causing the significant load of sediment in the river and erosion of the banks. Mean annual flow rate of the South Morava is 19.6 m³/s and mean water level is about 100 cm. Given that the South Morava flow rate is heavily impacted by the hydrological regime of its tributaries, the highest flow rates (30-40 m³/s) usually occur in the spring. The lowest recorded flow rate of the South Morava was 0.4 m³/s. The difference between the highest and the lowest flow rate indicates the torrential character of the South Morava.

The largest tributary of the South Morava, in the project area, is the Vrla river. The river originates in the mountain of Vardenik (at 1,604 m a.s.l) and joins the South Morava near the town of Vladicin Han (at 323 m a.s.l). Passing the length of about 15 km, the Vrla river rapidly descends for about 885 m and therefore is a rather important for hydropower generation since four hydropower plants (Vrla I, II, III and IV) were installed on the river.

Flooding occurs during the high rainfall periods in the area of Vladicin Han town. The catchment area is relatively rich in natural springs, especially in mountains areas. There is also a large number of small mountain creeks with torrent flow.

The hydrographic network of the project area is presented in the Figure 2.4-3.



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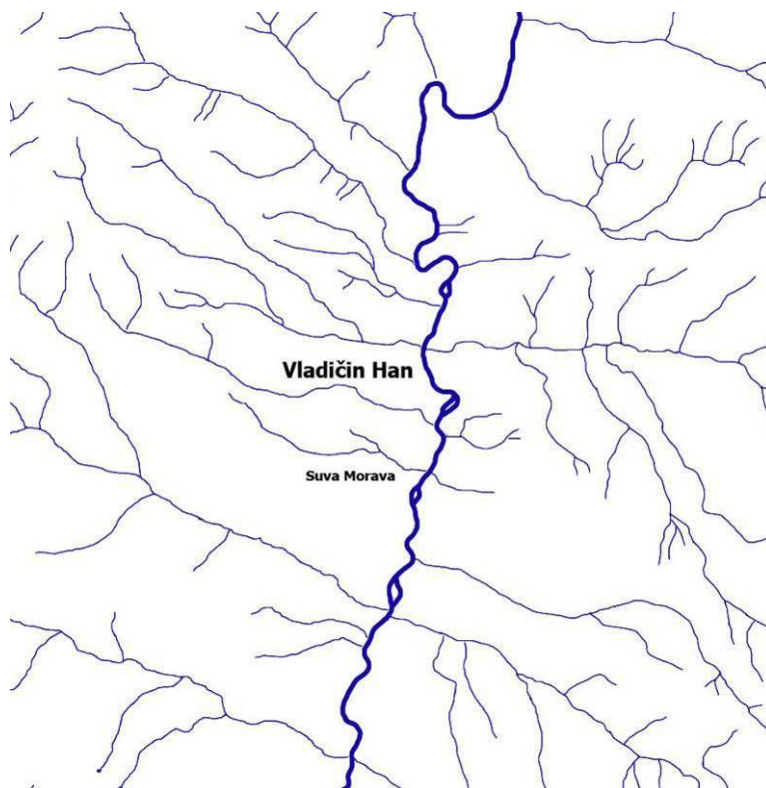


Figure 2.4-3 Hydrographic network of the project area

2.4.5 Surface Water Quality

The main legislative document in Serbia related to the surface water quality is the *Law on water (Off. Journal of RS, No. 30/10)*. Currently, the process of full implementation of the Law has been ongoing through enforcement of recently published by-laws.

Therefore, the requested quality of watercourses is still defined by the *Decree on categorization of watercourses (Off. Jour. of SRS, No. 5/68)*. The 1968' Decree classifies surface water into four quality classes. Being outdated, this practice has been abandoned in the EU and improved by requirements of effluent quality and/or minimal removal efficiency for certain parameters.

“Class one” water quality is defined by the Decree as a water that may be used for drinking in its natural condition. “Class two” defines water that may be used for purpose of recreation but can be used for drinking only after the water treatment. “Class three” defines water that can be used for irrigation or in industry (except food industry) only after the usage of (common) treatment techniques. “Class four” defines significantly polluted water requiring adequate treatment in order to be used for any purpose.

Surface water quality in the project area is in a rather poor condition and not in compliance with regulation. The main source of surface water pollution in the project area is discharge of untreated sanitary and industrial wastewaters into the recipients. Another source of pollution are domestic waste dump sites situated along the streams. The South Morava river is the final recipient of wastewater discharged from the municipal area, receiving polluted water from its tributaries, as well (particularly the Vrla River). The river pollution issue is particularly significant during the dry season when the river flow rate is low.



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The existing industrial zone “Suva Morava” presented one of the significant pollution sources of the South Morava given the operation of variety of facilities (paper and wood manufacturing, fruit production, metal processing). Today’s level of industrial activity in the zone is rather low and the wastewater generation has been minimized. However, the current state of wastewater infrastructure is not in compliance with legal requirements and needs significant improvement.

The Municipality of Vladicin Han issued the *Regulation on sanitary-technological conditions for wastewater discharge into the public sewage* defining the maximum allowed concentrations of discharged substances.

Public water management company “Vodovod” is in charge for wastewater quality monitoring in the municipality. Wastewater quality samples have been taken from few discharge points from both the South Morava and the Vrla rivers. According to the *Report on wastewater quality for the period 2001-2006* (published by PWMC “Vodovod”), all wastewater samples taken from 2001 to 2004 were not in compliance with the defined MACs. During the 2005, one sample (of 8) was in compliance. During the 2006, four samples (of 22) were in compliance but it was noted they were taken upstream of the discharge point.

The South Morava River quality in 2009, monitored by the Republic Hydro-meteorological Institute at Vladicin Han monitoring station, was in “out of class” category. Concentration of the phenol index in the River was periodically increased.

2.4.6 Geology

Area predicted for development of the industrial zone is located on the left bank of the South Morava River. In terms of geology, the site is located on the alluvial deposits of South Morava River. Alluvial complex is about 5-10 m thick consisting mostly of gravel and coarse sand.

2.5 Planning Framework

The planning framework is based on the following documents: The Spatial plan of Serbia 2010-2014-2021 which was adopted in february 2010, defines the location of industrial zones in Serbia.

The Regional Development Strategy for the Jablanica and Pcinja Districts (2008/-2012) was prepared for the Center for Development of Jablanica and Pcinja Districts in 2008 and provides a regional vision for development of the region.

The General Urban Plan for the town of Vladicin Han was prepared in 2007 and covers only the urban area and does not cover the location of proposed industrial zone.

The existing regulation plan is outdated and some deficiencies have been noted, these deficiencies have to be corrected prior to implementation. The deficiencies noted are as follows:

1. The plan does not acknowledge the imminent completion of the E75 highway to dual carriageway standard and the adequate connection of the industrial zone to this highway corridor has not been fully assessed. The solution for the access between Corridor X and the Industrial Zone for the types of vehicles expected has not been fully assessed.
2. There is no mention of the proposal to upgrade the existing railway within Corridor X and how this proposal will impact the proposed industrial zone.
3. The access to the industrial zone proposes a highway bridge to cross over the existing railway line but the approach and gradient have not been adequately assessed for the type of vehicles expected in the industrial zone. The solution





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proposed in the plan is not in accordance with road traffic regulations or the EU Directives.

4. The plan assumes that the water supply of the Municipality has already been resolved and the land presently occupied by the existing wellfield can be reassigned for industrial development. The solution for the water supply of the Municipality of Vladicin Han is far from resolved and the alignment for roads proposed by the regulation plan has to be adjusted.
5. The availability of water resources for the industrial zone is not fully resolved, in particular during the period when the Vrlap hydroelectric stations are shut down for annual maintenance, period which can last for 2 months. The regulation plan assumes that the Vlasina lake regional water supply project has been completed but this project, although recognized in the National Water Resources Master Plan of 2001 is not presently considered as priority. A temporary solution has to be implemented to guarantee sufficient water for the industrial zone and the Municipality.
6. The drainage of stormwater has not been evaluated in the plan.





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3 LEGAL POLICY AND INSTITUTIONAL FRAMEWORK

3.1 Introduction

A sound legal policy and institutional framework is essential to the sustainability of any project. This chapter of the report reviews the existing legal, policy and institutional framework. The laws and policy framework which are of high relevance to the project are presented. The main stakeholders are identified and their responsibilities and relationships with each other are identified. Horizontal issues which may impact the project are also examined.

3.2 Policy Framework

The Strategy on Free Zones Development in Serbia for the period 2011 to 2016 (Official Gazette of the Republic of Serbia, No. 13/2010). The Serbian government, on 24 March 2011 adopted Strategy on free zones development in Serbia. The Strategy acknowledges unbeneficial state of affairs as from 2009 on. From that period Serbian free zones did not attract *any* of the investors. For example, ordinary industrial zones in Indjija, Lapovo, Vrsac, Zrenjanin and Pecinci have been much more successful in business attraction in comparison with free zones. Conclusion drawn from the Strategy is that incentives offered in free zones (customs exempt import of the goods to be improved and exported afterwards) are not sufficient to increase competitiveness of the regions where free zones are located. New greenfield and brownfield investors value much more competitive advantages of the municipalities with business-friendly climate, skilled workforce and one-stop shops. Hence, Ministry of Finance, Administration for Free Zones has decided to offer some additional benefits to new investors in existing and new free zones. Strategy calls for establishment of the symbiosis between free zones and industrial zones (or industrial parks) that is, combining customs and tax benefits with completely equipped construction land, one stop shops and other benefits. Moreover, Strategy envisages changes to the some additional laws on corporate taxes (Law on Payroll Tax, Law on Corporate Profit and Law on Property Tax) and lowering the tax rate for companies within the free zones. For example, additional tax reliefs are about to be introduced in sectoral laws - reduction of the payroll tax in newly founded companies (at municipal incentive, as municipalities receive 80% of this shared tax) and reduction of tax on property by 50%. Strategy represents the first national level policy document in the area of free zones development that consistently and comprehensively define the main development directions of free zones and ways of their implementation in the coming years.

The Regional Development Strategy of the Republic of Serbia - 2007 – 2012 (Official Gazette of the RoS No. 21/07). This strategy has been the first planning document in Serbia to take a multidisciplinary approach to regional development; it involved economic, social, demographic, environmental, cultural, health care and educational standpoints. Strategy has two directions. The first is boosting development potentials of already developed local governments, almost always centers of their district, in order to enable accelerated development of the entire district as a whole and improve competitiveness. The second direction is focused on local government units, which are in development sense, below average, in order to stop their further decline. State policy to reduce disparities between regions may include building of utility and economy infrastructure, including new industrial zones, industrial parks and free trade zones. After adoption of the Law on Regional Development, Government of Serbia started with preparatory activities on formulating of the





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National Plan of the Regional Development. National Plan will replace Strategy as of next year and will become key strategic document that governs regional development in the country.

First positive developments in the strategic and policy design related to regional development were made with the adoption of the **Poverty Reduction Strategy (PRSP)** in 2003 which was the first fully participatory planning document developed in Republic of Serbia. Poverty Reduction Strategy represents a mid-term development framework focused on reduction of key forms of poverty which includes analysis of courses and characteristics of poverty in Serbia, as well as the main strategic guidelines for social development and reduction of the number of poor population in the years to come. The Strategy considers various poverty components and pays special attention to the regional component of this systematic problem. The poverty in Serbia has become a rural problem and is deeply rooted in very much undeveloped areas in South-East Serbia. The Strategy specially underlines rural areas in South – East Serbia that, according to Strategy findings, has double risk of poverty compared to the overall population of the Republic of Serbia. The population of South-East Serbia makes 14% of the overall population in Serbia, and in the poverty category they make 25%.

The National Sustainable Development Strategy (2008-2013) emphasizes macro-economic stabilization, the promotion of SMEs and FDIs, increased investment in human resources and in the adaptability of the labor force, as well as the reduction of regional disparities and the protection of the environment as key policy priorities to achieve sustainable economic growth accompanied by social development. To reduce regional disparities the National Sustainable Development Strategy proposes public-private partnerships to increase the quantity and quality of infrastructure and human capital as well as targeted programmes to increase the qualifications level of the labour force in the most disadvantaged districts and municipalities.

The National Employment Strategy (2011 to 2020) was adopted in May 2011. Stimulating employment in the less developed regions and developing regional and local employment policies are key strategic goals aimed to prevent the depopulation of certain regions in the country. A precondition for promoting the permanence and return of the labour force in less developed areas is rapid improvement of the existing infrastructure. Strategy envisages that the creation of new jobs will be supported by financial incentives that will take the form of employment and self-employment subsidy or loan programmes made available by the National Employment Service, the Development Fund and the Investment and Export Promotion Agency (SIEPA). Balanced regional and economic development will be achieved by allocating more funding to employment subsidies in the less developed and poor regions, financing enterprises through long- and short-term loans, issuing bank guarantees, and supporting investors with grants for each new job created. To reduce regional disparities, regional and local employment policies need to be further developed and special programmes need to be designed to stimulate employment in the less developed regions. One of the important strategic directions is focused on local governments. Cities and municipalities will acquire new roles and responsibilities that not only entail the implementation of the national employment policy, but also the design of employment programmes that acknowledge and address local specificities. The capacity of local government will be built – in particular that of local employment councils – and social dialogue strengthened not only in the design, but also in the implementation of regional and local employment policies. Of particular importance is the already established financial support provided from the central level to local self governments in the form of co-funding programmes and measures established by the regional and local employment policy. The





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funding allocation will be carried out in a manner that promotes the development of regions lagging behind.

The National Economic Development Strategy of the Republic of Serbia (2006-2012). Strategy recognized, as two most important horizontal measures to promote national and regional competitiveness development of industrial clusters and promotion of the industrial and free zones. Strategy recognizes zones developed as a greenfield and brownfield investments. As a first step Strategy calls for creation of the updated database on all industrial zones in the country.

The National Strategy of the Republic of Serbia for the SCG's EU Accession. One of the key economic objectives of the EU accession strategy is increasing competitiveness and enabling the country to integrate into the EU market. This principle directs the investments towards the creation of new, modern economic structure, competitive both in domestic and international market. The Strategy calls for an open economy and healthy market environment, suitable for foreign investment and initiation of domestic saving aimed at creation of critical mass of small and medium-sized enterprises to take over the work force from the unprofitable ones. One of the recommendations from the Strategy is to create strong social programmes which would replace the subsidies for companies which cannot survive economically.

The Strategy on Encouraging and Developing Foreign Investment was adopted in 2006. In Serbia with the overall emphasis on achieving convergence with EU rules and procedures through overall modernization of business rules and regulations with the specific overall goal of achieving improved access to development land and provision of industrial and technology parks, it is recommended that the practice and focus on the development of the free zone concept be re-examined and whether the needs of some existing users could be better addressed by increasing the number of Customs Bonded Warehouses.

The Strategy and Policy Development of Serbian Industry 2011 – 2020 reaffirms development of the regional economic infrastructure as a very efficient tool for industrial development at regional level. Strategy especially highlights as a extremely important, development and revitalisation of the brownfield locations. Strategy acknowledges that State has invested, from 2007 on, more than EUR 200 mil. for development of the industrial locations in 50 cities and municipalities (development of the regional traffic infrastructure, utility infrastructure etc). In the future period, revitalization of the brownfields will be organized in three directions: demolition and removal of the old, ruined objects jointly with decontamination of the soil, revitalization of the some objects with change of the economic purpose and revitalization with an aim to reestablish primary economic purpose of the object. Regional development policy will stimulate revitalization of the brownfields with financial and non-financial measures and incentives. Business infrastructure shall be tailored to fit, by its capacity, structure and purpose local and regional development characteristics and potentials and market trends. Primary goal of the business infrastructure development should be overall economic growth and polycentric development. Criteria for further state level incentives to business and industrial development should be attractiveness and competitiveness of the locations, quality of the infrastructure, institutional development of the local administration, educational system (schools, universities) etc.

Regional Development Strategy for the Jablanica and Pcinja Districts and Regional Programming Document for the same period (2008-2012). Strategy sets out the main activities and interventions necessary to accelerate integrated, regionally-focused





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economic development and growth across the Jablanica and Pčinja Districts in the areas of economic and enterprise development, infrastructure, skills and employment, agriculture and rural development and tourism. Strategy recognizes that business zones and free zones are a precondition for new business investment in the region. Zones with complete infrastructure and with clear ownership should be actively promoted among local and foreign investors. Presently the Zone of Vladičin Han is the most promising regional project because it has the support of three municipalities (Vladičin Han, Surdulica, and Vranje) and potentially sorted out ownership relations and main infrastructure. With the experience of infrastructure construction and land sale in the zone, there will be other zone constructions in other locations in the region.

Development Strategy of the Vladičin Han Municipality envisages the possibility for reviving or activating the free zone in Vladičin Han. Free zone had their license retracted in 2005, preventing it from further doing business. Favorable position of the location of the zone (corridor 10, railroad, closeness to the Nis airport, closeness to the border with Macedonia and Bulgaria) could in the near future, be one of the activities which would contribute to the industrial and economic development of Vladičin Han municipality. Initiative for revitalization of the industrial zone in Vladičin Han (future establishment of the Regional Free Zone "South") was put forward by the local governments Vladičin Han, Vranje and Surdulica.

3.3 Legal framework for free and industrial zones

A summary of the laws important to the project and the relevance of each to the project is provided hereafter.

Law on Free Tax Zones (“Official Gazette of the Republic of Serbia” No. 62/06).

Law establishes procedure for set up of the free zones and for incorporation of the enterprise that would manage zone. Founder of the enterprise for zone management may be local government, but may also be a private business entity or physical person. It is possible that joint venture with mixed capital, public and private, also establishes a zone (i.e. zone as a public-private partnership initiative). Law does not mention explicitly, but it is also allowed that two or more cities and municipalities, as founders, establish enterprise for management of the zone, and also establish zone itself. Government of the Republic of Serbia in each particular case, upon request from the founders of the zone, gives consent for determination of the free zone area. Founders of the zone have to be the same entities (entity) as founder(s) of the enterprise for the zone management. In the application, Founders have to submit to the Government feasibility study with market and labor demand analyses. All goods imported to the zone are customs free. Law on free zones provides for establishment of the Administration for the free zones as a semi-independent administration within the Ministry of Finance. Law also stipulates activities of the Administration related to control and supervision of the zones: reviews reports on zone operations and proposes their adoption to the Ministry of Finance; proposes to the minister in charge of financial affairs form and content of the applications concerning granting approval for establishing zone area; participates in the preparation of the regulations in the field of zone operations.

Decree on the closer criteria for defining the area of free trade zones (“Official Gazette of the Republic of Serbia” No. 69/06).

Decree prescribes that determining the zone area is economically justified if the following conditions have been met: that area should have the air harbor or river pier; or it should be connected with the highway which is a part of the European highway network; or it should be





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the area whose projects for stimulating economic development were approved within NIP for the period 2006-2012; the planned scope of capital investment should be higher than 3 million Euros, 50% of which should be foreign investment; the economic activity of the zone should have positive effect on the balance of payment of the Republic of Serbia; the minimum envisaged employment in the zone should not be less than 100 persons, over the first two years; the planned purchase of equipment for production should include new equipment which serves for transfer of modern technologies and reduction of operating costs.

Customs Law ("Official Gazette of the Republic of Serbia", No. 18/10).

Article 191 of the Customs Law defines free zones as parts of the customs territory of the Republic of Serbia or premises situated in that territory and are separated from the rest of the customs territory. Goods from free zones that are released for free circulation on the territory of the Republic of Serbia shall be subject to payment of customs duties and other import duties. This obligation arises on the day the goods cross from the zone to the territory of the Republic of Serbia, and the amount of customs duties and other import duties shall be determined according to the condition of goods and pursuant to the regulations in force on the date of acceptance of the customs declaration. Pursuant to Article 203 paragraph 2 of the Customs Law, for the products obtained in the free zone in the inward-processing procedure, the amount of the customs debt shall be determined based on the value of the imported goods contained in compensating products.

Law on Value Added Tax ("Official Gazette of the Republic of Serbia", No. 84/04, 86/04, 61/05 and 61/07).

In accordance with Article 24 of the Law, the VAT shall not be payable on entry of goods into the free zone for which the taxpayer – acquirer would have the right to input tax deduction, if it is obtaining such goods for the conduct of business outside the free zone as well as provision of transport and other services to the users of free zones, which are directly associated with the entry of goods into the free zone for which the taxpayer – recipient of service would have the right to input tax deduction, if it is using such services for the conduct of business outside the free zone.

Law on Planning and Construction ("Official Gazette of the Republic of Serbia" No. 72/09, 81/09, 64/10 and 24/11).

Law on Planning and Construction regulates spatial planning, construction of objects, urban construction land and legalization of objects. The Law was prepared in September 2009 with three basic ideas: to speed up the issuing of construction permits, to encourage legalization and to "restitute the ownership" on urban construction land to cities and municipalities. Municipalities may sell underdeveloped construction land to the private entity, business company or private entity in competitive bidding process (most usually on auction) but may also, as before, lease it for construction (up to 99 years lease). The Ministry for Environment, Mining and Spatial Planning (MEMSP) has initiated a set of amendments to the Law in late 2010 with idea to additionally improve provisions related to legalization and construction permitting and to speed up registering of the property rights to local governments. Law from March 2011 allows for location/construction permit to be issued for more than one construction lot (*gradjevinska parcela*) and one location permit may be issued for construction in phases; if investor constructs large building complex, especially in industrial and free zones, it will lower administrative costs and speed up construction process. New law stipulates that if municipal administrative body does not issue usage permit (or explicitly reject to issue it) within deadline of 90 days it will be deemed that usage permit is granted.





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Law on Regional Development (“Official Gazette of the Republic of Serbia” No. 51/09 and 30/10).

According to this Law, objectives of regional development stimulation are reduction of regional and intra-regional disparities; development of competitiveness at all levels; stimulation of cross-border and international cooperation as well as efficient use of local natural resources and properties as well as international resources. According to the level of development, regions are divided into two groups, and they are: first group – regions with 75% of development level and above 75% of republic average of per capita income, and second group – regions with level of development below 75% of republic average of per capita income. There are also measures for regional development incentive that should additionally contribute to a development of the under-developed regions. Incentives could be directed toward: promotion of different areas of economy, technological levels and new technologies approach; promotion of research and development; encouraging of regional and district competitiveness; development of associations and entrepreneurship and promotion of conditions for employment increase, and promotion of all development capacities at the level of region and districts as well as the local level.

Decree on determination of the uniform list of the local self-governments based on level of development for the year 2011 (Official Gazette of the Republic of Serbia, No. 69/2011).

Decree divides all Serbian local governments in five development groups, based on the development level. Vladicin Han municipality belongs to the fifth group of the extremely underdeveloped municipalities (“devastated municipalities”). In Serbia there are total of 27 extremely underdeveloped municipalities with development level below 50% of the Serbian average. Potential investors interested to establish company and to start business in those municipalities are entitled to receive most beneficial package of financial incentives in line with Decree on terms and conditions for attracting direct investment (see below).

Decree on terms and conditions for attracting direct investment (“Official Gazette of Republic of Serbia”, no. 42/11).

Republic of Serbia provides financial assistance to potential investors in line with criteria stipulated in this Decree. The funds for attracting direct investment are provided by the budget of the Republic of Serbia and may be used for financing investment projects in the manufacturing sector and the internationally marketable services sector. The total funds that can be allocated are determined according to the number of employees hired in a three-year period, starting from the day of the signing of the agreement for the funds allocation, for investments in the manufacturing sector, as follows: between EUR 4,000 and EUR 10,000 per each new job created within the three-year period in devastated municipalities and regions (like Vladicin Han) and in municipalities and regions of special state interest (former industrial centers with extremely high level of unemployment like Nis); between EUR 5,000 and EUR 10,000 per every new job created within the three-year period in the automotive, electronics or information technology and telecommunications industries in regions of special state interest; between EUR 2,000 and EUR 5,000 per each new job created within the three-year period in other regions of the Republic of Serbia for investments in the sector of services which are, or may be subject to, international trade; between EUR 2,000 and EUR 10,000 for every new job created within the three-year period, for investments whose total value is greater than 50 million Euros and which create at least 300 new jobs, funds totaling 20% of the total value of the investment are awarded; for investments whose total value is greater than 200 million Euros and which create at least 1000 new jobs, funds totaling 17% of the total investment are awarded.





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Decree on the Conditions and Manner under which Local Self-Government Units May Sell or Lease the Building Land at a Price Below the Market Price or Lease Fee or without Compensation (Official Gazette of the Republic of Serbia, no. 13/2010).

This Decree sets the criteria based on which the cities and municipalities, as new public property title holders, may sell the building land at a preferential price or free of charge and sets the specific procedure for this. The criteria under the Decree are the following: that it is an economic development project, meaning a project that increases employment in the local economy by at least 1%, or that it is a project of social housing construction, subsidised housing construction or construction of utility infrastructure facilities. General principle is introduced that the reduction of market price cannot be higher than the planned increase in public revenue based on the investment in the period of 5 years from the contract conclusion. The land may only be given free of charge if the investment is realised in underdeveloped local self-government units. The list of underdeveloped towns and municipalities is determined by the Government (see above for further explanation on position of the Vladicin Han as a “devastated/ extremely underdeveloped municipality”). The disposal of the land at a price lower than the market price or free of charge is approved by the Government of the Republic of Serbia based on a cost/benefit study prepared by the city or municipality. The Tax Administration's estimate of the market price of the plots is given and the conditions and criteria for price reduction as well as the criteria and standards for tender evaluation are stated in that study and a cost-benefit analysis of the investment as well as a social impact analysis of the project are enclosed.

Municipal ordinances on construction land, on land development charge and land use charge and on communal fees.

Local government, pursuant to its authority, may make a decision about the benefits for building facilities and infrastructure in the territory of the free or industrial zone. These benefits relate to the decision on exemption from payment of local taxes, fees and charges that are responsibility of local governments, for example charges for the municipal land development and land use, fees for municipal land using, fees for city planning conditions and agreements, fees for the water supplies and sewage system connection, local communal charges and the like.

Land Related Charges and Business Sign Fee in Vladicin Han

Provisions of the Law on Planning and Construction (“Official Gazette of the Republic of Serbia” No. 72/09, 81/09, 64/10 and 24/10) and the Law on Intergovernmental Finance System (“Official Gazette of the Republic of Serbia” No. 62/06 and 47/11) represent a legal basis for introduction and collection of the land development charge and land use charge in Vladicin Han.

According to the provisions of these two laws **land development charge** is local revenue that is earmarked for development of the construction land and construction and maintenance of utility infrastructure facilities.

Land use charge is revenue that is earmarked for maintaining of the utility infrastructure. The land use charge is calculated every year on the basis of how many square meters of land a given building takes up. Local governments are allowed to set the fee on the basis of zones that at least in theory reflect the amount and quality of urban infrastructure that has to be maintained in given parts of a municipality. Local governments charge differential rates for businesses and residents. It is planned that land use charge will be abolished from the Serbian system of the local finances in 2013, and will be integrated into property tax.

The Law on Planning and Construction enables cities and municipalities to set criteria and measures for determining the land development charge and land use charge rates by means of local ordinances. In Vladicin Han, as in many municipalities in Serbia, criteria and





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measures for determining this charges do not enable investors to evaluate whether the amount of charges is in correlation (what kind of correlation) with implemented works on provision of utility infrastructure or planned works in Annual plans for land development (prepared by Municipal land directorates and adored by municipal assemblies).

Land development charge represents in fact taxation of the planned investment and it burdens construction budget with up to 25% of the total costs. Some calculations for different models of construction should be defined by Vladicin Han Directorate for Urban Land/Construction. Amount of charge is not established upon actual cost, but upon the criteria having some or no relation to the cost of provision of utility infrastructure. The criteria are the same as the one used for setting the land use charge: size and purpose of structure (housing, production, commercial and other), urbanistic location (in accordance with the zone), existing and planned investment in infrastructure.

In Vladicin Han, land development charge includes the cost of utility preparations (displacement of population, demolition of structures, legal-property issues), cost of building main infrastructure lines and cost of building primary and secondary infrastructure. In practice, computing of land development charge is performed per square meter of the total area of structure on the basis of two crucial criterions: a) zone the structure/land is located in b) type of activity or the purpose of structure (residential structure, production, service or commercial structure, other).

Decision on Ammount of the Land Development Fee for Vladicin Han envisages that for production activites, investors will be entitled to three years grace period for payment of the charge. In comparison with Nis, for example, Vladicin Han does not have any special benefits for investors in future industrial zone. This zone is not designed as a special urbanistic zone with special (beneficial) land development fee calculation.

According to new Law on Communal Activities adopted in December 2011, Land use fee should be scrapped and replaced by direct fees for services. Another important point is that by this Law private sector explicitly allowed to carry out communal activities.

Another important fiscal burden on new businesses is **business sign fee (firmarina)**. Business sign fee is own source revenue that actually represents a municipal tax on coporate profit – as municipalities are authorized to set the ammount of the fee completely arbitrarily and in line with expected turnover (or profit) of the companies at its respective territories. In Vladicin Han, mosr excessive fees are set for companies – producers of the packaging paper (2,000,000 dinars per year) and for fruit processing companies – juice producers (700,000 dinars per year).

3.4 Convergence to EU Directives

1. Council Directive (EEC) No. 69/75 of 4 March 1969 on the harmonization of legal, regulatory and administrative dispositions for the Free Zone regime
2. Council Directive (EEC) No. 71/235 of 21 June 1971 on the harmonization of the provisions laid down by law, regulation or administrative action relating to the usual forms of handling which may be carried out in customs warehouses and in free zones
3. Council Regulation (EEC) No. 2504/88 of 25 July 1988 on Free Zones and Free Warehouses
4. Commission Regulation (EEC) No. 2562/90 of 30 July 1990 laying down provisions for the implementation of Council Regulation (EEC) No. 2504/88 on Free Zones and Free Warehouses
5. Council Regulation (EEC) No. 2913/92 of 12 October 1992 establishing the Community Customs Code





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6. Commission Regulation (EEC) No. 2454/93 of 2 July 1993 laying down provisions for the implementation of Council Regulation (EEC) No 2913/92 establishing the Community Customs Code
7. Commission Regulation (EC) No. 3665/93 of 21 December 1993 amending Commission Regulation (EEC) No 2454/93 laying down provisions for the implementation of Council Regulation (EEC) No 2913/92 establishing the Community customs code
8. Regulation (EC) No. 2700/2000 of the European Parliament and of the Council of 16 November 2000 amending Council Regulation (EEC) No. 2913/92 establishing the Community Customs Code
9. Commission Regulation (EC) No. 2454/93 of 4 May 2001 laying down provisions for the implementation of Council Regulation (EEC) No 2913/92 establishing the Community customs code.

3.5 International Agreements

Serbia is in the process of liberalizing its internal market whilst at the same time opening its market to other countries starting with its neighbours. Regional Trade agreements includes the European Union, the United States of America, the Russian Federation, Kazakhstan, Turkey, South East Europe, the European Free Trade Agreement members, the Central European Free Trade Agreement members and Belarus.

Exports to the European Union market are free-of-customs according to the Stabilization and Association Agreement. For several food products (baby beef, sugar, and wine) export quantities are limited by annual quotas. Duties and taxes on imports from the EU are imposed the basis of the Interim Trade Agreement, as part of the Stabilization and Association Agreement, providing for progressive abolishment of import customs duties for industrial and certain agricultural products from the EU countries by 2014.

Trade with the United States is pursued under the Generalized System of Preferences (GSP). U.S. trade benefits provide for a preferential duty-free entry for app. 4,650 products, including most finished and semi-finished goods and selected agricultural and primary industrial products. Certain sensitive goods (e.g. most textile products, leather goods, and footwear) are not eligible for duty-free exports. The list of eligible goods is reviewed and adjusted twice per year, with input from U.S. industries.

The Central European Free Trade Agreement (CEFTA) is the trade agreement between the following countries in South East Europe: Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Moldova, Montenegro, Serbia, and the United Nations Interim Administration Mission (UNMIK) in Kosovo. The Agreement has been in effect as of July 2007, providing companies in Serbia with an opportunity to reach the 29 million people market free-of-customs. CEFTA envisages the abolishment of customs restrictions for industrial and agricultural products in the CEE countries by 2010. In addition, the Agreement stipulates accumulation of products origin, meaning that products exported from Serbia are considered of the Serbian origin if integrated materials originate from any other CEFTA country, the European Union, Iceland, Norway, Switzerland (including Liechtenstein) or Turkey, provided that such products have undergone sufficient processing (if the value added there is greater than the value of the materials used in Serbia).

Industrial products exported from Serbia to European Free Trade Agreement (EFTA) member states (Switzerland, Norway, Iceland, and Liechtenstein) are exempted from paying customs duties, except for a very limited number of goods, including fish and other marine products. Customs duties for imports of industrial products originating in EFTA states will be gradually abolished by 2014.





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The Free Trade Agreement with Russia, signed in August 2000 stipulates that goods produced in Serbia, with over 50% value added in the country, are considered to be of the Serbian origin. The only tariff charged is the customs record keeping tariff, amounting to 1%. The list of products, excluded from the Free Trade Agreement, is revised annually. In 2009, the duty-free regime was extended to the following goods: all drugs, confectionery products, apple juice, malt beer, fresh grape wines, all soaps, wool clothing, refrigerators, freezers and all refrigerating devices, washing and drying machines, wooden upholstered seats, wooden office furniture, sleeping bags, sheets, and similar goods.

Trade between Serbia and Turkey is regulated upon the model implemented in trade with the European Union. Industrial products originating in Serbia can be exported to Turkey without paying customs duties. Imports of industrial products into Serbia are generally customs-free, but for a large number of goods customs duties will be progressively abolished over the six-year period, ending in 2015. For trade in agricultural products customs duties remain in effect, with certain Most Favored Nation reductions for a number of products.

The Free Trade Agreement with Belarus envisages mutual abolishment of customs and non-customs duties in trade between the two countries. There are only a few exceptions to the Agreement, including sugar, alcohol, cigarettes, as well as used cars, buses, and tires.

Serbia applied for WTO membership in December 2004. In February 2005, the WTO General Council accepted its application. In order to accede to the WTO, Serbia still must complete bilateral negotiations with other WTO members (25 members in 2011) and have its accession endorsed by a multilateral working group at the WTO in Geneva. As of September 2011, Serbia has signed 9 bilateral agreements including the EU.

3.6 Main Stakeholders

The structure with the major stakeholders/institutions involved in all development phases of the Industrial/ Free zone in Vladicin Han are presented in the following diagram.

Beside many actors involved, key players and their responsibilities are:

- Ministry of Economy and Regional Development: sets national economic policy; national development; promotion of FDI; draft a new Industrial Park Law, and formation of the IPA
- Serbian Investment and Export Promotion Agency (SIEPA): implements investment & export promotion; national marketing and promotion of industrial parks; national policy & strategy for industrial park development
- Municipalities: establish feasibility for industrial parks; site selection; land assembly/zoning; industrial park concept master planning; sourcing finance; local marketing and promotion; identification of development partners; invitations to bid; infrastructure; environmental monitoring; health and safety inspection; and maintenance of records/statistics of park usage.



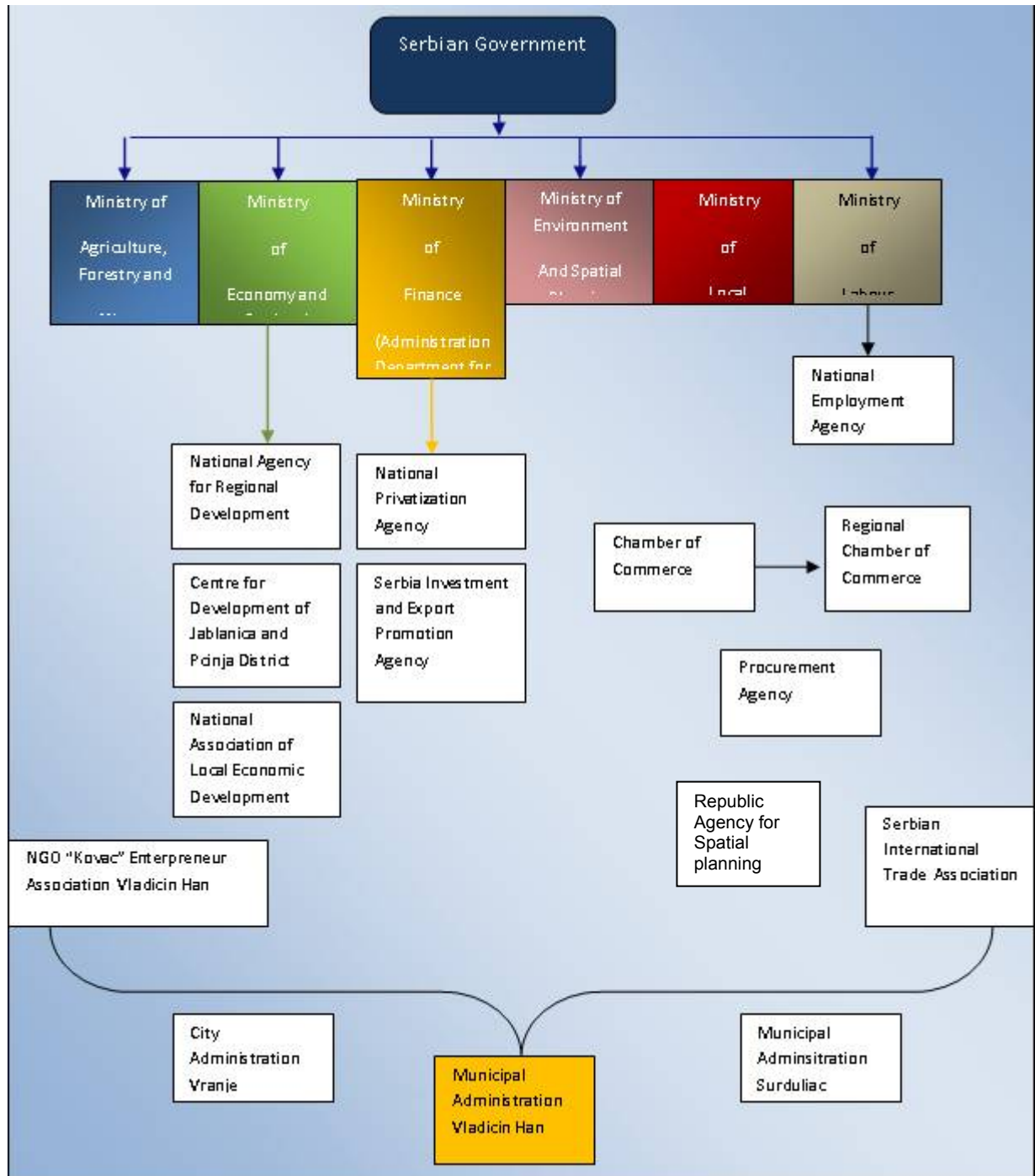
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Figure 3-1 Main stakeholders involved in the project





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3.7 Horizontal Issues

Equal opportunities

Modern standards in gender issues are enshrined in the Constitution of the Republic of Serbia, which prohibits all forms of discrimination (Article 21) and guarantees the equality of women and men and developing equal opportunities policy (Article 15). This proclamation is underpinned by legislation, namely the Gender Equality Law, the Law on the Prohibition of Discrimination, the Family Law, the Labour Law, the Law on Employment and Unemployment Insurance, the Criminal Code, Election laws, and the Ombudsman Law.

However, there is evidence that women tend to be disproportionately affected by unemployment and poverty. This situation is particularly visible in Vladicin Han where majority of unemployed are women. This particularly vulnerable group may gain more benefit from concrete actions designed to generate employment opportunities and improve quality of life. The establishment of Industrial zone will certainly have this positive effect, since additional jobs will be created whether in supporting services or in some type of industries such as textile and food industries.

In spite of increasing role of women as business owners they still face a degree of gender discrimination in the business community in terms of gaining information, training, markets and technology.

Increased employment will improve the opportunities for families and increase their income and therefore, existing poverty level will be diminished and quality of life for children will be improved.

The impact of industrial zone establishment on equality of opportunity will be factored into its implementation, as will also tackling discrimination against minorities and other vulnerable and disadvantaged groups. This principles will be taken into account at all levels of implementation:

Gender and anti-discrimination implications will be taken into account through the project appraisal process and selection criteria;

The requirement to observe equality of opportunity and avoid discrimination during project implementation will be built into agreements with end recipients and contractors, and will be checked, as part of the verification process;

The results indicators for projects will be broken down by gender where appropriate, for the purposes of project and programme monitoring;

The impact of gender equality will be written into the terms of reference for its interim evaluation, where relevant;

The active involvement of civil society will be encouraged through pre qualification training programs/ projects and support in SME business start up.

Social inclusion of disadvantaged people including handicapped will be encouraged through adequate employment policy.

3.8 Participatory and Public Information Activities

Participatory Activities

The Dublin Principles of 1992 and Agenda 21 recommend a participatory approach to project development. This approach has been adopted during this study for identifying and developing the projects and parallel activities carried out during this study are described hereafter.

The approach adopted includes a comprehensive training programme targeted to Municipalities and their administration. A series of two days' workshops on programming and



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project preparation is organised in different areas of the country with the purpose of inculcating project preparation personnel within local administration with the principles of programming and project preparation.

At the same time in support of the development of a national database of municipal projects known as SLAP, MISP is also organising another series of workshops which are targeted at strengthening the capacities of SLAP coordinators within municipalities in identifying and registering municipal projects.

Whilst the above activities are of a general nature, activities directly related to the project are also encouraged through active participation in the preparation of this feasibility study. To this effect a working group has been organised within the municipality to assist MISP in the collection of data, obtaining consensus within the local administration, getting approval of the municipal assembly etc.

As more and more responsibilities are devolved to Municipalities, local administration will become more and more involved in decision making at local level. These participation activities proposed are therefore important in preparing Municipalities to these future responsibilities. As part of these new responsibilities it is expected that Project implementation Units (PIU) will be created in each municipality where infrastructure projects will have to be implemented. As part of the implementation procedures, the PIU will also be expected to provide the required technical as well as financial supervision and monitoring reports expected by Central Government.

Public Information Activities

The Republic of Serbia has ratified the Aarhus Convention, depositing its instrument of accession to the UN Secretary-General on 31 July 2009 thus becoming the 43rd Party to the Convention. The Aarhus convention in 1998 was organized by the UNECE to ensure access to environmental information, public participation in environmental decision making and access to justice in environmental matters.

In compliance with this convention, MISP has created a programme website which provides information about the projects which are in the portfolio of MISP.

The Law on Environmental Impact Assessment (EIA) in Serbia requires public consultation at two stages during the EIA process.



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4 SOCIO-ECONOMIC EVALUATION

4.1 Introduction

This chapter of the Report presents the results of the broad analysis of current socio economic setting of the project environmet. The objective of such analysis is to understand how the project of industrial zone development will fit into community of Vladicin Han, as to explain why this kind of project is required and how it may contribute to local society development.

In particular, information concerning demographic data, migration trends and un/employment statistics are provided to illustrate current socio economic background of the area where the project will take place .

4.2 Geography and location access

Vladičin Han is a town and municipality located in the central region and the territorial core of the Balkan Peninsula. As one in the line of smaller town habitations of the South-East Serbia, Vladicin Han, according to the current Spatial plan of the Republic of Serbia belongs (together with Bosilegrad, Surdulica, Vranje, Bujanovac, Presevo and Trgoviste) to the regional system of Pcinja.

The town is 67 km distant from the state border with Macedonia in the South, and 52 km away from Bulgaria in the East. The rivers crossing the municipality are Juzna Morava and Vrla.

The town, and future Industrial Zone are set on the important transit roads (Corridor 10) and railway lines connecting Belgrade on the north, with Skopje and Solun on the south.

Travelling distance from Vladicin Han to Belgrade is 333 km; Pristina 112km; Novi Sad 409km; Nis 91km and Skopje 112km.

The average altitude of Vladicin Han is 328 meters and the vast majority of it is the mountainous region with the moderate continental climate.

The Municipality takes up the area of 366 square kilometres and on that territory 51 settlements are located which are dwelling 21. 868 inhabitants.

Figure 4.2-1 Position in Serbia



Figure 4.2-2 Position in the Region





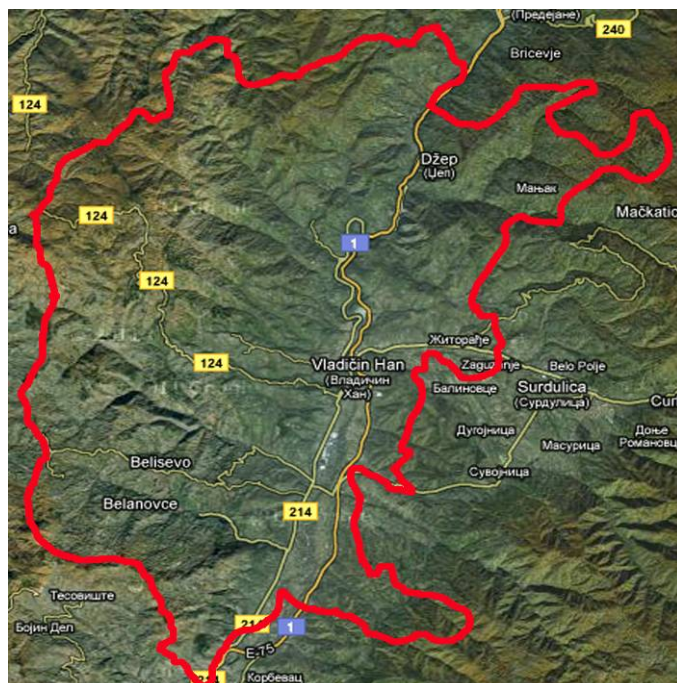
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Figure 4.2-3 Main roads crossing Vladicin Han



The following indexes represent an overview of the total area in hectares in 2004.

Table 4.2-1 Overview of the total area of land in ha 2004.

Type of land	Ha
Plough land and gardens	8.284
Orchards	1.783
Vineyards	27
Meadows	3.329
Arable land (1+2+3+4)	13.423
Pastures	4.039
Fish ponds	0
Marshes and moors	0
Agricultural area (5+6+7+8)	17.462
Forest land	16.800
Infertile land	2.311
TOTAL (9+10+11)	36.573

Source: Development Strategy of the municipality of Vladicin Han 2006-2010

Today in Vladicin Han agricultural area occupies 17.462 he and makes 45 % of the total area.

Table 4.2-2 Prices of Real estate in Vladicin Han

Business and private property	340-515 EUR/m2
Agricultural land	8.000-12.000 EUR/ha
Construction land	700-1200 EUR/a

Source: Publication "Underdeveloped Regions of Republics of Serbia/Chance for Investors" Office for Sustainable Development of Underdeveloped Areas, 2010





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4.3 Regional and cross-border cooperation

In Vladicin Han cooperation has been established between the municipality and the Economic Chamber of the city of Sofia (Bulgaria) within the Neighborhood Program, regarding a project for increasing development capacities for small and medium businesses in the region. Within the first and the second phase of the IPA Program, Vladičin Han Municipality cooperates with Leskovac and Vranje, within the project RSEDP 2 regarding tourism development in the region. Furthermore, cooperation has been established with international (UNDP, USAID, ADA) and domestic organizations (The Center for Development of Jablanički and Pčinja District Counties, VEEDA, SKGO, Serbian Government Ministries).

4.4 Population trends

The last official census of 2002, places the population of the Municipality of Vladicin Han at 23.703 inhabitants, while the estimation for 2010. indicates the number of 21.868 suggesting a substantial population decrease.

According to the latest data, the number of inhabitants has steadily decreased in the last fifteen years or so (Statistics Department of the Republic of Serbia – Municipalities in Serbia in 2005 – Population, pg. 111) and it is the common characteristic of entire region.

Table 4.4-1 Population change

Indicator	Serbia	Pčinja district	Vladicin Han
Population 1991 census	7.576.837	237.399	25.020
Urban	4.126.728	84.327	7.772
Other	3.450.109	153.072	17.248
Population 2002 census	7.498.001	227.690	23.703
Urban	4.225.896	84.530	8.338
Other	3.272.105	143.160	15.365
Annual growth 1991-2002	-0,10%	-0,38%	-0,49%
Urban	0,22%	0,02%	0,64%
Other	-0,48%	-0,61%	-1,05%
Population estimate 30-6-2009	7.320.807	228.254	22.117
Population estimate 30-6-2010	7. 291436	227.554	21. 868
Annual growth 2005-2009	-0,32%	-0.13	-0,85%
Population density (2009, in persons/km2)	83	65	60

Source: Republican Statistical Institute, Publication: Municipalities in Serbia 2010 and Vital Events in Republic of Serbia 2010

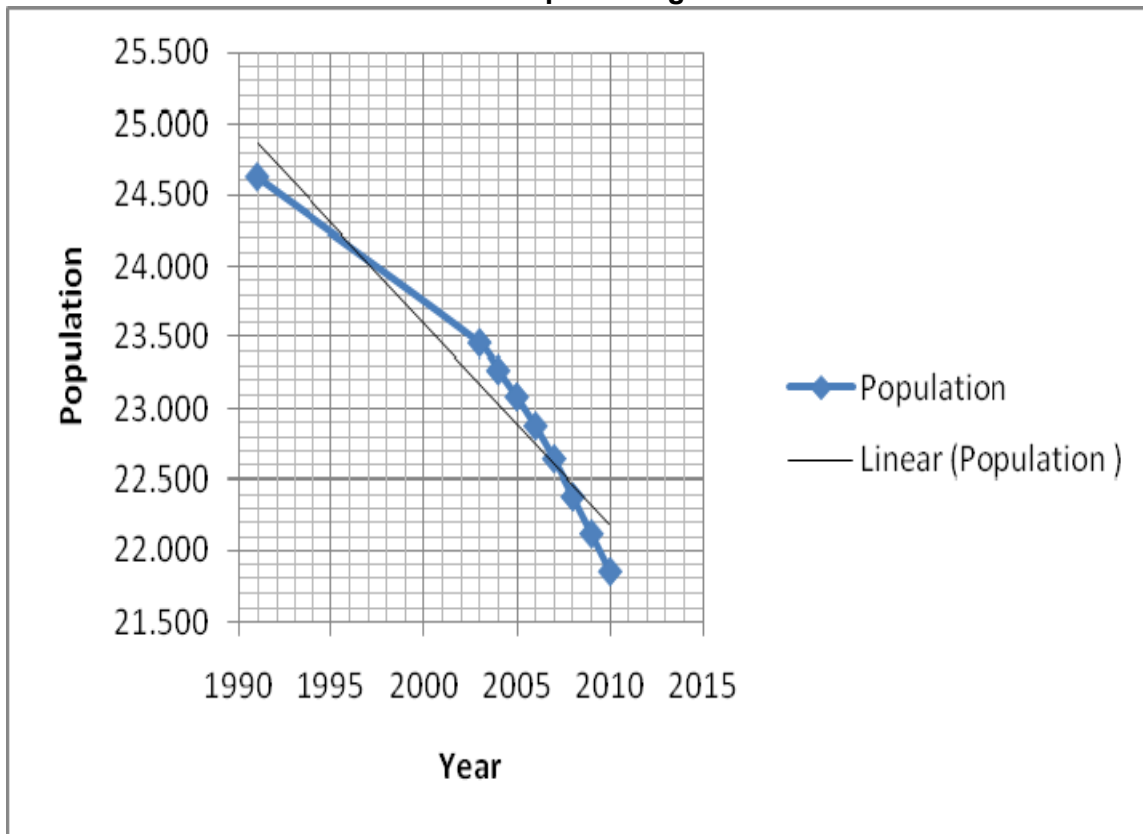
The trend during the period from 1991 to 2010, in Serbia, Pcinja District and Vladicin Han indicates negative annual growth rates. Average growth rate in the Municipality of Vladicin Han is -0,85. Comparing to Serbia (83) and Pcinja district (65), Vladicin Han has the lowest population density too.

In Vladicin Han, negative annual growth has been intensified in recent years as it is illustrated in the chart below.





Chart 4.4-1 Population growth trend



Source: Republican Statistical Institute, publication: Vital Events in Republic of Serbia 2010

The situation has been changing also relating to the structure and division between urban and rural population. In comparison to the situation in 2002, the share of urban population in total population has increased to some extent. In the city centre 8,338 people were living or around 35% of overall population according to last census from 2002. Though there are no available data this share could slightly raise or remain at the same level also in 2011 due to strong overall depopulation trend affecting on the whole city.

Table 4.4-5 Natural growth as an indicator of population size

Area	Births	Deaths	Natural increase	Natural increase per 1000 inhabitants
Serbia	68.304	103.211	-34.907	-4,8
Pčinja District	2.091	2.456	-365	-1,6
Vladicin Han	181	316	-135	-6,2

Source: Republican Statistical Institute, publication: Vital Events in Republic of Serbia 2010.

As indicated in the table above, Vladicin Han is dominating in negative natural increase comparing to the Republic and Pčinja District average figures.

4.4.1 Population Structure

If we observe the structure of Vladicin Han population the situation is as follows



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Table 4.4-6 Main contingents and indicators of the population as per census 2002

Population contingent	Number	In %
	From 0-19 years old	5.358
Working contingent 15-64 years old	15.813	67%
Population elder then 65 years	4.052	17,5%
Total	23.703	100.00

Source: Republican Statistical Institute, publication Municipalities in Serbia 2010

The results of the Table 4-6 demonstrate that almost 18% of the population belongs to the group of over 65 years old. This indicator demonstrates strong ageing trend of the local population. As illustration, the Serbian average is 15,7%. Nonetheless, according to last data from Census 2002 Vladicin Han has balanced gender structure where 50% of population are male and 50 % female.

Furthermore the population in Vladicin Han has a homogeneous ethnic structure, with prevalent Serbian nationality (94%) while principal minority group is Roma group (4.3% of overall population).

According to Census from 2002. the number of households in the settlement was 2.643 and the average number of family members was 3.2

4.4.2 Migration

There are no precise data on the migration trends in the municipality. However, similar to other municipalities in this Region, migration trend rural /urban or less developed to more developed city centers and finally emigration from the Country has been important characteristic of Vladicin Han.

Both natural and annual growth, combined with emigration data indicate strong depopulation trend which has been affecting the municipality for a long period of time.

4.5 Economic background

According to official classification of underdeveloped areas inside Serbia, Vladicin Han belongs to the group of 27 extremely underdeveloped Serbian municipalities, generating an income of 50 percent below the republic average.

Nevertheless, the situation was not like this in the past. By the end of the 20th century Vladicin Han was well known city as per its industrial activities, not only because of the number of employed workers but also by the scope of production and contribution to national income. However, the conditions in the industry of Vladicin Han have changed drastically in recent years, most of the industrial companies are no longer in function, and a large number of employed workers in this branch has lost their jobs.

The reasons for this kind of state in the sector are numerous: inappropriate economic policy, lack of innovations in production, high number of employees, slow privatization, slow institutional reforms, huge debts etc.

In spite of the negative trends which has been affecting this industrial area for a years, according to Spatial Development Strategy of the Republic of Serbia, and the spatial distribution of sites reserved for Industrial Zone / Industrial Park, Vladicin Han still belongs to the small industrial centre (from 1000 to 5000 employees), and it is located inside area of potential industrial development.





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4.5.1 Economic potential

This section of the study will focus on the analysis of the present economic situation starting with description of the sectors recognised as of economic potential, current industry operating in the area, state of small and medium enterprises, access to human resources and will be concluded with brief overview of the supporting institutions.

The percentage of national income realized per economic sector in 2005¹ indicates the principal income achieved in agriculture (in particular, vegetable and fruit growing) wood and textile manufacturing and processing, as well as chemical industry. In addition trade, organic food production and construction material industries have long successful tradition in this city and are also recognized as economic potential of the municipality.

The overview of the sectors which are recognized to have economic potential is given in the table 4.5-1.

Table 4.5-1 Overview of economic potential

Agriculture – vegetable and fruit growing
Wood processing industry
Textile industry
Construction material industry
Organic food production
Tourism

Source: Publication “Underdeveloped Regions of Republics of Serbia /Chance for Investors” Office for Sustainable Development of Underdeveloped Areas, 2010

In Vladicin Han town several industries are still operational. These are : *Balkan Brik* (socially owned enterprise in operating in industry of construction material) *Yumco* (textile industry), *Mehanizacija* (construction industry), *Duvan* (tobacco processing industry), *Nektar* (fruit processing industry), and *Delises* (food processing industry).

In the nearby village Prekodolce the fabric *Hanplast* (production of plastic products) is located.

Inside previous free zone (industrial zone A) the premises of the following companies are positioned: *Bankovic* (construction industry), *Nibens* (concrete production), *Juzna Morava* (production, processing and sale of non ferrous metals), *Sloga* (wood processing industry) *Brikel/Fopa* (paper and paper products) and *Nektar* (fruit processing industry).

Some of these companies has completed and some still are finding themselves in the process of reconstruct and privatisation.

4.5.2 Medium and small size enterprises

Primary production process in the zone will probably generate development of the supporting services i.e. small and medium enterprises. This interaction between zone and background influence on positive impact of the investment outside zone, and provide additional positive effect on the local economy. Actually, SMEs may supply the main business inside zone not only with spare parts and semi finished products but also with basic services for the personnel working inside the zone.

¹Official statistic doesn't recognize national income per sectors in 2010/11 therefore these figures are used only as illustration.



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If we observe data obtained from the Business Register Agency in September 2007, the situation regarding SMEs in the Region² is subsequent.

Table 4.5-2 Distribution of businesses by municipality

Area	SMEs	Entrepreneurs	Total active business entities
Pčinja District	1.602	4.056	5.644
Vladičin Han	105	436	541
Vranje	887	1.656	2.543
Surdulica	71	619	690

Source: Business Register Agency in September 2007.

Comparing to Vranje and Surdulica, Vladičin Han, has the lowest number of SMEs, as well as per working age resident (see the table below).

Though there are no accurate data yet, It is likely that precedent economic crisis has influenced on decreasing number of SME's and this trend will be continued due to unfavourable market situation and upcoming second wave of worldwide financial crisis.

Table 4.5-3 Relative level of SMEs development³

Area	SME's	No. of SME's per working age resident (in %)
Serbia	29.1808	9,84
Pčinja District	5.644	6,7
Vladičin Han	541	5,7
Vranje	2.543	6,8
Surdulica	690	6,9

Source: Business Register Agency from September 2007.

In order to support development of SMEs the Municipality of VH through Local Development Fund has been allocating loans for development of small and medium companies. Furthermore, the municipality is assigning separate credit lines to support entrepreneurs. Positive supporting climate for development of this sector has been present in Vladičin Han though additional efforts must be done to boost stronger development of this sector.

4.6 Human Resources /Access of labour

The fact that in Serbia, labour is available at very competitive prices, and the work costs are lower than in the countries of the region should be considered as an important comparative advantage of the future industrial park.

If the project happens as expected, the benefits of new industrial zone will be mutual for investors and for human resources in the region. Therefore, at this place the issue of access of labour resources is tackled only in general terms but taking into the consideration possible regional impact this project might have on human resources.

4.6.1 Sectors of employment

² Regional development Plan of Jablanica nad Pcinja District – Economy of small and medium enterprises 2008



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Despite the fact that overall economy of the city has been downsized, several economic sectors yet are considered to be employment forces for the majority of workers. if we observe distribution of sectors per employment, the situation throughout the region is as follows:

Table 4.6-1 Employment by sector

Sector	Serbia	Pčinja District	Vladicin Han	Vranje	Surdulica
Agriculture. Fisheries & forestry	46.129	1.009	185	394	116
Do, as % of total	2,4%	2,5%	5,0%	2,0%	2,6%
Manufacturing/processing industry	361.715	12.750	1.058	7.770	892
Do, as % of total	19,1%	31,8%	28,4%	39,8%	20,3%
Energy & other utilities	45.817	1.060	144	423	323
Do, as % of total	2,4%	2,6%	3,9%	2,2%	7,3%
Construction	78.936	969	103	550	123
Do, as % of total	4,2%	2,4%	2,8%	2,8%	2,8%
Trade	193.065	2.746	239	1.682	163
Do, as % of total	10,2%	6,8%	6,4%	8,6%	3,7%
Tourism	22.520	510	64	357	50
Do, as % of total	1,2%	1,3%	1,7%	1,8%	1,1%
Logistics	106.739	1.506	196	927	56
Do, as % of total	5,7%	3,8%	5,3%	4,7%	1,3%
Commercial services	116.453	510	28	405	24
Do, as % of total	6,2%	1,3%	0,8%	2,1%	0,5%
Public administration & social sector	425.418	10.542	759	4.786	1.151
Do, as % of total	22,5%	26,3%	20,4%	24,5%	26,2%
Entrepreneurs & sole proprietors	492.293	8.502	950	2.227	1.499
Do, as % of total	26,1%	21,2%	25,5%	11,4%	34,1%
Total	1.889.085	40.104	3.726	19.521	4.397
				100%	100%

Source: Republican Statistical Institute, Publication "Municipalities in Serbia 2010"

At present time, in all three municipalities, huge share of the local population has been employed in manufacturing/processing industry, followed by public administration and social sector. Employment in entrepreneurship is more characteristic for Vladicin Han (25,5 %) and Surudlica (34,1) then for Vranje (11,4%). Other sectors have significantly lower potential for employment.

4.6.2 Labor cost

If we observe labour costs, in Vladicin Han, the average net salary has been significantly lower than in both Pcinja Region and Serbia. Actually deviation from Serbian average is -52 % (see the table below).





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Table 4.6-2 Salaries

Period Jan - Dec 2010	Serbia	Pčinja	Vladicin Han	Vranje	Surdulica
Gross salaries	47.450	36.302	22.532	37.768	37.459
Nett salaries	34.142	26.118	16.332	27.214	26.835
Growth rate					
Gross salaries	7%	6%	9%	7%	0.4%
Nett salaries	8%	7%	9%	8%	0.5%
Deviation from Serbian average					
Gross salaries	/	/	-53%	20,4-%	-21.1%
Nett salaries	/	/	-52%	-20.3%	-21,4%

Source: Republican Statistical Institute, Publication "Municipalities in Serbia 2010"

From this Table it becomes clear that VH labour costs are lower than in Serbia, other partner municipalities, but also the neighbouring countries.

4.6.3 Unemployment

Employment generated only by certain sectors, low average salary and elevated unemployment are several o indicators of pronounced local poverty which VH has been facing in recent period.

Actually high unemployment rate characterizes entire region, and in the municipality of Vladicin Han it arrives up to 38%.

Table 4.6-3 Unemployment in Vladicin Han

Indicator	Serbia	Pčinja	Vladicin Han	Vranje	Surdulica
Total unemployed persons (2009 average)	730.372	30.244	4.699	8.263	3.201
Do, as % of total population	10,0%	13,3%	21,2%	22,5%	21,5%
Do, as % of labour force	27,9%	43,0%	55,8%	70,3%	57,9%
Do as % in active population	14,7%	20,1%	32,0%	33,1%	32,2%
(Un) Employed as % of total population	35,8%	30,8%	38,1%	32%	37,2%
No. of adult persons receiving social welfare	275.323	10.478	989	3.418	825
Do, as % of total population	3,8%	4,6%	4,5%	3,9%	4,0%

Source: Republican Statistical Institute, Publication "Municipalities in Serbia 2010"

In Vladicin Han, the prevalent number of unemployed are unskilled and semi skilled individuals .

Number and qualification of unemployed persons in VH are presented in the following chart.



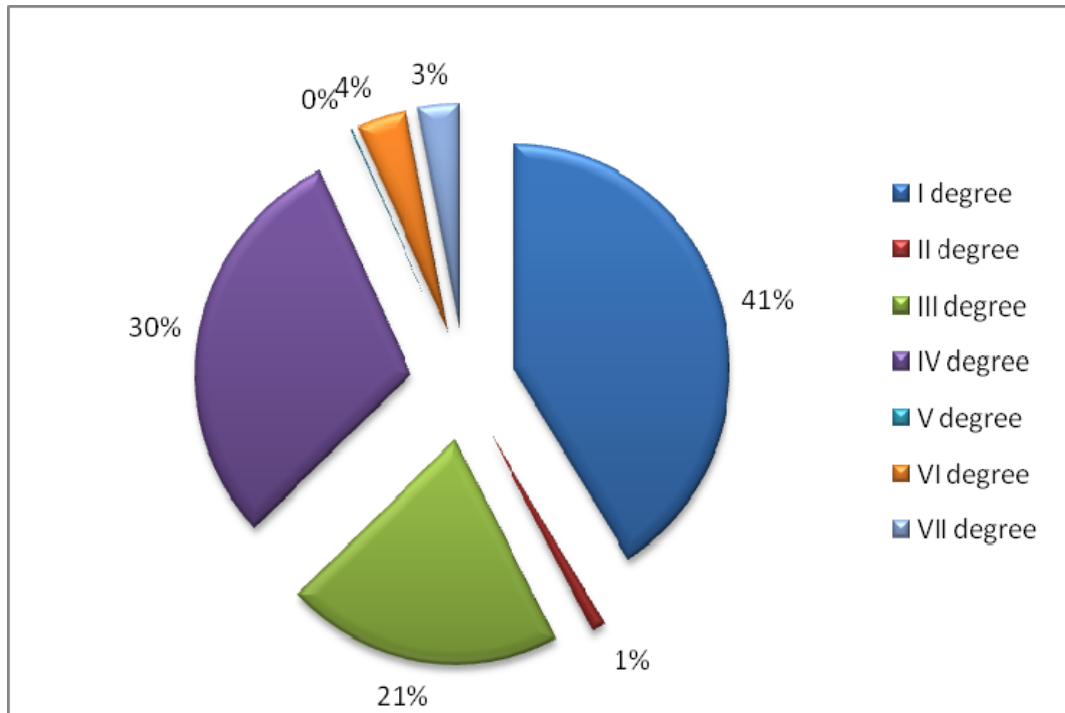
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Chart 4.6-1 : Number and qualification structure of unemployed people VH 2011



Source: Bureau for Employment Vladicin Han 2011

From these figures it can be concluded that most of unemployed are those with the first degree qualifications 41% and followed by fourth degree 30 % and third degree qualifications 21 %.

Table 4.6-4 Number and structure of job seekers

City municipality	Job seekers number	Seeking employment for the first time %	Unskilled %	Women %	Unemployed per 1000 inhabitants
Vladicin Han	4.699	40,2%	46,9%	54,7%	212
Vranje	8.263	34,6%	35%	55,9%	95
Surdulica	3. 201	40%	30%	54,5%	157

Source: Republican Statistical Institute, Publication "Municipalities in Serbia 2010"

Although detailed information of available labour pool is provided in Chapter 6. of this study, at this place only general insight into the situation regarding employment in the Region is provided.

Comparing to national and regional level Vladicin Han has the most pronounced unemployment of 38% as it is visible from Table 4-13.

As far as concerns the profile of job seekers, the figures indicate that huge number of people seeking for employment in Vladicin Han are unskilled women. Similar although less pronounced situation is in Surdulica and in Vranje, though job seekers seem to be more qualified than in Vladicin Han.

Vladicin Han is also leading in the number of people seeking employment for the first time, actually young people or people who remained without employment during the privatisation process.



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4.6.4 Anticipated impact on employment (Brief overview)

Serbia in general, and VH in particular have several strengths as a destination for investors, but one of the biggest is their workforce, which offers the added advantages of low labour costs and relatively high productivity.

Employment Increase is ultimate goal of industrial zone establishment and development. It is expected for employment to happen at three levels:

1. Temporary employment of workers during project implementation (persons who will prepare project documentation as well as expert, qualified and mid qualified workforce who will participate in the construction work of the Industrial zone.
2. Permanent employment for the personnel who will be in charge for the production process and service delivery inside the Industrial zone.

According to Anahem study⁴, the future zone and industrial park will generate permanent employment for a number of persons. These persons will be in charge for proper functioning of public parking, Motel with sport facilities and pay toll gate. Additional, workers will be required for basic infrastructural services and mechanisation maintenance in entire industrial zone.

4.7 Supporting institutions

Educational facilities

in the new industrial zone a contingent of adequately skilled workers will be required. If we observe from the perspective of future employers, human resources in Vladicin Han will not be sufficient per their number but also per their structure (skills required for the certain type of industry). Therefore, future companies may seek for additional, skilled workforce outside Vladicin Han, i.e. from Surdulica and Vranje. Even, if the structure of human resource is adequate, adapting this structure to new technology may be requested.

As a result, creation of different specialised trainings will be indispensable. These pre-qualification/vocational trainings should be organised by enterprises itself (according to specific needs) or by Local Employment Bureaus. Currently, in Vladicin Han the Local Employment Bureau has been organising small upgrading skills courses (languages, work with PC etc). Also, different trainings were organised by different international programs/projects USAID, UNDP (MIR program 2).

As far as concerns educational facilities, in Vladicin Han there are 23 primary schools and 2 secondary schools. In Vranje there are 62 primary and 7 secondary schools Surdulica 26 second and 3 primary schools. Vladicin Han and Surdulica don't have any specialised school for adults and Vranje has just one. In Vranje the Faculty of Pedagogy is located too.

If there will be no other facilities available for vocational and prequalification trainings, the municipality should look for available funds. Different EU funds provides for such kind of assistance.

Health facilities

Health Centre Vladicin Han (140 employees) has all the services foreseen by the Law on health protection, organized as organizational units. The Health Centre consists of the health stations Dzep, Stubal and Prekodolce, which are located in the villages of the same names,

⁴ General Design "Free zone and industrial pak JUG in Vladicin Han" Anahem, Belgrade 2008. Page 75.



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and the dispensaries Manjamk, Belisevo, Jagnjilo and Jastrebac. All the health stations and dispensaries except for the Beliseva and Jagnjila operate in the facilities owned by the Health Centre Vladicin Han.

However, this Centre should make important investments in medical equipment (which is outdated) and in reconstruction of the building in order to reply adequately on the population health needs.

Comparing to Vranje (280), and Surdulica (240).VH has the biggest number of inhabitants per 1 physician (651),

Housing facilities

In Vladicin Han the prevalent number of housing is individual housing (single houses)

Public Companies

In Vladicin Han there are following public companies:

- Direkcija za građevinsko zemljište i puteve (Directorate for Construction and Roads),
- PUC Vodovod (water supply)
- PU Informative press centar “Radio Han” (Radio broadcast Han)
- PC Tourist Organization of the Vladičin Han Municipality
- Local employment Bureau

Non Governmental Organizations

One of the most important NGO operating in Vladicin Han and relevant to this project is Association of private entrepreneurs "KOVAC", Vladicin Han

4.8 Conclusion

Development of industrial zone is justified for the community with strong industrial background as it is Vladicin Han which, for a years, has been facing serious socio economic stagnation and/or regression

Although detailed information on industrial zone will be analysed in other chapter of this study, at this place comparative advantage of the municipality in relation to establishment of new industrial zone has been summarised in the following table:

Table 4.8-1 Investment attractiveness of Vladicin Han

Already established Free Zone
Low cost of labor force
Office for local economic development
Fond for development of agriculture and entrepreneurship
General municipal plan
Strategy for municipal development
Municipality has adequate water and electricity supply, digital telephone system , access to cable TV and ADSL

Source: Publication “Underdeveloped Regions of Republics of Serbia /Chance for Investors”, Office for Sustainable Development of Underdeveloped Areas, 2010

If adequately implemented, this project may boost up socio economic development of the municipality and the region. In the following tables possible effect on the economic and social trends within community are summarised.





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Current trends without IZ

SOCIAL TRENDS

- Low birth rate-high mortality rate
- Emigration of people to larger urban centers
- Aging population
- Increasing number of unemployed
- Decline of the living standard
- Weak institutional efficiency

ECONOMIC TRENDS

- Poor growth in the number of SMEs
- Low national revenue
- Income below the republic average(drastic)
- Privatization almost completed
- Drop in the production

Optimistic scenario with IZ

SOCIAL TRENDS

- Depopulation trend is mitigated
- Diminished trend of population emigration to larger urban centres
- Influx of younger population
- Decreased unemployment
- Improved living standards
- Stronger institutions

ECONOMIC TRENDS

- Strong growth in the number of SME's
- Increased national revenue
- Incomes in line or above republic average
- Privatization completed
- Increase in the production
- Development of new economic sectors



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5 INSTITUTIONAL AND MANAGEMENT OPTIONS

5.1 Introduction

An Industrial Park is a tract of land, which is zoned for industrial-type development, having also infrastructure services installed including an internal road network, water, electricity, telecommunications, and possibly sewerage facilities. It is subdivided into plots according to a comprehensive plan. In the plan are foreseen plots for factories or offices for rent and/or purchase. Industrial park has as main characteristic a management body or company, which manages industrial park on a continuous basis

After in-depth analysis performed in the course of this Study the several conclusions and recommendations were made.

For the establishment and management of industrial area Vladicin Han there are two possible options that are linked to the concept of "Regional Project".

Option 1

If, the concept of regional project assumes direct and more participatory involvement of municipalities located at the same territory, the possible option is the model which envisages the participation of all municipalities interested in the capital of the company (Limited Liability Company), which should manage the industrial area.

The institutional and legal process, which in this case must be followed to establish the industrial area (which will be properly managed and able to generate economic benefits for inter/municipal partners), is shown in the Figure 5.2-1.

The process consists of several interrelated steps that require certain skills, roles, rights and / or duties of the various actors involved in the process of establishing the industrial area.

Option 2

If under regional project is assumed the project which will have regional impact fostering socio economic development, creation of jobs and support to the minorities at the same time, the option will be creation of the specialized office/ department for the management of industrial area within the municipality of Vladicin Han.

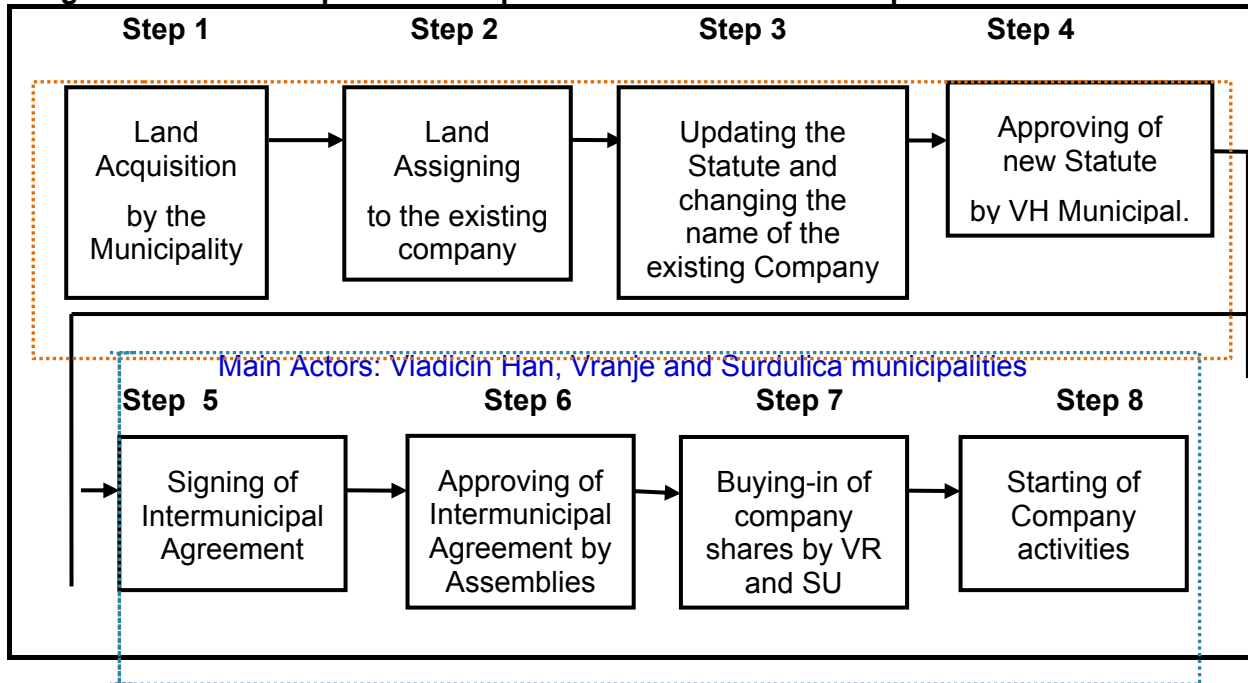
The institutional and legal process, which in this case must be followed to establish the industrial area, is presented in the Figure 5.2-2. This model is less complex than the one presented in the Option 1. and requires only limited number of legal and institutional steps to be taken.

5.2 The sequence of steps to be carried out in the Option 1

The sequence of steps to be carried out and the actors involved in the process of establishing the Company for the management of the industrial area are shown in Figure 5.2-1.



Figure 5.2-1 The sequence of steps to be carried out in the Option 1



5.2.1 Analysis of Steps for Option 1

• Step 1

Before anything else it is essential that the Municipality of Vladicin Han acquires all land that is necessary for the realization of the industrial park.

The Municipality may acquire land by expropriation or by purchase. Expropriation can be applied to portions of land on which infrastructure will be built, while the portions of land selected for parcels need to be purchased.

Municipality may, also obtain buyer's options on land for future development of the industrial park.

It is considered appropriate to re-emphasize that the acquisition of land by the Municipality is the top priority.

• Step 2

The municipality shall assign the land acquired to the Company responsible for managing of the industrial park.

The land on which infrastructure will be installed will remain in municipal ownership, and all services of maintenance and management of the above mentioned infrastructure will be transferred to and operated by the Company. This type of transfer will apply to all land at which infrastructure has been already built (roads, sewers, water network, etc.)

The second way of transferring assumes that the ownership of land on which the plots are located, is transferred to the Management Company which, in turn, may sell, lease or license fees to the potential investors

• Step 3

A) Past and Actual Situation



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At this time, the Company called LLC "Slobodna Zona" is officially present in the Municipality of Vladicin Han. This company was established in 1995 to manage the "Free Zone" in the industrial area of Vladicin Han, and was operational until 2005.

Foundation Act of the Company was signed in 1994 between the municipality of Vladicin Han and 9 other companies (HANPLAST, HANING, FOPA, IGM 8 September, PUC Vodovod, SLOGA, JUZNA MORAVA and DELISES). The Founder of this company was the municipality of Vladicin Han

At the time when this LLC was formed, the Municipality of Vladicin Han had the majority of the company shares while 9 companies which were operating within industrial zone had the rest of the shares.

Director and the Shareholders Assembly acted as managing bodies of the company. Assembly made up of authorized representatives of all shareholders, and in voting system number of shares referred to the number of votes.

The company had just 3 employees without clearly defined roles. According to the Founding Act the company was in charge for the following activities:

- Deciding on applications for business performance inside the Area
- Ensuring inner coordination entrance and exit from the Zone
- Providing the conditions for custom, inspection and other kind of surveillance inside the zone
- Determining the measures for environmental protection inside the zone.
- Defining the tariffs for the usage of business space within the Zone
- Performing other affairs of the Zone interest
- Concluding contracts with Zone customers and establishing mutual rights and obligations

B) Medium/long term perspective

The Company "Slobodna Zona Vladicin Han" is existing even today though it is not operational, therefore it is reasonable to employ it again for the management of the industrial park, but only if the Board of shareholders and the statutes are adapted to new situation. In particular:

- The Company name must be changed to fit with the concept of regional project In particular the previous name **Free Zone Vladicin Han** should be modified in **Industrial Park "JUG"**
- The Board of Shareholders, in the first period, will be formed by the Municipality of VH only. Surdulica and Vranje Municipalities will join the Board of Shareholders once the permission for the establishment of Free Zone is obtained by the relevant Government Body.
- The Company should be registered yet again because of new responsibilities it will have, and Statute of the Company must be adapted to new tasks that Company should play in managing of the Industrial Park.
- The Company may also be responsible for the management of the new "Free Zone" that Vladicin Han would like to create within the industrial park. This will be feasible if and when the Ministry of Finance accept the request that the Municipality will have to submit.

Main tasks of the company to properly manage the Industrial Park, are:

"Industrial park managers need to be acquainted with EU requirements, national legislation and strategies, as well as local regulations, strategies and rulebooks pertaining to the entire park's functioning and tenants' operations. In addition to general observance of the national and local regulations and strategies in the preparatory phase of industrial park development, other forms of compliance need to be ensured in the operations phase. These relate to specific procedures, reporting and monitoring requirements which may be required by





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legislation. While tenants are ultimately responsible for operating within certain procedural and safety standards within the regulations pertaining to their own businesses (e.g., environmental standards, noise levels, etc.), industrial park managers should make sure that they stay within legal limits. Industrial park management is responsible for ensuring that the procedures used by tenants do not hamper the value of industrial property by, for example, improper handling, storage or disposal of toxic materials, or cause any other environmental problems."

Source: *Industrial Park Development and Establishment Toolkit* published by, March 9, 2009

- **Step 4**

In order to enter into the force, and thus make the company fully operational, the Company Statute, prepared by the Management Board, must be approved by the Municipal Assembly of VH.

- **Step 5**

In order to give the project connotation of a regional project, it is necessary to sign an Inter-municipal Agreement between municipalities of Vladicin Han, Vranje and Surdulica. Inter-Municipal agreement shall strictly define, conditions, procedures and timing regulating the relationship between the municipalities, in their participation to the establishment and management of the industrial park. Inter-municipal agreement should rely on the previous agreements signed by three municipalities, namely:

- The initiative signed by the Municipality of Vladicin Han, Vranje and Surdulica, in February 2006, aimed at the creation of the Free Zone "YUG", at the territory of Vladicin Han.
- The initiative signed by the Municipality of Vladicin Han and Vranje, in June 2007, aimed at the creation and development of the Industrial Park and Free Zone "JUG", at the territory of Vladicin Han.

Within the inter/municipal agreement the following points, beside others should be clearly defined,

1. The type of company which manages the industrial park
It is believed that a form of limited liability company LLC, (open to a possible, but not mandatory, participation of private investors) is the model which is the most appropriate for the management of the industrial area.
2. Contribution of the three municipalities to the Company capital by percentage,
3. The nominal value of each company share.
(At this place is appropriate to point out that such value shall be calculated by dividing the total amount Municipality of Vladicin Han have spent on the purchase of land by the total number of projected shares)
4. It should be underlined that the Company must generate low cost of management and operation and therefore will have small but efficient structure.

- **Step 6**

The Municipal Assemblies of Vladicin Han, Vranje and Surdulica shall ratify the Inter-municipal Agreement signed by the Majors

- **Step 7**

The Municipality of Vranje and Surdulica shall purchase the shares of the Company, for the value and quantity established in the Intermunicipal Agreement

- **Step 8**





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In the initial phase of the work, the company for the management of the industrial park should have a reduced structure, but essential, to perform required tasks.

Not more than three or four people should be assigned to carry out the most important activities.

In particular the following profiles should be present:

General Manager who, in addition to other activities, and under its competence should be responsible for the following:

- Liaising with government authorities
- Liaising with shareholders
- Taking care about Investor relations
- Communication and Promotion of Industrial Park
- Checking the technical and economic management of the industrial park

Accountant / Financial Expert who beside regular activities related to the accounting would be responsible for the following:

- Managing contracts signed with investors
- Managing service contracts signed with PUC of Vladicin Han and/or with private Companies and related to maintenance of the infrastructure in industrial zone (i.e. road network, water and sewage network, solid waste collection and disposal, public lightening, electricity and telecommunication networks).⁵
- Preparing the financial statements.

A professional technician, who besides regular activities related to the accounting, would also be responsible for the following:

- Monitoring and checking that the PUCs responsible for maintenance of various infrastructure are acting in a technically correct manner and in due time;
- Ensuring that in carrying out their production activities investors are complying with all the rules and regulations in force in the Serbia;
- Ensuring that investors do not cause damage to infrastructure and environment.

According to the current plans, the Municipality of Vladicin Han would like to install Free Zone inside the industrial park, and therefore after obtaining the government approvals, the Company, may also be entrusted the management of the Free Zone.

The further task of the company's management will be to establish the basic standard conditions that must appear in all contracts which will be signed with investors who want to start a business in the industrial park.

Among them, it is important to underline the following conditions:

- Method of handling over parcels within industrial park (sale, rent, concession for free etc);
- The amount of money that investors must pay on a monthly basis (half yearly or annually) to cover the costs of operation and maintenance (i.e. water supply, waste water, solid waste collection and disposal, roads maintenance etc.) of the infrastructure inside park;
- Benefits and facilities that are given to investor based on jobs created.

⁵ For instance in Vladicin Han Municipality, the collection and disposal of solid waste has already been outsourced to a private company; therefore some of the services to be provided to the Industrial Park can be outsourced.



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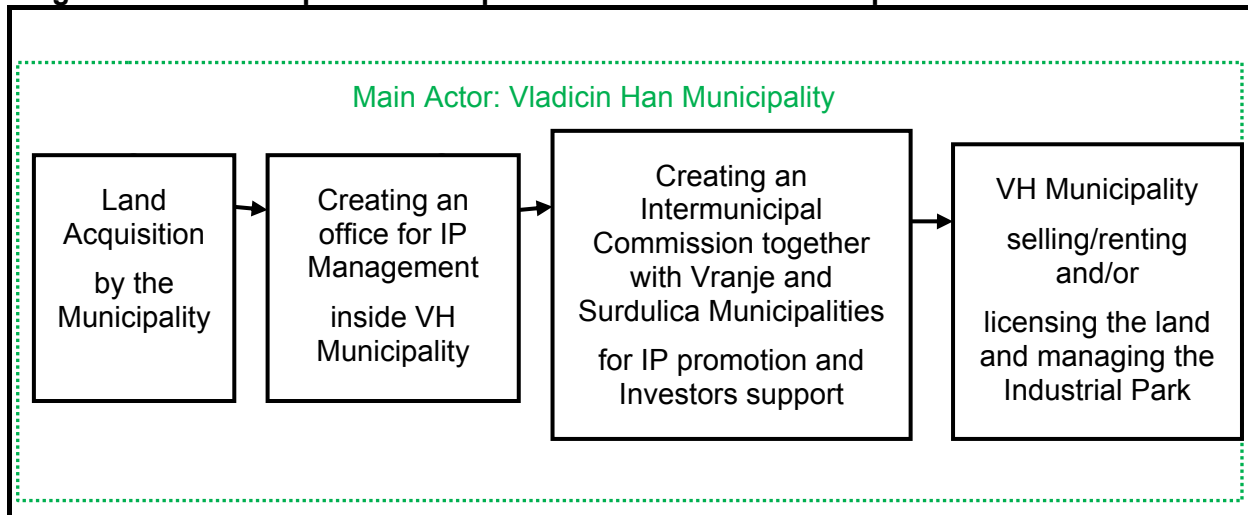


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5.2.2 The sequence of steps to be carried out in the Option 2

The sequence of steps to be carried out and the actors involved in the process of establishing the management facility of the industrial area are shown in the Figure 5.2-2.

Figure 5.2-2 The sequence of steps to be carried out in the Option 2



5.2.3 Analysis of Steps for Option 2

• Step 1

The considerations set out in Option 1 for land acquisition, are fully valid for the 'Option 2.

• Step 2

As mentioned earlier, in this option the separate Company for the management of the industrial park is not foreseen because the management is done directly by the Municipality of Vladicin Han.

For this purpose, the Municipality shall provide, a separate office inside its premises, and integrate this unit into municipal organizational structure. The unit will be devoted entirely to technical, administrative and information activities related to industrial park management and development.

Not more than two people should be assigned to carry out the most important activities.

In particular the following profiles should be present:

Office Chief, who should be responsible for the following:

- Liaising with government authorities;
- Taking care about investors relations;
- Communicating and sharing Information on Industrial Park;
- Checking the technical and economic management of the Industrial Park;
- Monitoring and checking that the PUCs responsible for maintenance of various infrastructure are acting in a technically correct manner and in due time;
- Ensuring that, in carrying out their industrial activities investors, are complying with all rules and regulation in force in Serbia;
- Ensuring that investors do not cause damage to infrastructure and environment.

Accountant/Financial Expert, who would be responsible for the following:

- Managing contracts signed with investors;





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- Managing of service contracts signed with private companies for outsourced services;
- Bookkeeping;
- Preparing the financial statements.

Considering that the Company which was managing previous Free Zone Vladicin Han is officially registered but in the frozen status, this company shall be reactivated as a leading company in the management of the Free Zone, which Municipality of Vladicin Han plans to establish inside Industrial Park in future.

In this case, the Municipalities of Vranje and Surdulica shall be invited to become shareholders of the company and therefore to contribute to the company capital, in accordance to the percentages defined through inter-municipal agreements signed between partners in the previous period.

Once the authorization for the creation of the Free Zone is obtained from the Ministry of Finance, it must be determined whether it is appropriate to integrate the management of both, the Industrial Park, and the Free Zone into already existing Company, and then to close the office created earlier in the Municipality.

• Step 3

In order to ensure active involvement of all three municipalities, establishing of one joint body, called *Inter-municipal Commission for Promotion of Industrial Park and Support to Investors*, will be highly recommended.

The members of the Commission will be appointed by the municipalities of Vladicin Han, Vranje, and Surdulica. The number of representatives per Municipality should be in accordance to their contributions defined in the agreement previously signed by all parties.

The establishments of the Commission as a separate inter/municipal body will provide the project with regional dimension and will contribute in obtaining adequate political support for the project. Alongside above mentioned, the Commission will have important tasks in promoting the industrial park to relevant national and international institutions (embassies, chambers of commerce, entrepreneurs associations / national and international.) in the way to successfully target potential investors to operate inside industrial park of Vladicin Han.

The Commission will also need to provide administrative, institutional, legal and any other kind of support to potential investors.

• Step 4

The Municipality, through the office in charge (step 2), may, directly, sell, lease or give in concession to interested investors industrial park parcels.

The maintenance of the infrastructure inside Industrial Park (i.e. road networks, water and sewage networks, public lightening, electricity and telecommunication networks) shall be entrusted to municipal PUC's based on their specific competences and shall be carried out under the supervision of the office responsible for the park management.

The Municipality in Vladicin Han, through the office in charge, should also establish the basic set of conditions that must appear in all contracts to be signed with investors who wish to start a business inside the industrial park.

Some of the areas which should be regulated are:

- Method of handing over parcels within industrial park (sale, rent, concession for free etc)
- The amount of money that investors must pay on a monthly basis (half yearly or annually) to cover the costs of operation and maintenance of the infrastructure inside park.
- Benefits and facilities that are given to the employer on the basis of jobs created
- Other special conditions



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5.3 Risks and assumptions

Table 5.3-1 Risks and assumptions in the Option 1

No	ACTIONS	ASSUMPTIONS	RISKS
1	Land Acquiring by VH Municipality	Yes: project go ahead	If Not: project is not feasible
2	Assignment of the land to managing Company	Yes: project go ahead	If Not or delayed: project is stuck
3	Approving of new statute of managing company by VH municipal assembly	Yes: project go ahead	No risk
4	Signing of Inter-municipal Agreement by VH, VR and SU Majors	Yes: project go ahead	If Not or Delayed: project is stuck
5	Approving of the Inter-municipal Agreement by VH, VR and SU Municipal Assemblies	Yes: project go ahead	If Not or Delayed: project is stuck
6	Buy-in of managing Company shares by VR and SU Municipalities	Yes: project go ahead	If Not or Delayed: project is stuck

The greatest risk lies in the 1st position. Actually, if the municipality is unable to acquire the land, the project, will not be feasible. The risks to the other positions are political (No. 4 and 5) administrative and financial (No. 2 and 6) and may create delays and / or temporary closure of the project.

Table 5.3-2 Risks and assumptions in the Option 2

No	ACTIONS	ASSUMPTIONS	RISKS
1	Land Acquisition by VH Municipality	Yes: project go ahead	If not applied : project is not feasible
2	Establishing of an office for IP Management inside VH Municipality	Yes: project go ahead	If not applied or delayed: project is stuck
3	Creating of an Inter-municipal. Commission for IP promotion and Investors support	Yes: project go ahead properly	If not applied or delayed: the project is hampered
4	VH Municipality sells, rents and/or licenses the land and manages the Industrial Park	Yes: Project successful	If not applied or delayed: the project is hampered

Also in this second option, the greatest risk lies in the 1st position. If there is no land acquisition the project will not be feasible.

5.4 Conclusion and Recommendations

From the above mentioned, it becomes clear that the Option 2. (From the institutional point of view), will be the most easily accomplished, because in this case there are no complicated institutional steps. Namely, all operations would take place within the Municipality of Vladicin Han that would be the sole, direct and fully responsible for the implementation and management of the Industrial Park.

Participation of the municipalities of Vranje and Surdulica through inter/ municipal Commission doesn't imply their direct involvement and responsibility over management and development of industrial park.

It should be distinguished, that from the institutional point of view, without involvement of the municipalities of Vranje and Surdulica, signing and ratifying inter/municipal agreements for the management of the joint company will not be required. As a result, possible delays caused by searching compromises that will satisfy all stakeholders will be avoided as well, as potential political conflict that may arise at the time of ratification of the agreements by the municipal assemblies.



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6 EXISTING SITUATION FOR RESOURCES AND INFRASTRUCTURE

6.1 Introduction

The provision of industrial facilities is a complex issue which all nations have to face up to. It is usually the case that there is a national level analysis. The questions which are often asked can be as follows:

- How many are required and how large industrial zones they should?
- Where does the nation locate these facilities?
- What are the industries which are likely to be located in a particular area?
- What are the facilities which are to be provided at each location?

In a centrally controlled economy the answer to all these questions would have been decided through a top –down approach, in fact these questions do not have to be asked at all in such situation because development is based on pre-decided principles.

However in a market economy, the answers are not clear at all and depend on factors such as:

- Economic situation at various levels (local, regional, national, global) can be independent but yet interrelated and can thus impact on demand for industrial facilities.
- Complexity of legal and institutional framework which can be business hostile and discourage investors.
- Availability and cost of labour will attract certain sectors but other sectors are less affected.
- Availability of raw material will also attract some sectors and not others.
- Location of key sectors such as automobile which attract to the same location other support industries providing parts and sub-assemblies

As can be seen the answer to all these questions depend on many factors which are not always entirely under the control of the state or of the business enterprises.

This chapter considers the current situation regarding these factors of production.

6.2 Current Economic Situation

The current economic situation in Serbia reflects the generally negative economic situation prevalent in the United States and Europe since 2008. The attempts by the advanced economies to kickstart their economies through quantitative easing and other economic measures have initiated a modest recovery in 2010 which is reflected in the GDP growth for Serbia.

Table 6.2-1 Quarter on Quarter Real GDP Growth (2002 base) in Serbia

Quarter	2009	2010	2011
Q1	-3.6%	0.5%	3.7
Q2	-3.8%	1.6	2.4
Q3	-2.4%	3.0	0.7
Q4	-2.0%	2.2	
Year	-3.0%	1.8 (provisional)	

Source: Serbia Statistical Office

The modest GDP growth for 2010 and the good start in 2011 was very promising for Serbia but it is apparent in the advanced countries of Europe that economic situation has deteriorated compared to 2010 and is starting to show in the Serbian economy during 2011 . The crisis has obviously not gone away and demand for manufactured goods have





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significantly slowed down. The impact of the current economic crisis in Europe on Serbia is still not known but a slow-down during 2012 can be expected.

The contraction noted in Serbia during 2009 was reflected in all the accession countries where export is an important component of the economy. It can be observed that the crisis of 2008 had less impact on Montenegro, FYR Macedonia and Albania where the economies are mostly based on internal consumption.

Table 6.2-2 EU-27 and Candidate Countries GDP for 2009

States	GDP M€	Population x1000	GDP Euro/pc	GDP growth %
EU-27	11,785,475	499,700	23,795	-4.2
Croatia	45,379	4,435	10,246	-5.8
Iceland	8,692	319,027	27,226	NA
Montenegro	2,981	630,004	4,720	NA
FYR Macedonia	6,676	2,049	3,300	-0.8
Turkey	441,600	71,897	6,142	-4.7
Albania	8,500	3,185	2,661	3.3
Bosnia Herzegovina	12,268	3,844	3,192	-2.9
Serbia	29,963	7,335	4,220	-3.0
Kosovo	3,902	2,181	1,790	:

Source: Eurostat

Although the tough economic is having an impact on the Serbian economy the historical data provides optimism for the Serbian economy when Europe emerges from this crisis.

Table 6.2-3 EU-27 and Candidate Countries Historical Year on Year GDP Growth %

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
State											
EU-27	3.0	3.0	3.9	2.0	1.2	1.3	2.5	2.0	3.2	2.9	0.9
Croatia	2.1	-1.5	3.0	3.8	5.4	5.0	4.3	4.2	4.7	5.5	2.4
Iceland	6.3	4.1	4.3	3.9	0.1	2.4	7.7	7.5	4.3	5.6	1.3
Montenegro	:	:	:	1.1	1.9	2.5	4.4	4.2	8.6	10.7	6.9
FYR Macedonia	3.4	4.3	4.5	-4.5	0.9	2.8	4.1	4.1	4.0	5.9	5.0
Turkey	:	-3.4	6.8	-5.7	6.2	5.3	9.4	8.4	6.9	4.7	0.9
Albania	9.0	13.5	6.7	7.9	4.2	5.8	5.7	5.7	5.4	6.0	7.7
Bosnia & Herzeg	:	:	:	2.0	4.9	3.8	6.3	3.9	6.9	6.0	5.4
Serbia	0.7	-11.2	5.3	5.6	3.9	2.4	8.3	5.6	5.2	6.9	5.5
Kosovo	:	:	:	:	1.2	3.1	:	:	:	:	:

Source: Eurostat

6.3 Industrial Zones in the Spatial Plan for Serbia, 2010 -2020

The development of industrial facilities (zone, park, free zone, business park, science park etc) is entirely in the competence of local government as provided under the Law on Local Self Government. Support for development of industrial zones can be provided by the State and by the EU as provided for under the Treaty of Lisbon.

There is an apparent aspiration

1. preparation of relevant strategic development plans;
2. Establishing a new national policy of industrial development, development of high-tech industry and the promotion of horizontal industrial policy based on an integrated approach to competitiveness in the field of knowledge, markets and entrepreneurship, social and economic cohesion, infrastructure conditions,





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promotion of clean technologies, sustainable development, investment in education, research and development. The priority incentive is the policy of competitiveness, eco-innovation, energy efficiency, better technology and entrepreneurship.

3. Regional development of the industry through the development of clusters and the accessibility of technical infrastructure.

Preparing the Strategy of territorial development of industry for the promotion of regional Industrialization outside for every municipality in Serbia to have on its territory its own industrial zone and to this effect almost every municipality has proposed industrial zones on its urban plan. Many are striving to get the project implemented by whatever means possible.

Although each municipality can exercise its prerogatives it is obvious that for economic reasons not all municipalities can build large scale sustainable industrial facilities. However, Municipalities must continue to seek potential investor no matter how small.

The purpose of the state including the municipality is to provide the appropriate framework and incentives whilst reducing the number of barriers.

To this effect the Spatial Plan for Serbia as adopted by Parliament in November 2010 and a legal instrument as from 1st December 2010, proposes a plan for the spatial distribution and development of industry which requires the preparation of several documents as follows:

1. Industrial revival, establishing a better legal and institutional framework in relation to neighboring regional, EU and other markets, promotion of international cooperation and multilateral governance including rules of the international trade and financial system, incentives for the allocation of facilities, sustainable business, the use of clean energy and improved technology.
2. Building program of “industrial infrastructure” that includes TEN, main and regional roads, ICT network, hydro-technical infrastructure, as well as construction and equipping of industrial sites, industrial zones (IZ), industrial parks (IP), free zones (FZ) including the metropolitan areas of Belgrade and Novi Sad in order to identify and support specific areas and corridors where needs and economic potential exist.
3. Preparing the Strategy of brownfields on the basis of the cadastre of brownfields in all municipalities and cities in Serbia.
4. The first part of the strategy is being implemented by the government through many initiatives (fiscal, financial etc) prepared by different ministries and with the assistance of many international institutions such as the EU, USAID, SDC (Swiss agency for development and cooperation). However, many other institutional issues (such as setting up a business, construction permitting etc) are still very complex and as evidenced by the Global competitiveness indices and the comparative report prepared by the IFC on “Doing business in Serbia “ seem to indicate that in some areas, Serbia is actually becoming more difficult with time.
5. The construction of infrastructure is ongoing with support from EU and many financial institutions such as World Bank, EBRD, EIB.
6. The strategy and policy development for industry has been prepared and adopted by the Government in June 2011 and a summary is presented hereafter.
7. The last part being the strategy of territorial development of industrial zones and parks as well as brownfield has yet to be completed.



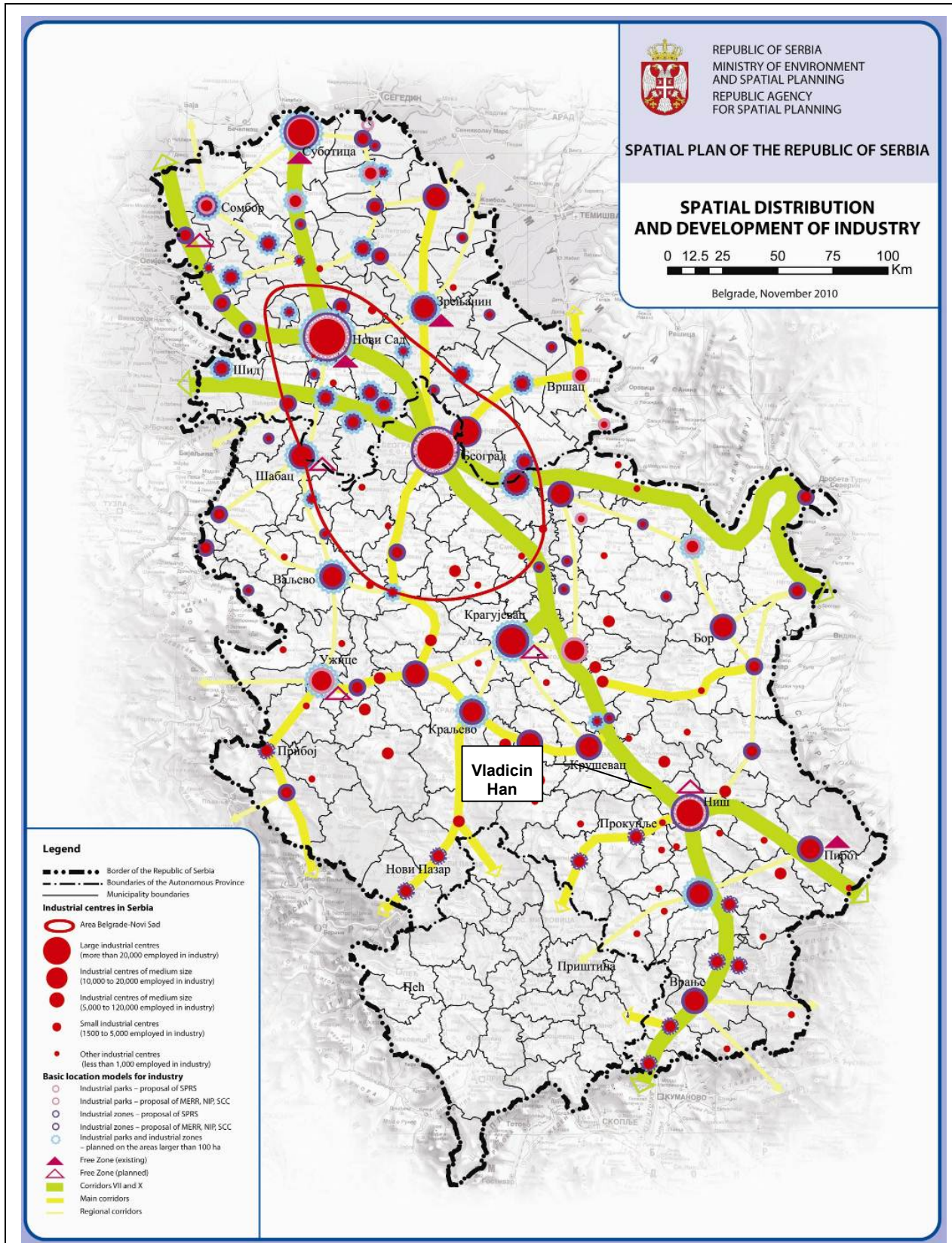
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Figure 6.3-1 Spatial Distribution of Industry in Serbia





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6.4 Strategy and Policy Development for Industry of Serbia from 2011 to 2020

The transition from a centrally managed industrial development to a market oriented development has not gone as smoothly as can be expected.

Structural changes in industry are slow and inefficient (as reported by European Bank for Reconstruction and Development – EBRD, 2001-2008), this apply in particular in privatization and restructuring of large economic systems and competitiveness policy. It is recognized that Serbian industry suffers from poor competitiveness as witnessed by the 95th position of Serbia in the 2011 World Economic Forum Global Competitiveness Index out of a total of 142.

Although certain competitiveness pillars such as infrastructure and macroeconomic environment has improved others such as institutions, labour and goods market efficiency have deteriorated over the last few years.

Table 6.4-1 Best Competitiveness Indicators for Serbia

Indicator	Value	Serbia's ranking (out of 142 countries)	Competitiveness Pillar
Fixed telephone lines/100 pop	40.5	26	Infrastructure
Mobile telephone subscriptions/100 pop	129.2	28	Infrastructure
Business impact of tuberculosis	6.1	34	Health and primary education
Tuberculosis incidence/100,000 pop	21.0	43	Health and primary education
Business impact of HIV/AIDS	6.3	17	Health and primary education
HIV prevalence, % adult pop	0.1	21	Health and primary education
Infant mortality, deaths/1,000 live births	6.2	40	Health and primary education
Tertiary education enrolment, gross %	49.8	50	Higher education and training
Total tax rate, % profits	34.0	50	Goods market efficiency
Redundancy costs, weeks of salary	25.0	50	Labor market efficiency
Legal rights index, 0–10 (best)	8.0	20	Financial market development
Internet bandwidth, kb/s/capita	19.2	34	Technological readiness

Source: World Economic Forum Global Competitiveness Indicators 2011

Although there are many positive indicators for competitiveness in Serbia, there are many areas which have to be addressed, in particular improved competition, protection of minority rights, labour- employer relations as shown in following table.



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Table 6.4-2 Competitiveness Indicators for Serbia requiring Improvement

Indicator	Serbia's ranking (out of 142 countries)	Competitiveness Pillar
Protection of minority shareholders' interests	140	Institutions
Brain drain	139	Labour market efficiency
Extent of market dominance	139	Goods market efficiency
Effectiveness of anti-monopoly policy	137	Goods market efficiency
Efficiency of legal framework in settling disputes	137	Institutions
Efficiency of corporate boards	136	Institutions
Cooperation in labour-employer relations	136	Labour market efficiency
Intensity of local competition	136	Goods market efficiency
Nature of competitive advantage	136	Business sophistication
Firm-level technology absorption	136	Technological readiness
Willingness to delegate authority	136	Business sophistication
Buyer sophistication	136	Goods market efficiency
Burden of government regulation	134	Institutions
Reliance on professional management	133	Labor market efficiency
Quality of port infrastructure	133	Infrastructure
Quality of air transport infrastructure	132	Infrastructure
Extent of staff training	132	Higher education and training

Source: World Economic Forum Global Competitiveness Indicators 2011

The degree of manufacturing within an economy is an indicator of industrialization within a nation and in Serbia manufacturing presently accounts for only about 16% of GDP growth, which is very low when compared to other transition economies (27% in Czech Republic, 25% in Croatia, Hungary 23%, Slovenia 24%, Slovakia 22%, and Macedonia 19%).

Another indicator of industrialization is the volume of export of commodities and manufactured goods from Serbia which is equivalent to about 21.5% of the GDP of Serbia or 45,600MUSD in 2010. The trade statistics for Serbia shows that the primary sector with 5.8% of exports is quite an important part of the export economy. It also clear from the same statistics that the manufacturing sector with 12.4% of export by value is also very important. The trade figures as published by UN Comtrade is summarized on the following table.





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Table 6.4-3 Volume of Export from Serbia

Values of Export from Serbia by Sector		Avg growth rate				
	Description	2010 MUSD	2006- 2010	2009- 2010	2010 share	% GDP 2010
SITC	Total	9794.5	11.1%	17.4%		21.5%
0+1	Food and live animals/ Beverages and tobacco	2000	14.1%	13.7%	20.4%	4.4%
2+4	Crude materials, inedible, except fuels/ Animal and vegetable oils, fats and waxes	611.4	18.6%	47.1%	6.2%	1.3%
3	Mineral fuels, lubricants and related materials	500.5	22.1%	28.3%	5.1%	1.1%
5	Chemicals and related products, n.e.s.	875.2	7.7%	32.9%	8.9%	1.9%
6	Manufactured goods classified chiefly by material	2841.1	4.1%	30.2%	29.0%	6.2%
7	Machinery and Transport Equipment	1593	22.4%	7.2%	16.3%	3.5%
8	Miscellaneous manufactured articles (inc. apparel)	1230.6	7.4%	-7.4%	12.6%	2.7%
9	Other Commodities and transactions	142.7	89.8%	13.8%	1.5%	0.3%

SITC: Standard International Trade Classification

The statistics show a clear predominance of some sectors in the export oriented economy and it is obvious that the Government of Serbia should focus on these predominant sectors and provide targeted incentives to attract investments.

The priority export industrial sectors appear to be:

- Agroindustry and in particular corn production
- Manufacturing including machinery and some apparel

However, the goal is not government intervention to control the structure of industrial sectors. Rather, the aim is to respond to specific sectoral characteristics in the context of horizontal issues, such as availability of skilled labour, innovation or protection of intellectual property rights, and thus to improve the conditions for industrial activity.

In order to address the issues identified above “**The Strategy and Policy development for industry of Serbia**” was adopted by the Serbian Government in June 2011. The Strategy proposes a new strategic approach to industrial development as the starting point for creating the national framework for industrial policies.

The new strategic approach involves the following:

- 1) Withdrawal from the old industries, manufacturing industries such as textile and leather processing and in particular raw material production including basic metals and chemical products which are nowadays mostly located in newly industrialized countries
- 2) Support activities which will encourage the production of sophisticated high technology products, especially in electronic components (semiconductors, electronic computers, communication equipment and devices) and the manufacture of chemical and pharmaceutical products (new materials, new drugs),
- 3) Develop service industries and in particular the creative arts

The strategy recognizes the abovementioned strength and weaknesses and has selected a certain number of targets as follows:

- Industrial production doubled in 2020 compared to the level from 2010,
- Increasing the productivity of labour in industry and construction by 2020 by at least 50%,
- Increasing the share of exports to 50% of GDP in 2020,
- Maintaining an average annual investment growth of 10%
- Increasing the average annual FDI inflow of 2.35 billion euros
- Increasing employment growth in manufacturing industry by 75,000 workers.

In order to achieve the targets, the strategy recognized the necessity for the following policies and measures:





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1. Measures and activities to improve the institutional framework and business environment with the aim to reduce or eliminate administrative and other barriers in order to facilitate business operation in the Serbian market;
2. Incentives and activities to promote the development and financing of key industrial sectors and products of national importance (Development Bank of Serbia, etc.);
3. Measures and activities which have as their goal the strengthening of competitiveness and productivity of Serbian industry, and especially those that encourage the development of knowledge-based society and lifelong learning, the application of innovation, research and development, development and use of ICT (information & communication technology) to raise competitiveness and ensure better functioning of markets;
4. Development of entrepreneurship and SMEs, which aims to increase the share of this sector in GDP, to facilitate the creation and maintenance of new businesses and encourage people to start new enterprises;
5. Measures and activities aimed at strengthening the international dimension of industrial policy, which would facilitate access to markets of other countries and at the same time to create conditions favorable for the growth of direct investment in the Serbian industry and its closer links with European and regional chains and networks in the manufacturing industry and encourage the integration of Serbian companies and their associations in European initiatives, associations and networks;
6. Measures to ensure and encourage sustainable regional development by creating conditions that ensure the promotion and strength of entrepreneurship in the entire territory of Serbia, taking into account the principles and requirements of sustainable development;
7. The necessity for better coordination between those involved in industrial policy at the national, regional and local level and involvement of industry representatives and their associations in the process of drafting and proposing measures of industrial policy;
8. Implementation of restructuring and privatization, in particular sectors and companies who are faced with problems, by the global recession, such as the export sectors of manufacturing;
9. Measures and activities to strengthen and improve the competitiveness of individual sectors through proper application of horizontal industrial policies and measures with application of the necessary correction measures in each sector without hindering the competitiveness of other sectors.

Measures proposed for improving competitiveness have been grouped into the following areas:

1. The reform of education system
2. Technological development
3. Research and development
4. The role of the ICT sector in the implementation of the new industrial policy
5. Support employment and labor market development industry
6. Competition
7. Privatization and restructuring
8. The openness of the economy - attracting foreign investment and export promotion
9. Development of Small and Medium Enterprises
10. Regional Development
11. Environmental protection
12. Energy efficiency
13. Improving corporate governance in Serbia





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Although many measures have been identified the strategy does not propose a programme for implementation of the measures nor does it contain a financing plan.

The scenarios analyzed the adopted priority sectors as follows:

1. Food Products, Beverages And Tobacco
2. Textile, Leather And Footwear
3. Wood Industry, Paper And Printing
4. Chemical Products, Plastic And Rubber
5. Non Metallic Industry
6. Metal And Metal Products
7. Machinery And Equipment
8. Electrical And Optical Devices
9. Automotive

The sectoral analysis looked at the impact of GDP growth on each of the selected sectors and projected the employment expected in each at the horizon years.

The supply of land for industrial development is an issue not addressed in the Strategy. Land as a factor of production has been recognized centuries ago and industry considers the availability of land as very important in locating any business.

Brownfields, which is defined as existing industrial sites which can be reused is also another factor not addressed in the strategy. The issues which have been identified as inhibiting development of brown fields are as follows:

- Restructuring of old enterprises do not consider all the needs of investors
- Old and inappropriate buildings which require updating
- Difficulties in reconstruction of old facilities or construction of new ones
- Non-existent or old, irrelevant and restrictive spatial and regulation plans

6.5 European Context on Industrial Development

6.5.1 Strategic Framework

In order that the needs of modern business can be addressed in the proposed industrial zone in Vladicin Han it is essential to have a good understanding of modern business practices in Europe and the rest of the World.

Manufacturing industry is the most important section of the EU economy (75% of all exports) since it drives growth and propels technological and innovation development. The three priorities of industrial development are:

- Modernize industrial structure through improved competition and sustainability
- Encouraging entrepreneurship by strengthening the market and reducing barriers
- Development of human resources with emphasis on innovation and R&D facilities

Through its new strategic framework for an integrated industrial policy adopted in December 2010, the EU is putting emphasis on some key sectors such as development of electronic, car and chemical industry, biotechnology, ICT, and space technology. The policy recognized the importance of value and supply chain management as well as the interaction between all sectors of industry within one state and across states highlighting the impact of globalization on the way business is carried out. In addition the framework policy proposes improvement to the business environment for SMEs, given that SMEs make up some 2/3 of industry's employment and a large share of EU industry's growth and jobs potential is to be found in its lively and dynamic SMEs.

Competitiveness and sustainability are key issues which have to be considered as integral part of any industrial policy and therefore imply cross-cutting sectoral policies which are



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coordinated with policies from other sectors such as transport, energy, environment, social and consumer protection.

Strengthening of the single market is expected to be achieved through even further approximation of relevant laws governing industrial development, eliminate barriers and encourage SMEs. The development of the tertiary industrial sector and business related services such as logistics, facility management, design, marketing and advertising is becoming ever more essential to modern manufacturing. For these objectives to be achieved an efficient and integrated communication infrastructure facilitating the movement of information, energy, people, material and goods has to be implemented across the EU. A more integrated network across states requires further advances in standardisation particularly in new areas of development such as nanotechnology and other key enabling technologies, electric cars, health technologies, energy-efficient products, renewable etc.

6.5.2 Financing the Implementation of the Strategic Framework

Since the adoption of the first regional development paper in 1974, the EU has created special instruments which are intended to finance economic development. The current main instrument for member states of the EU is the European Regional Development Fund (ERDF) which was created in 1975. The objectives of the fund are adjusted every 7 years in line with the multi-annual funding periods and to align with lessons learnt from previous periods. The current financing agreement as adopted by the EU is for the period 2007 – 2013.

For potential candidate and candidate countries, the instrument for pre-accession (IPA) funds have been created to assist these countries to gain experience in accessing the funds which will be available as future member states. The disbursement of IPA funds have been modeled on the same objectives and principles adopted for the ERDF funds and follows the same financing agreement.

As a potential candidate country Serbia can access funds under the first two of the 5 vehicles available to candidate countries and which are meant to satisfy the following 5 general objectives:

1. Transition Assistance and Institution Building
2. Cross-Border Co-operation
3. Regional Development
4. Human Resources (Social fund)
5. Rural Development (Common agricultural policy)

These funds provide an opportunity for Vladicin Han to access finance for improving the availability of industrial sites to potential investors. The steps needed to access the funds will be described.

6.5.3 Present Situation of the Industrial Sector in Vladicin Han

The following table provides a summary of the structure of industries in Vladicin Han.



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Table 6.5-1 Analysis of Business Sectors in Vladicin Han Municipality for Year2008

Industry	Number of Enterprises	Percentage %
Industry and mining	11	4%
Agriculture and fishing industry	1	0%
Forestry	3	1%
Water industry	-	
Civil engineering	22	8%
Traffic and communications	37	13%
Commerce	112	39%
Service industry and tourism	34	12%
Handicrafts and personal services	49	17%
Housing-communal industries	-	
Financial and other services	8	3%
Education and culture	5	2%
Health and social protection	7	2%
Socio-political communities and organisations	-	
Others	1	0%
TOTAL	290	100%

6.6 Analysis of Existing Production Factors

All industrial production depend on the following production factors:

- Infrastructure
- Human resources
- Raw material

The existing situation with each of these factors of production are examined hereafter:

6.6.1 Existing Infrastructure

A fully functioning industrial zone must be supported by reliable infrastructure which can be grouped into three as follows:

- Access for workers
- Transportation of raw materials and manufactured goods
- Utilities such as electricity, gas, water, wastewater, telecommunications etc

Although it is a small municipality, Vladicin Han is not very far from other municipalities, in particular Surdulica which is 10km to the East, Vranje 20km to the South and Leskovac 40km to the North. Communication between the municipalities is quite good via the existing E75 motorway.

6.6.2 Transport Network

Road Network

The road network includes the European E75 road, (national road M-1) and which is presently a dual carriageway running south from Nis as far as Leskovac to the North. Upgrading of the existing road between Vladicin Han and the Macedonian border to a dual carriageway started in 2011.

Access to the existing industrial zone is via the national road R-214a and R-214 between Vladicin Han and Vranje which runs parallel (R-214) and orthogonal (214a) to the E75. However the nearest link between the E75 road and industrial zone is via national road R-214a and R-214 (drawing-Exsting road network infrastructure).



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The E75 is part of the International Road network starting from Vardø, Norway in the Barents Sea and runs south through Finland, Poland, Czech Republic, Slovakia, Hungary, Serbia and Republic of Macedonia to Sitia, Greece on the island of Crete in the Mediterranean Sea.

The E75 provides access to the national road system which connects the main towns and villages. Public transport between the towns and many of the villages is available but most employees tend to favour private vehicles because of the poor frequency of the public transport system. Two large towns are within one hour vehicular access to Vladicin Han and thus provide relatively good access for workers.

Although the E75 is very close to the existing industrial zone, access is via the national road system which are not designed for modern industrial transport. The roads are relatively narrow and the geometric design will limit the access of large modern trucks which are normally used for long distance transport of raw material and finished goods.

The two accesses to the existing zone crossing the existing railway line at grade without any barrier. Such access can be dangerous for lorries going to and from the industrial zone.

The access for large lorries must be improved if large enterprises are to be attracted to the industrial zone.

Existing Railway Network

The existing railway line Belgrade – Skopje – Thessaloniki runs through the industrial zone. However, this railway system is the oldest in Serbia and although maintenance is average, the modernization and replacement programme has been lacking and maintenance costs are escalating. The Belgrade – Nis section was constructed in 1884 and extended to Vranje in 1885 eventually connecting to the Skopje – Thessaloniki section completed 10 years earlier. Investment in railways carried on until the Second World War when most investments were directed to road transport.

There is a passenger as well as a fret station at the town of Vladicin Han and at the industrial zone Suva Morava and over a distance of about 1,200m the railway is a dual line with a station allowing loading and unloading of fret. The paper factory has a private line entering its premises.

The rolling stock is relatively old and unreliable. The average age of railway cars is over 30 years and the degree of availability, depending on the type, varies between 26% and 61%.

The section of railway is single track except between Velika Plana and Nis and the utilization in 2000 is between 70-100 trains per day between Belgrade and Nis and only 20 – 30 trains per day between Nis and Presevo. Of these the current freight traffic on the Nis – Presevo section is only between 5 – 10 trains a day.

Intermodal road-railway transport has been gradually growing in the recent years and from a volume of 15,000 TEU (twenty foot equivalent unit) in 2002 it reached 4-5 container trains daily in transit or about 77,500 TEU in 2006 with import and export each contributing 13,000 TEU and 22,000 TEU in local transport. The reconstruction of six tunnels and 19 bridges in 2006, on railway line Niš-Dimitrovgrad enabled the transit of freight trains with International Union of Railways (UIC) C gauge along the whole railway Corridor X in the Republic of Serbia. The UIC C gauge is very similar to the GC gauge of the Technical Specifications for Interoperability (TSI) of railways within the European Union.

The maximum design speed on Serbian railways is 100km/h but only achievable on 3-4% of the line. On some sections speed is limited to only 25km/h

Allowable axle load on Serbia railway network is 22.5 t, which is the maximum allowable for the majority of railways on Pan-European corridor X.

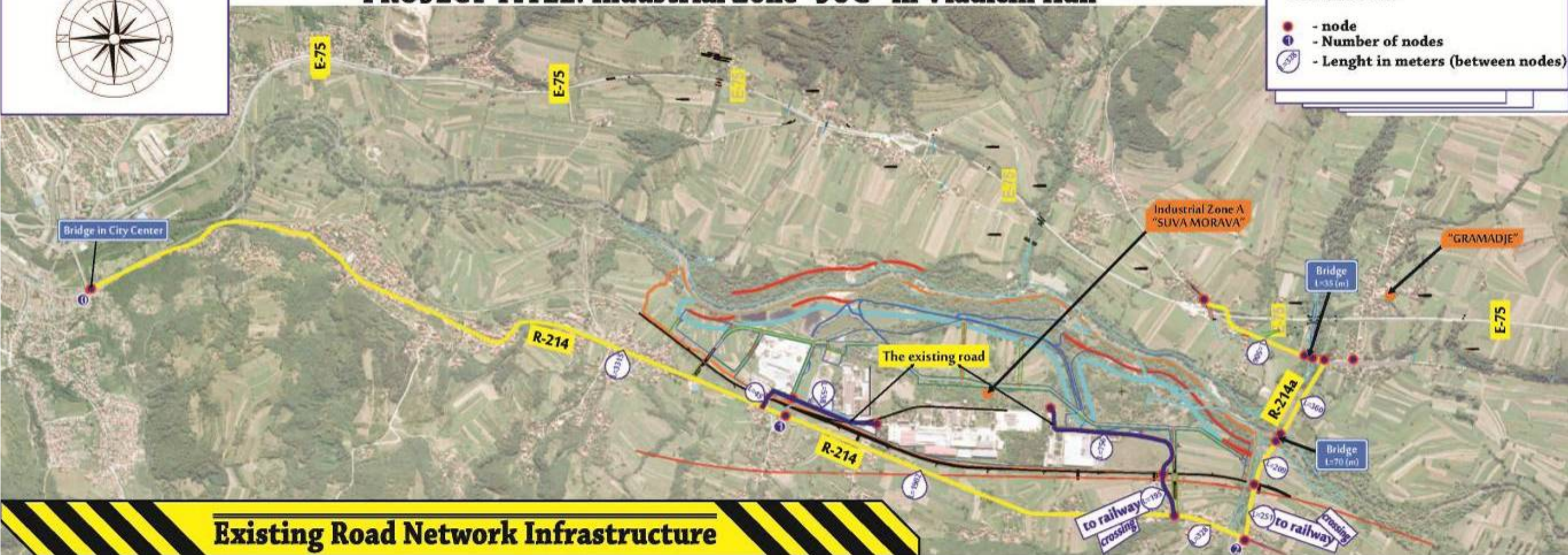




PROJECT TITLE: Industrial Zone "JUG" in Vladicin Han

LEGEND

- node
- Number of nodes
- Length in meters (between nodes)



Existing Road Network Infrastructure





6.6.3 Electricity

South Serbia has recently got a 400kV voltage transmission line, and the development of such a line has been identified as a basic infrastructure requirement to support economic development in the region. While the region's electricity distribution network is functional, covering all of the regions settled areas, the region experiences periods of low voltage, particularly in rural areas. A number of improvements to the region's network are occurring, or are planned, to improve this situation

Power supply on Vladicin Han IZ site is provided through 110kV National Grid, operated by PU Elektromreza Srbije. It supplies transformer substation TS 110/35/10kV Vladicin Han, operated by Power Distribution Company ED "Jugoistok" d.o.o. Niš, section "Elektrodistribucija Vranje". The installed capacity of TS 110/35/10kV Vladicin Han is 2x31.5MVA, today it operates with one installed transformer unit rated 1x20MVA. On the same transmission substation, there is located transformer substation TS 35/10kV, fed from the low voltage side of the 110/35 transformer by 35kV cable 3xXHP48 1x240mm². Also, there is direct feeding 35kV line from hydropower plant HE Vrla 4, which justified usage of only one transformer unit 110/35kV, as outage of main transformer can be backed up by 35kV line supply. The overall installed capacity of TS 35/10kV in Vladicin Han transformer substation 2x8MVA, today it operates with two transformer units rated 4MVA. All planned IZ consumers will be supplied with electrical power from this 35/10kV substation. The Power Lines Resolution is shown on the Figure 6.6-1, which represents the existing situation on the IZ site.

The existence of the HV (110kV) power supply network on the very site of Vladicin Han IZ is huge asset in regard to power supply provision⁶. The feeding line, made of Aluminum / Steel cable 150/25mm² will have sufficient capacities for any further development. Feeding overhead line to HE Vrla 3 has carrying capacity above 50MW, due to short line distance, which is actually more than installed power in HE Vrla 3 (see Table 6.6-1). Thus it is capable to carry the whole energy produced in Vrla 3 together with additional energy transferred by 110kV overhead line (OHL) Vrla 3 – Vranje 1. Together with well sized transformer substation 110/35/10kV Vladicin Han (installed capacity of 2x31.5MVA), this will provide sufficient power supply potentials for any further developments and can accommodate a variety of potential consumers, even those requiring huge amount of the power and, eventual, connection on 35kV voltage level.

Figure 6.6-2 shows 110kV overhead lines situation (position) in the area around IZ, i.e. transformer substation TS 110/35/10kV Vladicin Han. As can be seen, transformer substation 110/35/10kV Vladicin Han is fed by 110kV overhead line (OHL) 1219/1 from the transmission substation on the hydroelectric power plant (HE) Vrla 3. Actually, the previous overhead line 1219 Vrla 3 – Vranje 1, was cut and directed to the new transformer substation TS 110/35/10kV Vladicin Han, to supply it on the principle "enter – exit". From TS 110/35/10kV Vladicin Han, as exit feeding line, the OHL 1219/2 is laid up to the transformer substation 110/35kV Vranje 1. That overhead line OHL 1219/2 is also of Aluminum / Steel rope with 150/25mm² cross section. Actually, this section is connected to the existing, previously cut overhead line to City of Vranje Area. What is more important, this line is, through transmission substation on HE Vrla 3, included into national 110kV grid, realized by double OHLs to the transformer substation 400/220/110 Leskovac 2 (which has been

⁶ However, the existence of the overhead power lines 110kV and 35kV will cause, when it comes to the land usage issue, a certain limitation, as the clearance of 30m (on 110 rights of the way) is required. That's why, in the Chapter 7.7.6, as an optional solution, it is proposed removal of the high / medium voltage ie. 110 & 35kV overhead lines and underground cabling of them inside the construction regulation lines along IZ internal roads.



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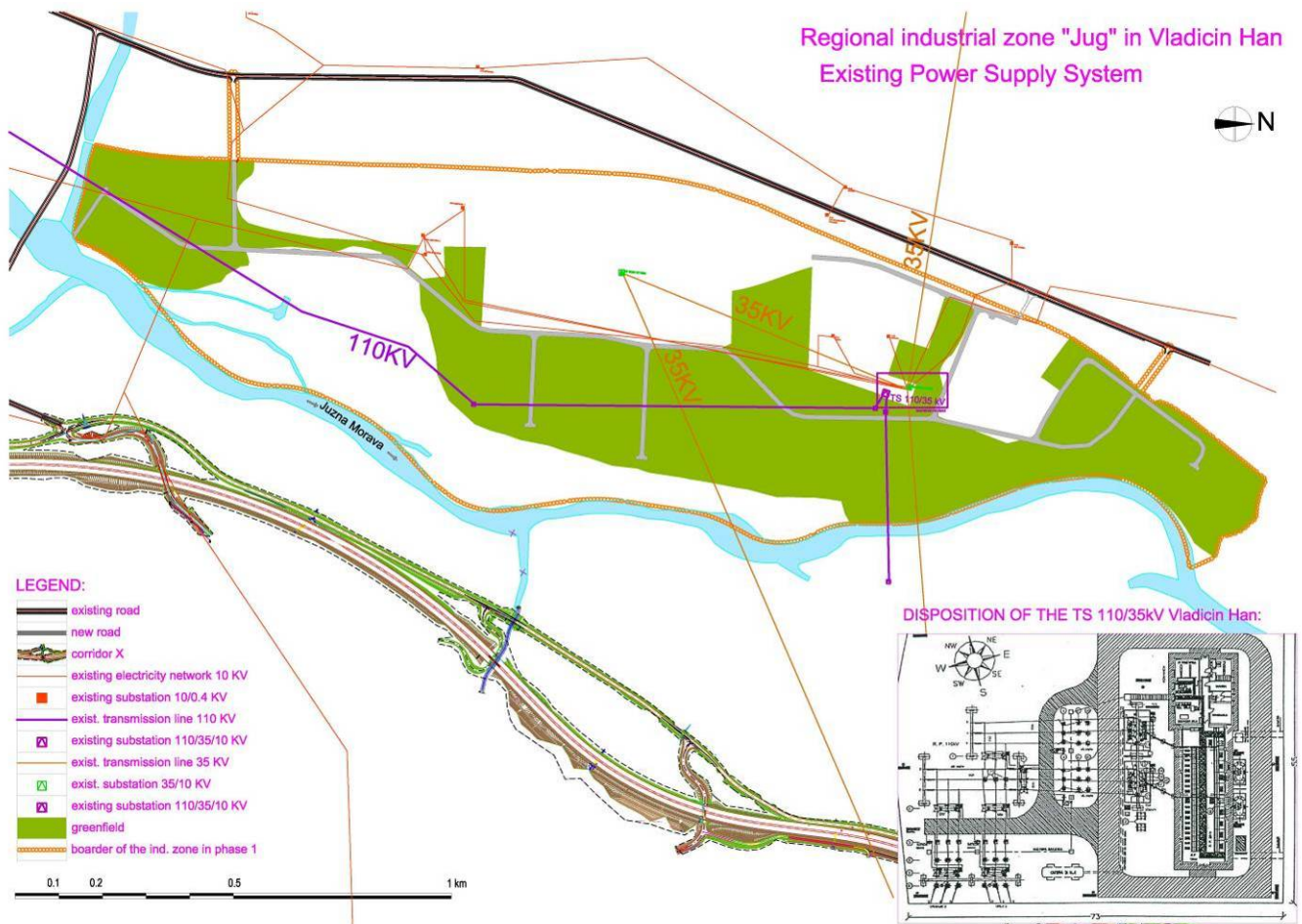
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recently upgraded to the level of 400kV). On such way, complete 110kV network, which was the only existing in the South Serbia, got connection to the 400kV national grid, which raised its reliability. Works on expansion of the 400kV grid in South Serbia was continued which resulted in December 2011 with finishing the 400kV OHL Nis – Macedonian Border. In regard to the consequences to the Vladicin Han IZ, the reliability of the power supply will be further increased with planned construction of the transformer substation 400/110kV Vranje 4. With this, the two directional 400kV back up will be provided: the first one – existed from transformer substation 400/220/110 Leskovac 2 and the second one from future transformer substation 400/110kV Vranje 4, i.e. from Macedonia / Greece. The high voltage HV Transmission System in Serbia is shown on the Figure 6.6-3⁷.

Figure 6.6-1 Existing Power Supply System with overhead line resolution on Vladicin Han IZ site

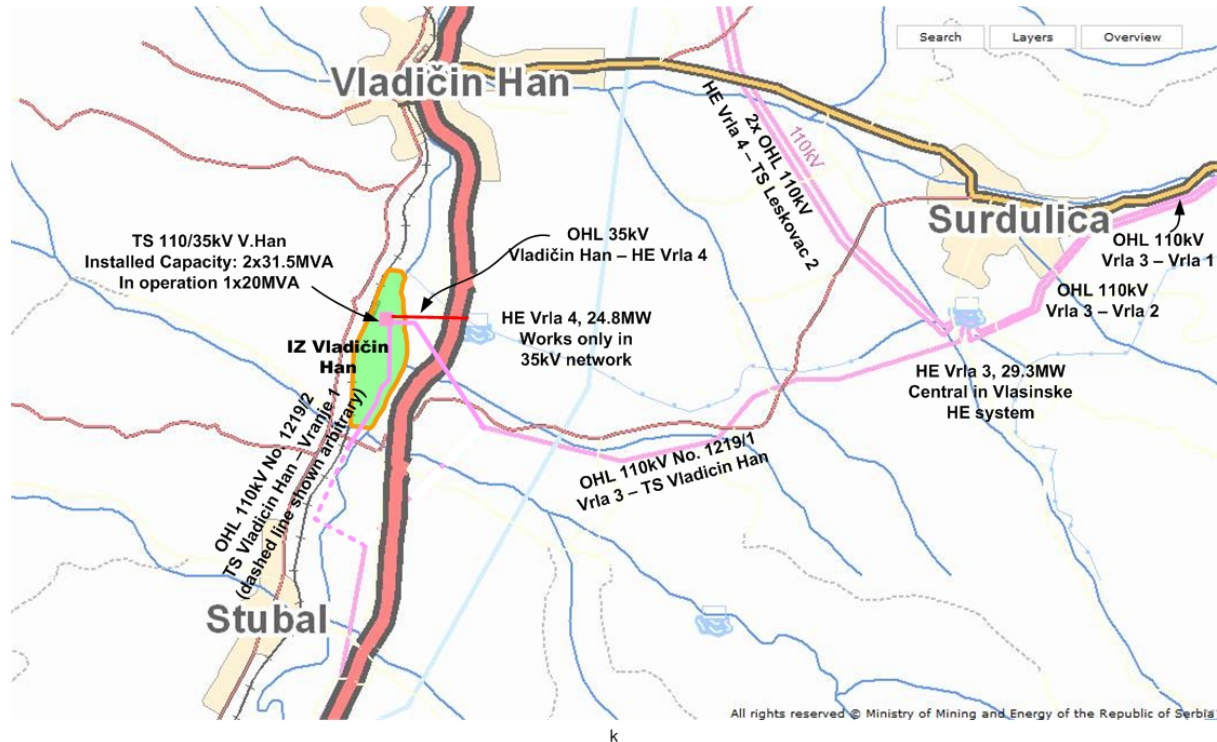


⁷ Downloaded from European Transmission System Operators web page:
<https://www.entsoe.eu/index.php?id=77>





Figure 6.6-2 Existing 110kV overhead lines' situation in the area of Vladicin Han



In general, transmission network is adequate to present generation and load demands. Moreover, transmission network is continuing to improve its efficiency, which is shown in steady decrease of losses. (in year 2010 they were 2.2%). This fact is mainly the consequence of the commissioning of several transmission facilities in the last years, such as TS 400/110 kV Jagodina 4, TS 400/110 kV Pec 3 (Kosovo region) and OHL 400 kV Nis 2 – Leskovac 2.

The system reliability is close to 99.995%, while annual average interruption time is between 20-30 minutes. In this respect, critical networks elements are transformer substations⁸ TSS 110/x kV, and partially 110 kV lines, while outages of 400 kV and 220 kV elements have almost no impact on interruptions.

Transformer substation TS 110/35/10kV Vladicin Han is even more secure than others. Namely, it has direct connection to the nearby hydroelectric plant HE Vrla 4. Having given, TS Vladicin Han has its “own plant back – up” giving it operational chance even with HV lines outages. In the other words, electricity generating capacity exists locally through the Vrla hydroelectric system near Surdulica consisting of 4 cascading hydro power plant providing a total nominal capacity of 129MW and an annual production varying between 150 and 280 GWh depending on the river flow. The system also include a 27MW pump station to return some of the flow back to the head reservoir during period of low electricity demand. The following table provides the characteristics of the Vrla system.

⁸ In this paper abbreviations TSS and TS are used interchangeable and means “Transformer Substation”. TS is originated from the Serbian titles of those facilities, which are “Transformer Stations” in Serbian.



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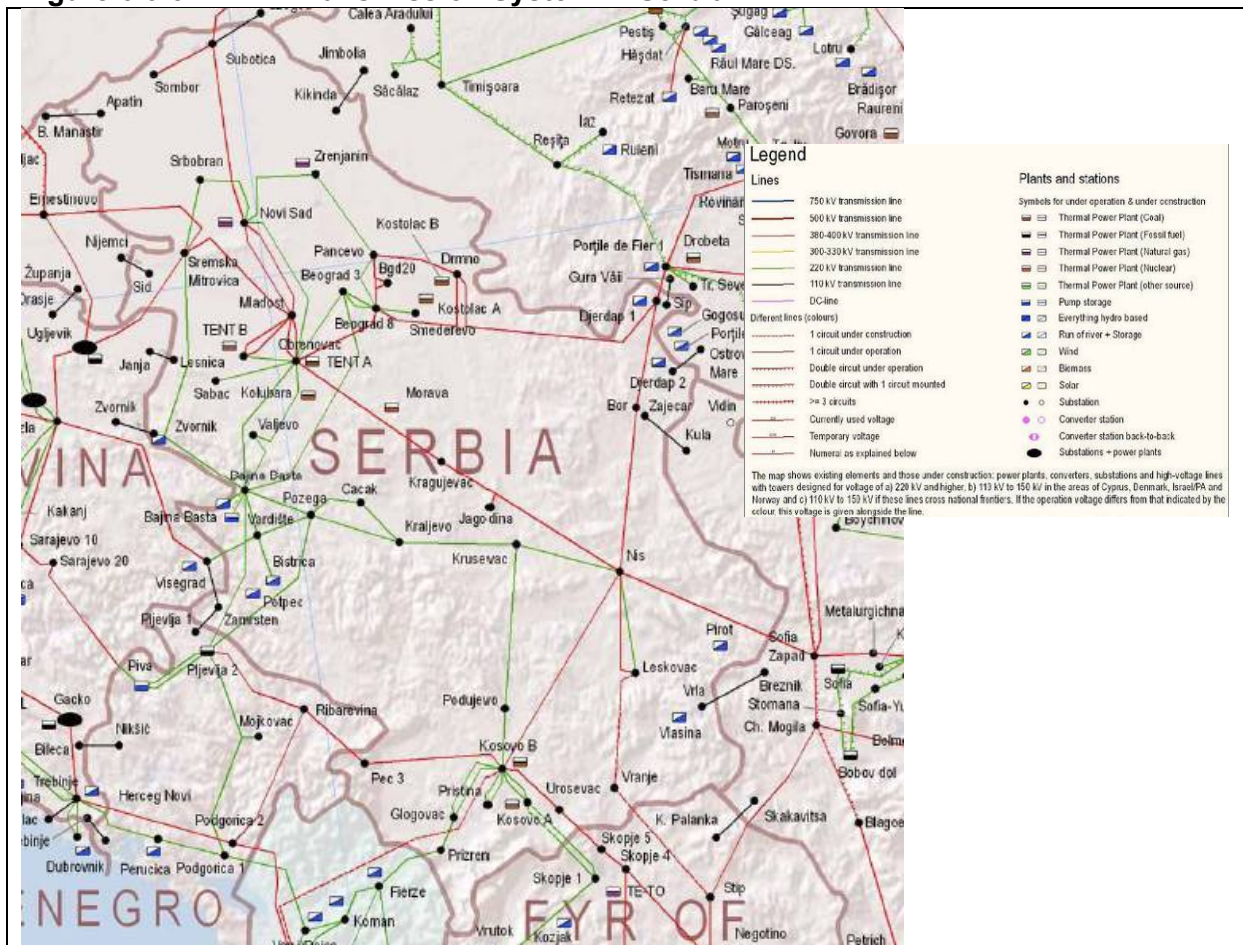
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Table 6.6-1 Generating Capacity in the Region

Characteristics of Facility	HPP Vrla 1	HPP Vrla 2	HPP Vrla 3	HPP Vrla 4	PSP Lisina
Reservoir volume (106 m3)	107	0.1	0.5	0.1	7.5
Maximum head water elevation (mASL)	1,213	868	710	503.6	976
Installed flow (m3/s)	18.32	18.5	18.5	18.5	7.5
Gross head (m)	343	160	208	172	335
Nominal capacity (MW)	51	24	29	25	27
Mean annual generation (GWh)	93.9	51.3	73.6	63	-74.8

Vrla hydroelectric system is, normally, connected to the national grid on 110kV level through HE Vrla 3, as shown on figure 5.3. However, HE Vrla 4 (the closest to the Vladicin Han) is a specific one in a way it works only on 35kV voltage level. One 35kV line is directly connected to the 35kV incoming feeding switchgear in TS 35/10 Vladicin Han, providing back up on 35kV, and, virtually, providing independent island type power supply, which can work even in the 400kV (110kV) lines outage. Having given, it can be guess reliability of the overall IZ supply system is close to the HV Serbian Power transmission system, i.e. 20/30 minutes of annual interruption.

Figure 6.6-3 HV Transmission System in Serbia



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6.6.4 Gas

There are no gas facilities and pipelines in the project area. Nearest town where gas is used is Nis.

6.6.5 Water Supply

Existing water supply in the municipality of Vladicin Han

The existing water supply network provides water for some 17,000 inhabitants. Of this number, within the limits of the Plan or in the town of Vladicin Han, there are about 8350 inhabitants, or 49%, whereas in rural areas outside of the Plan there are about 8650 inhabitants, or 51%. This means that out of the total number of consumers, approximately 50% is located in the town, and 50% in villages.

For the purpose of continuous water supply of Vladicin Han, water is abstracted from two sources - from the reservoir on the Vlasina river and from the wells near the South Morava. At least for ten months a year water is abstracted from the reservoir, treated in the Polom drinking water treatment plant and transported via the main pipeline to the reservoir on the Kalimance hill, near the center of Vladicin Han. Overhaul of the hydroelectric power plant is conducted during July and August and therefore water must be pumped from wells. Thus abstracted water is chlorinated and then pumped to distribution network, and surplus water is accumulated in the reservoir. After being transported from the intake to the distribution reservoir, water gravitationally flows into the distribution network and to consumers. The water supply network was constructed based on the 1984 design.

From the reservoir up to 125 l/s is abstracted which is the capacity of Polom WTP. The second phase of the Polom WTP of 125 l/s has not been constructed. The hydroelectric power plant overhaul usually takes about a month, but there are indications that in the future it will take 2-4 months. During the regular summer overhaul of the hydroelectric power plant Vrla IV, usually in July and August, it is impossible to use water from the reservoir, and the raw water is abstracted from wells along the Lepenica, off the coast of the Juzna Morava. Raw water is pumped from a total of seven exploitation wells and one collection-exploitation well. The wells provide a total of about 50 l/s. Raw well water is collected in a collection-exploitation well, where chlorination with gas chlorine is done, and then disinfected water is pumped into the town's distribution network. Lepenica pumping operates in this way only during the HP overhaul.

Due to low water levels in the well-fields along the Juzna Morava river (total capacity during summer is only about 30 l/s), in 2005 a 400 m long channel was built along the river. Filled with the river water, the channel provides increase in the water levels in a well-field of about 1 m, resulting in increased capacity of the well-field to about 60 l/s. In this way, the system provides sufficient capacity during summer months. The lack of some 1,000 m³ of reservoir space in the system is another reason why the amount of water abstracted from wells is sometimes insufficient during highest summer consumption.

The wells have been in operation for a long time, two of them since 1978, three since 2000 and two since 2004. The immediate sanitary protection zone does not exist, but only a narrow zone around the entire source area. Wider sanitary protection zones do not exist because of the industrial zone where the source is located.



Figure 6.6-4 Wells 5 and 6 along Lepenica



Figure 6.6-5 Wells 1 and 3 along Lepenica

Lepenica PS was built in 1978. The existing hydromechanical and electrical equipment is outdated and in relatively poor condition, but it performs the basic function. The well pumps operate at the level of collection-exploitation well. Its capacity is 30m³. Levels in the distribution reservoirs are determined by visual inspection (once a day an employee checks the condition of the tanks, and reports to the pumping station team). Excess water from both reservoirs is directed via overflows to the town's sewer system. There are no flow measurements in the Lepenica PS zone. As there is no continuous level measurement in the reservoirs and since it is visually determined as described above, the management accuracy cannot be achieved, and this results in a great water loss. Such distribution of water from the source to the reservoir is not efficient in terms of both water saving and energy savings. The pumping station has never been rebuilt.



Figure 6.6-5 PS Lepenica, collection sump and chlorination installation



Water supply system weak points are:

- Capacity of water treatment plant, as well as water intake on artificial lake, is sufficient. WTP capacity is even higher than it is to cover necessary water demands of town and surrounding settlements.
- Capacity of 8 wells is not sufficient to cover water demands of town and surrounding settlements. Capacity of WTP is over capacity of wells.
- Some parameters of raw water quality from the reservoir (artificial lake) deviates from proscribed values, but applied on the treatment process of WTP water purification easily done up to the required quality.
- The raw well water quality (except for microbiological parameters) is good enough, so that, chlorination provides the required water quality.
- The WTP operates with certain functional disadvantages. Preparation & dosing of Na_2CO_3 solution does not working, there is no visualization of the pH value of raw water and the dosage of aluminum sulfate solution is not accurate - it is done



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without the dosing pump. It is necessary to replace the actuators and valves and diesel engine for case of power failure is missing.

- Immediate sanitary protection of wells does not exist, but only narrow zone around the whole raw well water zone. Wider zones of sanitary protection does not exist, water well zones are placed in the industrial zone.
- Existing and electro mechanical equipment in pumping station Lepenica is exhausted and in a bad condition, but is in function.
- As flow metering in PS Lepenica and level metering in water distribution reservoirs are not being conducted, operation of the system is not planned as it should be and water losses are high. It means that delivery of water from the wells to distribution reservoirs is not efficient from water losses and electricity consumption point of view.
- Civil construction of pumping station was not reconstructed since construction.
- Designs and water demand analysis and hydraulic analysis of the distribution network are old. There is no general design for development of watersupply and sewerage system, as well as for reduction of loses (non-revenue water).
- Data is not in proper form useful for maintenance and investing. Production and consumption zone's data not available.
- Measurements of production and cosumptions zones are not introduced.
- Data on water distribution network was missing while preparation of this report. Some parts of the distribution network are old, valves and hydrants are exhausted are missing.
- Non-revenue water is%. There is no department / section / unit in the utility to deal with reduction of non-revenue water (losses). There are no continuous activities regarding reduction of apparent losses and leakages.

Better watersupply would be achieved through:

- Protection of the aquifer near Lepenica according to Regulation on determination and maintenance of protection zones of the water supply objects (Official Gazette of SRS, no. 33/78)
- Reconstruction of wells and pumping station "Lepenica"
- Construction of new wells near Lepenica
- Replacement of equipment and completion in WTP "Paul"
- Installment of missing measuring devices for signal transfer to the utility
- Reduction of losses (non-revenue water) in water supply system Vladicin Han
- General design - Water supply in Vladicin Han until 2022

Water supply and water source in the area of Suva Morava

Vladicin Han is supplied with water from Vlasina Lake. Water is abstracted from the surge tank of the hydroelectric power plant "Vrta IV", transported by the raw water pipeline to the WTP, from where the treated water is distributed directly to consumers by gravity. Capacity of the raw water pipeline and the WTP is sufficient for the town and industrial water supply. However, due to regular overhaul of hydroelectric power plants which is conducted once a year, in summer, the supply pipeline from the reservoir is closed whereby the town is left without water supply. In recent years, as the utility company management informed us, the average flow of 60l/s in a critical month, which is the maximum to be provided from alternative water source "Suva Morava", barely covers the water demand of the population. Often, during longer overhauls (2.5 months in 2011), higher areas in the town do not have water. It should be noted that currently only few industrial facilities operate, and that the water demand will increase in the years to come.





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In addition to areas in Vladicin Han which use this water (currently connected around 4,500 households, where the annual consumption ranges from 2.000.000-2.500.000 m³/yr), the largest consumer is the industry. Among the industrial plants the largest consumer is the juice factory "Nectar". This factory has two plants, one located in the industrial zone and one in the town. According to the utility company data, in the industrial zone is out of operation, and the maximum water demand is around 3.2 l/s for the plant in the town. Besides the plants, several other industries, currently not operational, are connected to the system ("Erosion", "FOPa", "Sloga", "Betonjerka", "Juzna Morava").

The "Suva Morava" source is located on the left bank of the Juzna Morava River, at about 500m downstream from the mouth of the Lepenica river. Alluvial deposits are quite spacious on the left side of the Juzna Morava River, downstream from the mouth of the Lepenica, where hydrogeological surveys were carried out in the past.

West of the Juzna Morava two series of sediments with different hydrological functions are clearly separated in the vertical profile. Substrate series consists of loose sandstone and conglomerate, clay and tuff sandstone of miopliocenic origin. With its hydrogeological function the substrate series acts as hydroinsulation. Over the substrate series, there are alluvial deposits made of gravel and sand of uneven granulometric composition. In the area of "Suva Morava", the elevation of the alluvial deposits foot series ranges from 324.95 m above sea level up to 330.86 m.a.s.l., whereas the elevation of the top of alluvial ranges from 333 m.a.s.l. to 330.86 m.a.s.l. Maximum depth of alluvial deposits is in the north-eastern part of the water source area.

In the alluvial deposits there is an aquifer with a free ground water level. The aquifer is 4 m to 5 m thick, and the aeration zone is 1.5 m - 30 m thick. The aquifer is fed from the Juzna Morava and Lepenica rivers, and by infiltration of water from atmospherillia. The aquifer water flow is directed to the northwest. According to given data hydraulic gradient of aquifer water is 0.005. The depth to groundwater is 2m - 3 m. Filtration characteristics of the alluvial deposits show that these are well-permeable layers of the filtration coefficient $k = 7 \times 10^{-3} - 2.6 \times 10^{-4}$ m/s. This indicates that the aquifer is of limited propagation with constant potential on the studied area contour.

As the source was formed in the Juzna Morava alluvial deposits, potential capacity is determined by hydrogeological properties of rock mass and hydraulic connection of the river flow with aquifer water. This indicates that the aquifer is of limited propagation with constant potential on the studied area contour.

All wells are in the flood area. All drilled wells are perfect, i.e. the foot impermeable rocks entered by drilling, is where catch basin of the wells are located, so that the entire aquifer was abstracted. In lithological terms alluvium consists of gravel which is of heterogeneous granulometric composition dominated by large and big-grain fractions.

At the alternative source of "Suva Morava" currently operational are 7 exploitation wells and 1 collection-exploitation well (from where water is distributed to consumers), 4 of which are dug and four are drilled. Until 2000 there were 5 operational wells with total capacity of 30l/s. In 2000 three new wells were built with optimum yield of 10 l/s per well, increasing the total source capacity to 60l/s.

The capacity of older wells PB-1 and PB-2 is 20 l/s. They are connected to collection wells by PVC pipeline Ø300. Water from the B-1 and B-2 wells is transported to the collection well through the centrifugal pumps, the total yield of which is 10l/s. B-3 well is not working.

Wells designed in 2000 have the following characteristics:

The newer wells are connected to the existing pipeline at the source (Ø300 PVC). The connecting pipelines are made of ø125 mm PVC pipe. The pipeline lengths are given in Table 6.6-2.





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Table 6.6-2

Object	Length (m)
Well NB-1	114.96
P-1	
Well NB-2	10.26
P-2	
Well NB-3	84.39
P-3	

Data on dynamic and static levels of the wells, and well pumps capacity by wells that are currently in operation are as follows:

Well	Pump	Capacity		
KB1-327.00/333.87	with well pump NVP 80-1	Q = 8-15l / s	H38-28m	N = 7.5 kW, 2900 r / min
BB2-325.50/333.84	with well pump NVP 80-1	Q = 8-15l / s	H38-28m	N = 7.5 kW, 2900 r / min
SB1-326.80/333.73	with well pump BP 102, N = 3 kW			
SB2-327.67/333.32	with well pump BP 125, N = 7.5 kW			
NB1-326.74/333.34	with well pump Franklin Electric, N = 3.7 kW, 50 Hz, type 345273401			
NB2-326.50/334.70	with well pump Franklin Electric, N = 3.7 kW, 50 Hz, type 345273401			
NB3-327.32/335.02	with well pump Franklin Electric, N = 3.7 kW, 50Hz, type 2345273401			

The water from all wells is pushed to the exploitation-collection well, the capacity of which is 30m³ and above which is the pumping station for pumps and required plumbing fittings. In the pumping station a well pump Jastrebac Nis, BP 151-8, N = 90 kW (active and reserve) is installed. This pump meets the requirements of water abstraction at the source. From the pumping station the water is pushed towards the town.

The water generally meets the requirements of the Guidelines for drinking water quality, except for occasionally increased turbidity and increased concentration of manganese. During operation continuous quality control is carried out, as well as water chlorination by use of hydro chlorinator, type MN-2 produced by Hidrosanitas, Belgrade. Also, the Juzna Morava embankment is not so safe to ensure adequate sanitary protection of sources against the Juzna Morava flood waters.

In terms of sanitary protection the source is currently in a very poor condition, because waste material (slag, ash and other waste) is deposited in the source area, as well as exploitation of gravel.

It is necessary to remove the deposited material and establish full protection of the area in order to preserve groundwater quality. The maximum amount of water to be expected from the Suva Morava source in the current and future state is about 60 l/s.

Immediately prior to including this source in water supply during hydroelectric power plant overhaul, the Juzna Morava damming is done and backwater is created in order to achieve the expected flow.

However, this source tends to reduce amount of water during operation period as it comes to depletion of aquifer, and the situation becomes worse as the overhaul period becomes longer each year because of the lack of rehabilitation of the hydroelectric plant.

In addition to the wells in the industrial area, there are wells that used to supply water to the industrial facilities "FOP-a", "Sloga", "Metal Industry Juzna Morava". The capacity and characteristics of these wells are not known.

In the scope of the subject area there are two independent water supply networks. One connects the wells and "Lepenica" pumping station to the town's network, and the other one





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are mains which are only functional connections of existing facilities to the public water supply network.

The part of the main pipeline (which transports water in case water is abstracted from the Suva Morava source – prepressure main PS Lepenica) is the AC pipeline, the first section of which is of diameter \varnothing 300 mm up to the section being separated to the industrial plant FOPA, and then it continues as \varnothing 200 mm AC pipeline up to the entering point into the main ring diameter of \varnothing 300 mm which is made of AC pipe class C.

The Suva Morava source is degraded due to soil and groundwater pollution. Even now, when depression craters do not threaten ecological conditions in the environment, this source is on the verge of sustainable use of alluvial sources. Implementation of the planned free zone contents in the sanitary protection zone will certainly affect the restricted possibility to exploit the "Suva Morava" source and can lead to its final abandonment. In the long run, it can be concluded that the missing amount of water in the system during overhaul period will be an increasingly big problem, and one should seek alternative water supplies for Vladicin Han.

6.6.6 Wastewater

Existing wastewater collection in the municipality of Vladicin Han

Project documentation and as-built documentation date back to 1980, and in addition to sewage, central waste water treatment plant (CWWTP) was also included. Considering when the project documentation was prepared, its significance is relatively small - due to obsolete technical solutions. Only 40% of the population discharge waste water into the sewage or about 2000 household connections and 19 industry connections. Septic tanks are old and porous, and there is leakage and potential pollution of soil and groundwater. Given the age of the sewer pipes it is assumed that there is a leakage at some points and contamination of soil and groundwater.

Total length of the wastewater sewage in Vladicin Han is 6.5 km, and the storm sewer is 4.5 km long. Not all the facilities are connected to the sewerage system, which applies to large commercial complexes "Nektar" and "Delišes". In addition, there are difficulties in the functioning of certain parts of the existing sewerage network due to small diameter of the main sewer and secondary sewer network.

The collector has a built-in wastewater flow meter, which is believed to register about 80% of waste water. There are no data on the total quantity and quality of wastewater discharged by the industry. There is no pre-treatment of wastewater. There are 4 discharge points of wastewater into the Juzna Morava. Wastewater is discharged without treatment. The PUC does not have permission to discharge wastewater.

Only about 30% of the town's territory is covered with rain drainage system. Cross-connections between the rainwater system and the wastewater collection system.



Figure 6.6-6 Wastewater discharge point into the Juzna Morava

Deficiencies in the water supply system and waste water system are as follows:

- Not all wastewater is collected and does not flow up to the location where wastewater treatment plant is to be constructed.
- WWTP does not exist. Project documentation is old and treatment solutions are obsolete.
- Wastewater is discharged into the Juzna Morava without treatment.
- There is no project documentation for the completion of sewerage system and construction of the WWTP.
- Rain drainage system is not developed enough
- Septic tanks are porous and underground water is polluted.

Next steps for better wastewater collection and treatment:

- Preparation of General Design - Sewerage in Vladicin Han until 2022
- Extension of primary sewerage system and construction of WWTP
- Preparation of Municipal decision on connection of customers to sewerage system in the area where sewerage system is in function and closure of their septic tanks.
- Provision of wastewater discharge permit.

Existing wastewater collection and treatment in the area of Suva Morava

The urban population of the municipality of Vladicin Han is mainly engaged in industrial production (food processing, construction material, paper packaging and plastic-processing, processing of agricultural products, wood and stone). In the last five years the situation in the Vladicin Han industry has drastically changed, and most industrial companies no longer in use.

A large number of industrial plants are concentrated in the industrial zone of Vladicin Han, between the Lepenica and Suva Morava rivers. Industrial enterprises in the considered industrial zone are:

	Operating at reduced capacity	Out of operation
1	Friut Factory AD Nektar	" Sloga " wood processing industry
2	Concrete Factory (AD Betonjerka - Nibens)	Dairy Vladicin Han
3	AD Južna Morava	Paper Factory Brikel (Fopa)
4	Construction Bankovic	
5	City express, Minex	



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There are no valid data on the quality and quantity of the waste water from industrial and other pollutants. The available measurements come from the period when the industry in Vladicin Han worked at full capacity and are not valid because at present the fate of all industrial companies is uncertain and it is unclear for what quantity and quality of waste water and in which period the treatment will be required.

In the considered scope of the industrial zone there is no centralized sewage system or waste water treatment plant.

The industrial zone contains several lakes, a channel and a pumping station. The lakes used to serve as lagoons to store waste water, and the pumping station used to pump waste water from lagoons into the Juzna Morava. Such waste water storing was used by the paper industry, which is no longer in operation.

6.6.7 Solid Waste

Municipality Vladicin Han has signed a service contract with Porr Werner Webber (PWW) to collect waste and dispose the waste at the landfill in Leskovac. According to the municipal decision from 15.9.2008, all households and commercial customers are required to have a contract with PWW. Decision is published in Official Gazzete 127/07. PWW tariffs for waste collection is presented in VOL 3 : ANNEXES.

6.6.8 Telecommunications

According to implementation rate as well as the condition of postal and telecommunication capacities, South Serbia is ranked among the most underdeveloped in Serbia. The region has only 19.5 users of fixed telephony per 100 inhabitants, which is almost 60% below the Republic's average of 33.3 users per 100 inhabitants (2004). The region's fixed telephone lines are insufficient to meet demand, while the region's coverage by mobile telephone networks is in need of expansion. (Reg.Dev.Strategy Jablanica Pcinja 2008 2012).

The telephone exchange is connected with Vranje and Nis by an optical cable. In the area of All three mobile phone operators are represented (vip, Telenor, Telekom) in Vladicin Han.

Basic characteristics of telecommunications systems in the municipality are reflected in insufficient capacity of the transmission system, transmission system stability, large capacity and sufficient number of telephone exchanges in the municipality. The existing telephone exchanges on the municipal territory are digital (Alcatel) and with sufficient capacity.

In some parts of the municipality, because of the mountainous regions the quality of RA and TV signals is unsatisfactory and new repeaters and cable distribution system are necessary to improve signal quality. The current location of the repeater remains for the next period.

The current mobile phone base stations signal covers the entire territory of the municipality but priority for building new base stations is to improve coverage along all roads.

Post Serbia is a successful company providing postal, logistic services and some financial services within the town.

6.6.9 Human Resources

Human resources is an important factor of production and this section provides an overview of the employment situation in the region.

The statistics shows that the numbers of people in employment is about 55% of the labour pool. It is also clear that unemployment is not linked to a lack of skill since only about half of the unemployed is unskilled. There is also no apparent gender discrimination since about



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half of the unemployed are women. Most of the employment in the region is related to manufacturing.

An overview of the employment situation is provided in the following table.

Table 6.6-3 Employment by Sector and by Municipality in the Pčinja Region in 2008

Region/ Municipality	Pčinja	Bosilegrad	Bujanovac	Vladičin Han	Vranje City	Preševo	Surdulica	Trgovište
Total	33,816	878	5,147	3,362	18,125	2,509	3,109	688
Agriculture, forestry and water works	966	53	293	171	303	14	128	6
Fishing	8	-	-	-	6	-	3	-
Mining and quarrying	338	4	25	-	304	1	-	4
Manufacturing	14,082	156	2,374	1,600	7,970	640	1,078	266
Electricity, gas and water supply	1,060	55	70	169	420	34	305	8
Construction	951	25	105	123	538	37	124	1
Wholesale and retail trade, repair	3,281	107	398	261	2,016	258	194	49
Hotels, restaurants	546	4	33	82	374	2	52	-
Transport, storage & communications	1,684	58	126	215	1,047	167	55	17
Financial intermediation	173	8	10	4	114	19	15	4
Real estate, renting activities	320	-	9	8	293	8	2	1
Public administration & social insurance	1,688	93	286	150	721	211	163	65
Education	4,125	167	722	333	1,576	793	376	159
Health & social work	3,743	110	533	212	1,980	283	552	75
Other communal, social and personal service activities	855	40	165	37	466	46	65	37

Source: Municipal Statistics 2009, Serbia Statistics Office

The unemployment situation in the region is presented in the following table.

Table 6.6-4 Unemployment by Municipality in the Pčinja Region in 2008

Region/ Municipality	Pčinja	Bosilegrad	Bujanovac	Vladičin Han	Vranje City	Preševo	Surdulica	Trgovište
Total Job Seekers	27,864	1,306	4,656	4,066	7,352	6,360	3,035	1,089
No First Timers	17,872	580	3,862	2,171	3,304	5,649	1,913	393
%	64.1	44.4	82.9	53.4	44.9	88.8	63	36.1
No Unskilled	14,139	509	3,027	2,033	2,673	4,288	1,082	527
%	50.7	39	65	50	36.4	67.4	35.7	48.4
No of Women	15,201	644	2,419	2,383	4,213	3,420	1,638	484
%	50.7	49.3	52	58.6	57.3	53.8	54	44.4
No/1000 pop	122	153	103	182	85	162	147	197

Source: Municipal Statistics 2009, Serbia Statistics Office

On the basis of the above statistics, the labour pool available in the three municipalities can be summarized in the following table.



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Table 6.6-5 Labour Pool available in Vladicin Han and the neighbouring municipalities in 2008

	Pčinja	Project Area	Vladičin Han	Vranje City	Surdulica
Labour pool	61,680	39,049	7,428	25,477	6,144
Employed	33,816	24,596	3,362	18,125	3,109
Unemployed	27,864	14,453	4,066	7,352	3,035
Unskilled Unemployed	14,139	5,788	2,033	2,673	1,082
Women Unemployed	15,201	8,234	2,383	4,213	1,638

6.6.10 Natural Resources

Another important factor of production is raw material and it used to be the case that industries are located close to the source of raw material. This is still the case for primary processing where raw material is converted to semi-processed material which can be transported for secondary processing. However with the advent of good transportation systems the location of factories close to factors of production has become less important. Technological advances has also meant that manufactured goods are now becoming more complex and consist of assemblies of standard subcomponents which are manufactured by others elsewhere.

What is therefore important for modern industries is to secure a reliable supply chain of all the subcomponents required to complete the manufactured goods. Obviously the manufacture of the subcomponents themselves requires its own secure supply chain all the way back to the raw natural resources from which the subcomponents are made from.

The region around Vladicin Han is quite rich in primary resources such as agriculture and forestry with the result that in Vladicin Han there is a predominance of enterprises serving those two sectors.

Agriculture

The area of agricultural land in the region is presented in the following table and it can be noted that most of the land is in small family holdings devoted mainly to fodder production. Agricultural land covers about 45% of land in Vladicin Han whereas it is about 52% in Vranje and 54% in Surdulica.

Table 6.6-6 Usage of Agricultural Land in 2008

Total Land	Arable		Arable Cultivated				Permanent Crop			
	Agri. land ha	Total Land ha	Cereal ha	Industrial Crop ha	Vegetable ha	Fodder ha	Orchard ha	Vineyard ha	Meadows ha	Pastures ha
Vladičin Han	16,241	6,390	2,178	8	656	1,334	1,319	2	3,706	4,824
Vranje	44,410	20,942	10,377	256	2,612	4,944	2,055	912	6,217	14,266
Surdulica	33,478	4,622	1,499	18	809	420	1,168	1	7,639	20,048

including Family Holdings

Vladičin Han	14,900	6,385	2,178	8	656	1,334	1,213	2	3,704	3,596
Vranje	37,247	20,925	10,377	253	2,610	4,944	1,988	876	6,014	7,430
Surdulica	18,206	4,552	1,457	18	803	398	1,163	-	7,276	5,215

Source: Office of Statistics of Serbia, Data on Municipalities 2009



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Grain production is modest and is mostly produced on family holdings for family consumption.

Table 6.6-7 Grain Production for 2008

Grain Production	Wheat Tonnes		Wheat Yield Kg/ha		Maize Tonnes		Maize Yield Kg/ha			
	Total	Enterprise & Family Holdings	Enterprise & Family Holdings	Total	Enterprise & Family Holdings	Enterprise & Family Holdings	Enterprise & Family Holdings			
Vladičin Han	1,600	-	1,600	-	3,077	4,116	-	4,116	-	2,781
Vranje	15,142	-	15,142	-	3,469	14,591	-	14,591	-	3,657
Surdulica	864	-	864	-	1,924	3,832	11	3,821	5,500	4,149

Source: Office of Statistics of Serbia, Data on Municipalities 2009

Industrial crop production is also small and mostly for personal consumption

Table 6.6-8 Industrial Crop Production for 2008

Industrial Crop Production	Sugar Beet, Tonnes	Sugar Beet Yield kg/ha	Sunflower Tonnes	Sunflower Yield kg/ha	Beans Tonnes	Beans kg/ha	Potato Tonnes	Potato kg/ha
Vladičin Han	-	-	3	1000	55	1054	974	3454
Vranje	-	-	-	-	520	874	7177	6312
Surdulica	-	-	-	-	560	2080	5728	10707

Source: Office of Statistics of Serbia, Data on Municipalities 2009

Fodder production is quite significant in the region indicating a large population of cattle and confirming the presence of a significant dairy industry.

Table 6.6-9 Fodder Production for 2008

	Clover Tonnes	Clover kg/ha	Lucerne Tonnes	Lucerne kg/ha	Meadow Tonnes	Meadow kg/ha	Pasture Tonnes	Pasture kg/ha
Vladičin Han	407	1,485	1,060	2,506	2,800	1,018	876	314
Vranje	3,245	3,415	5,284	4,051	7,454	1,843	3,249	345
Surdulica	981	7,197	459	4,833	9,832	1,576	6,165	385

Source: Office of Statistics of Serbia, Data on Municipalities 2009

Fruit was an important crop in the region but the production has reduced because the production from agricultural enterprises has collapsed and up to now buyers for these enterprises have not been found. Most of the production is now used for family consumption or processed within enterprises..

Table 6.6-10 Fruit Production for 2008

Fruit	Apple trees No	Apples Tonnes	Apple kg/tree	Plum Trees No	Plums Tonnes	Plums kg/tree	Vines x1000	Grapes Tonnes	Grapes kg/vine
Vladičin Han	107,330	1,455	13,6	85,800	2,287	26,7	2	6	3,0
Vranje	102,892	1,502	14,6	372,476	4,376	11,7	4,455	2,748	0,6
Surdulica	47,040	734	15,6	80,980	1,342	16,6	-	1	0,0

Source: Office of Statistics of Serbia, Data on Municipalities 2009

The sale and purchase statistics reflects personal consumption of most agricultural produce with small volume of sale except for dairy products.



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Table 6.6-11 Sale and Purchase of Agricultural Production in 2008

	Wheat tonnes	Maize tonnes	Pigs tonnes	Cattle tonnes	Eggs x1000	Milk x1000l	Beans tonnes	Potato tonnes	Apples tonnes	Plums tonnes	Grapes tonnes
Vladičin Han	-	-	-	191	-	658	-	-	-	-	-
Vranje	-	-	-	-	-	1111	-	-	107	19	-
Surdulica	-	-	-	-	-	767	-	-	-	-	-

Source: Office of Statistics of Serbia, Data on Municipalities 2009

Population relying on agriculture for a living has been reducing and between 1991 and 2002 the number of active agricultural households reduced from 816,200 to 454,732, a reduction of 44%. This trend has continued resulting in a serious rural depopulation of the region. Although agroindustry is one of the pillars of the Serbian economy this rural depopulation will have a serious consequence on the economy. This negative trend in the region needs to be reversed if the agro industry is to have a future.

Forestry

Forest land covers significant area of the municipalities with about 44% of land in Vladičin Han whereas it is about 43% in Vranje and 41% in Surdulica as indicated on following table.

Table 6.6-12 Forest Coverage and Timber Production in 2008

	In Forest		Out of forest		Forest area ha	Felled timber		Technical timber	
	Broad leaved ha	Conifers ha	Broad leaved ha	Conifers ha		Broad leaved m3	Conifers m3	Broad leaved %	Conifers %
Pèinja		72.96			138,220	132,877	8,472	17	79
Vladičin Han	-	33	-	-	16,188	29,384	761	40	84
Vranje	-	18	-	-	37,072	39,627	1,044	19	86
Surdulica	-	19	-	-	25,705	20,970	1,023	8	87

Source: Office of Statistics of Serbia, Data on Municipalities 2009

6.7 Existing Supply Condition for Industrial Land in Vladičin Han

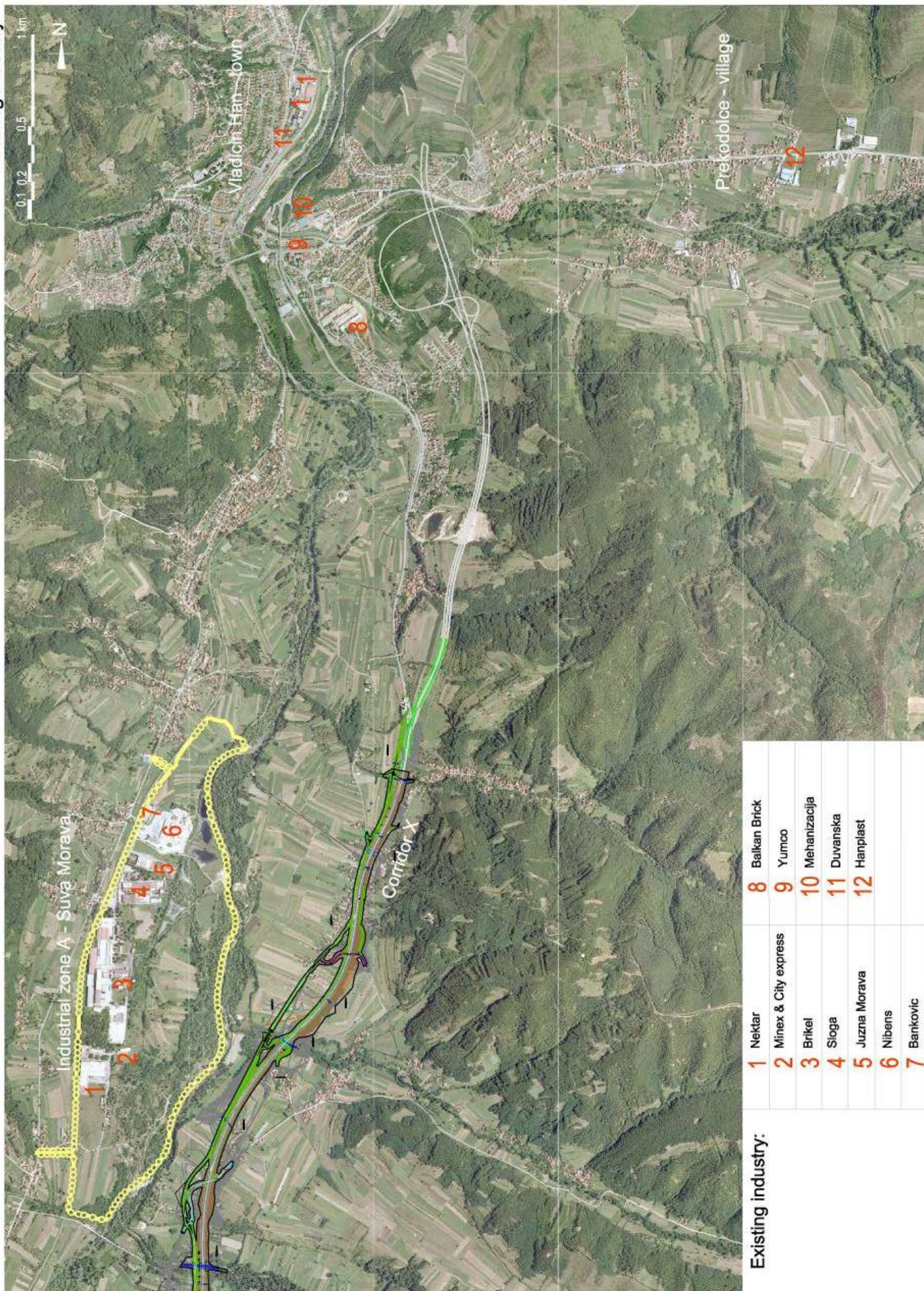
One of the natural resource and factor of production is land and Municipalities have the responsibility to provide facilities i.e. land where industries can operate. In this section of the report the supply condition in Vladičin Han and the adjacent municipalities are examined. Vladičin Han is a municipality with a small population located on the Morava river whereas the adjacent Municipality of Vranje is much larger with a much more developed industrial base. The Municipality of Surdulica is mainly mountainous and also with a small population. The existing industries in Vladičin Han are concentrated in two areas:

- In the town centre
- Industrial zone South (Jug)

6.7.1 Existing industrial zone – Centre

There are about 7 large enterprises in the town centre and located on either side of the Morava river. The existence of industries within the centre of the town is not ideal and their presence should be reviewed. However, given the current economic climate and the financial

Industrial zone "Jug" in Vladicin Han Existing industry



Existing industry:

1	Nektar	8	Balkan Brick
2	Minex & City express	9	Yumco
3	Brikel	10	Mehanizacija
4	Sloga	11	Duvanska
5	Juzna Morava	12	Hanplast
6	Nibens		
7	Bankovic		



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position of most of these enterprises this situation has to be accepted and managed during the short term.

In the longer term as the town develops and the demand for residential and commercial property improves these industries can be relocated to out of town areas to release these sites for rezoning into commercial and residential use.

This operation will require the release of other land (mainly poor agricultural land) for such industrial purposes and in addition there are relocation costs which have to be paid either by the industries or by the Municipality. Although the costs can be substantial this operation has been successfully implemented with private sector participation in many European countries but it requires creation of a special purpose company which is fully dedicated to this purpose and the implementation period is normally over many years and depending on the area concerned even decades.

6.7.2 Existing Industrial Zone "Jug" Suva Morava

The Vladicin Han industrial zone South (Suva Morava) was started in the 1950's and was declared a free zone in 1994 along with 13 others but all the advantages provided to free zones were abolished in 2005 when the new Law on Free Zone was promulgated.

The new Law on free zones (Official Gazette of the RS no. 62/06), gives the possibility for reviving or activating the free zones which had their licence retracted preventing them from doing further business, and bearing in mind the favourable position of the location of the zone (corridor 10, railroad, closeness to the Nis airport, closeness to the border with Macedonia and Bulgaria), this could, in the near future, be one of the activities which would contribute to the industrial and economic development of Vladicin Han municipality, and the initiative was put forward to form a Regional Free Zone "South" by the municipalities Vladicin Han, Vranje and Surdulica.

Four free zones (Novi Sad, Pirot, Subotica, Zrenjanin) have so far been registered as such. There are special conditions which have to be fulfilled for registration as a free zone.

Existing Situation

The existing serviced industrial zone South (Jug) Suva Morava is fully occupied by existing enterprises which are either already privatized or in the process of privatization. The process means that the land occupied by these enterprises are not available to any prospective investor unless one of the privatized companies suits his purpose. In such a case he has to wait for the process to be completed before he can proceed with the project.

From an environmental view the development of brownfield sites is preferable to development of greenfield sites but, most enterprises prefer greenfield sites where these enterprises can build their production facilities in accordance with their needs instead of adapting their needs to the constraints of the existing infrastructure on the brownfield sites. Enterprises will also be unwilling to make special efforts since greenfield alternatives are available in other parts of the country.

Although this approach can be difficult, many companies can turn this issue to their advantage because they can boost their "green" credentials through reuse of existing facilities. However, it must be recognized that for many modern processes the reuse of old facilities is not possible and there is no option but to rebuild in order to achieve the levels of efficiency expected.

Moreover, for brownfield sites in Serbia the enterprises are also constrained by the regulations and conditions attached to the existing sites which make difficult the acquisition



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of change of use, building and other permits as described in the World Bank report, Doing business in Serbia, 2010 and the Global Competitiveness Report 2011-12.

In the current situation, the Municipality cannot offer greenfield sites to potential investor and this is a serious constraint for development of this poorly developed region.

Vladicin Han is in competition with other municipalities who have vacant equipped greenfield sites and in order to overcome this Vladicin Han must also provide the greenfield option but has to be careful not to create disincentives for the brownfield alternative. Encouragement of the brownfield solution should be introduced by facilitating the urban rezoning and the permitting procedures.

Analysis of existing occupiers

There are about 300 enterprises within the municipality of Vladicin Han and 13 of those enterprises can be considered as medium to large. The sectors covered by the enterprises are mainly in the agroindustry (timber, fruits, dairy products), construction, apparel (confection) and manufacturing (plastic, metal).

The locations of the larger enterprises located in the town centre are shown on the following figure Existing industry.

A brief description of the enterprises in the town centre is provided below:

"Balkan brik" AD Vlaicin Han

The oldest industrial company in Vladicin Han, established in 1933, once the biggest producer of building material in South-East Serbia. It mostly produces bricks, roof tiles and building products of baked clay. It places its products on the territory of the whole republic. It employs 262 workers. Assets at privatization included 5.4ha of agricultural land and 5.5ha of building land with 15,800m² of buildings. It was privatized in 2006.

DP PK "Delises" Vladicin Han

Agricultural complex "Delises" was established in 1960 and it used to employ 200 workers but in 2010 it only employs 23. Its assets include a slaughter house, juice factory, cold storage, factory for processing fruit and vegetables, as well as around 4,500 ha of agricultural land mainly orchard and about 69,650m² of building land. The company has three production facilities (warehouse, refrigeration unit and ice cream factory), with a total area of 11,350m² in Vladicin Han and about 9,500m² of warehouse and juice factory in Lepenica and Zitoradja. Having failed to sell the company as a going concern the Agency for privatization has reorganized the company into separate packages which can be sold separately between 2009 and 2010. So far only Sales Package A comprising the canned fruit and vegetables factory in Vladicin Han and plantations in Zitoradja (490,000€) and Sale Package C – Trading and Catering Activities (700,000RSD) have been sold for a much reduced price. Package A has been purchased by the Nectar company. The facilities of Package B have now been purchased by Coca Cola owned, Fresh & Co.

DOO "Nektar" Backa Palanka pu. Vladicin Han

Started working in 2003 in factory purchased from the DP PK "Delises" and employs 92 workers. It deals in the production of concentrated fruit juices and pasteurized fruit pulp. It is the biggest factory of this kind in the Balkans with production of 120.000 tonnes in a season. It possesses the ISSO 9001, HACCAP standards and the certificate for organic production of apple concentrate. The company is a privately owned joint stock company.

Production facility "Jumko" Vladicin Han

Since January 1st, 1984 it does business as a part of the above mentioned company. It employs 83 workers and that mostly female work force. It deals in the production first of all of women's garments, although the production can be adapted for the production of other garments. The company is a Vranje based joint-stock company in State ownership.

DP "MEHANIZACIJA", Technoput Vladicin Han





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This state owned company was specialized in demolition of buildings and carrying out large scale earthworks. It used to employ 34 people and its assets include 2,500m² of building. It was privatized but the contract was terminated and the company is now in liquidation. Proceedings.

AD Duvanska, Vladicin HAN

This company was founded in 1936 and it deals in the production of raw tobacco in leaves, through buying off and fermentation of tobacco. Assets include 1.4ha of agricultural land and about 0.6ha of warehouse, fermentation hall, sorting building and offices. It has 30 employed workers. The company was privatized in 2006.

AD "Hanplast" Vladicin Han

Established in 1975 and it used to employ 156 people but now employs only 73 workers. It deals in the production of plastified and impregnated cloth, bookbinding paper and cloth, garments, PE folio and anticor packaging paper. They place their products on the home market. Assets include 1.8ha of land and 5300m² of production facilities. The company is privately owned company since 2006. The company has indicated an interest in expanding production in a new facility in the proposed industrial zone.

Other smaller companies operating in Vladicin Town are the following:

DOO "Eko" Vladicin Han

It was established in 1990 and it now employs 50 workers. It deals in the production of all kinds of paper packaging material, and their products they place both on the home and the foreign markets. The company is a privately owned joint stock company.

DVP "Erozija" Vladicin Han

Basic industry is building hydro-facilities, production of stone products as well as the production of the evergreen and decorative seedlings for parks. It employs 46 workers. Assets at privatization includes 102.2ha agricultural land and 2,100m² of building land. The company is privately owned since 2005.

DOO "Tehnogradnja" Vladicin Han

Basic industry is civil-engineering (building construction), it employs 80 workers. It performs works both in the country and, just as successfully, abroad. The company is a privately owned joint stock company.

The rest of the larger companies, 5 enterprises are located in the industrial zone South, Suva Morava occupying most of the developed site and their locations are shown on the following figure.

Details of the industries in industrial zone south are provided hereafter.

Construction company "BANKOVIĆ" Ltd. Crna Trava.

The company was established in 1987, and re-registration was made in 2006; since then it has operated under this name. The facilities in the industrial zone were built in 2009. At this location there is a concrete mixing plant, a branch for separation, a reinforcement fabrication plant, a workshop, an administrative building and warehouses. The company currently has 67 permanent employees, and as necessary it hires temporary workers. Its main activity is construction - construction and civil engineering. The company is 100% privately owned.

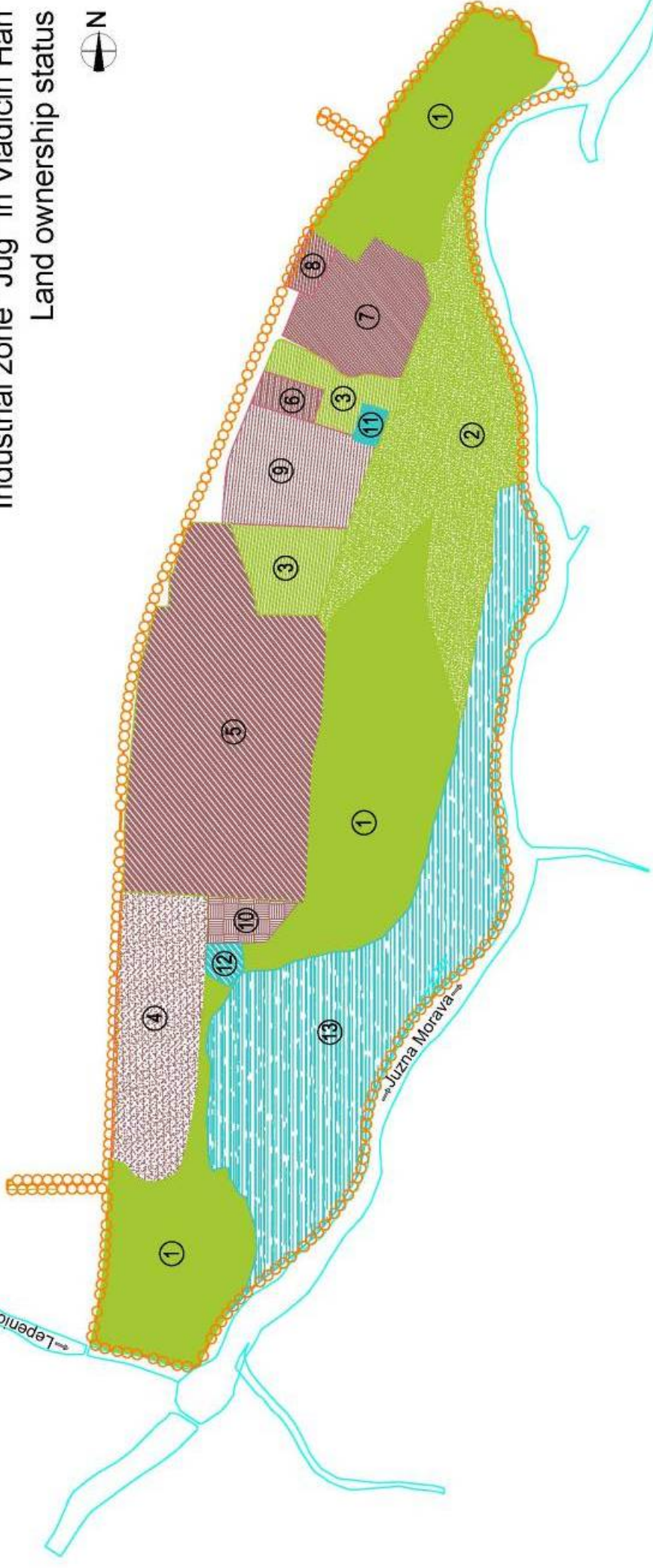
AD Brikel "ex FOPA" Vladicin Han

The company used to produce pulp, semi-cellulose and packaging material and employed 680 workers at privatization. Its products include wrapping paper, cardboards, and cardboard boxes which are sold locally and exported to the surrounding countries. The company was founded in 1961 and was privatized in accordance with the first Law on privatization whereby the majority of the shares were distributed to the employees and after buying 51% of the shares from the employees in 2007, A.D FOPA Vladicin Han became as a subsidiary of Brikel EAD of Bulgaria. The remaining shares are owned by the Republic of Serbia and small shareholders. The company is going bankrupt since 01 September 2011, and currently employs about 50 workers.



Industrial zone "Jug" in Vladicin Han

Land ownership status



	Greenfield	P (ha)
1	Private property	41.09
2	Paper factory BRIKEL (in the process of bankruptcy)	17.70
3	Land owned by Co for management of Free zone	5.31
	TOTAL Greenfield	64.10

	Brownfield	P (ha)
4	Fruit factory NEKTAR (Belises)	9.48
5	Paper factory BRIKEL (in the process of bankruptcy)	23.45
6	Metal industry Juzna Morava	0.88
7	Concrete factory NIBENS	5.50
8	Construction Bankovic	0.76
9	Wood processing industry Sloga	5.64
10	Minex & City express	1.35
	TOTAL Brownfield	47.06

	Other	P (ha)
11	Transformation station	0.40
12	Water supply	0.53
13	Land owned by Rep of Serbia	26.60
	Other (public area)	6.90
	TOTAL Other	34.43
	Total Zone A	145.60



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Wood processing industry "Sloga" AD Vladicin Han

This company was founded in 1954, was privatized in the second round of privatization in 2005. The main products are school, preschool, office and other furniture. It used to employ 300 employees. Assets include store in Vladicin Han with an area of 3,480m². The majority shareholding was reacquired by the State in 2007 following a breach of covenant by the private owner. The company nearly went into bankruptcy in 2009 but a private investor bought the majority shareholding but without any results. The company is now in liquidation. Following liquidation the land formerly occupied by the company will revert back to State and eventually municipal ownership. Part of the premises and production facility is rented out to a private company employing 50 workers.

AD Nibens ex. "Betonjerka" Vladicin Han

Established in 1961 and it employs 100 workers. It deals in the production of precast concrete units (concrete and reinforced concrete pipes for wastewater and rainwater), concrete elements for road building (concrete curb stones, concrete channels) and civil engineering (concrete block for building and ventilation, separated aggregate for concrete, concrete). Their products are mostly sold on the home market. The assets at privatization include 3.5ha of building land, 0.2ha of agricultural land and 3,300m² of buildings. It is privately owned since 2005. After privatization it operates within NIBENS group and employs about one hundred workers.

AD "Juzna Morava" Vladicin Han

Started functioning in 1963, and it used to employ 72 workers. It deals in the production of a whole set of products of non-ferrous metals (aluminium-steel ropes, steel ropes, aluminium ropes, all kinds of ropes for transfer of low voltage and high voltage electricity, steel spiral ropes for protection and earthing of transmission lines), through production of non-metals and wooden packages. Assets include 0.8ha of land with 3,800m² of production buildings. IT was privatized in 2008 and still employs 50 persons but the privatization contract is being terminated.

DOO "Mlekara Han" Vladicin Han

Under this name it started functioning in 2005 and it is a part of the complex of Kulska Bank AD Novi Sad. It employs 32 workers. It deals in the production and sale of milk and dairy products. The dairy has since been purchased by Sigma Ltd of Pristina and production is expected to restart in 2012. Kind of ownership – privately owned.

City Express Ltd. Belgrade

This is the first private company in Serbia operating as a courier, and was established in 2002. It operates in the industrial zone in rented former premises of the Delišeš packing center which was successfully privatized, It employs about 10 workers.

6.8 Existing Supply Condition for Industrial Land in Vranje

Vranje is an important industrial town only 20km to the south of Vladicin Han and is the location for many large companies which operates in the region as well as internationally. The town is therefore an important competitor for the location of any new industrial facilities. It is therefore important to understand the current situation in the town regarding industrial development.

Vranje is similar to Vladicin Han in that there are quite a large number of industries which have already been privatized. There are still a few industries which are still in the process of privatization but the present world market condition is not favourable with many buyers hesitant to make any acquisition.



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There appear to have been quite a few successful privatization in Vranje but just like in Vladicin Han there has also been a few failures which are taking a long time to resolve with the result that the land under the ownership of these companies are blocked.

Although there is still available a number of brownfield sites which have yet to be privatized, there is still a demand for greenfield sites.

However, there is also a lack of quality greenfield industrial area in Vranje just as in Vladicin Han and the city is considering the creation of new industrial park. However, the town is surrounded by steep hills which are not suitable for industrial development. A location in Bunuševac is being considered but the 117ha available is owned by the Army and there is an additional 100ha along the local road. The army land requires bomb clearance as well as resolution of the property issues all of which is likely to be resolved only in the long term.

The local self-government of Vranje has made a decision to complete the infrastructure for two industrial zones in Ristovac (100ha.) and Bunusevac(15ha.) but acquisition of the land is still unresolved.

The industrial sectors present in Vranje are similar to those present in Vladicin Han such as agroindustry (timber, fruits, dairy products), construction, apparel (yarn, fabric, confection) and manufacturing (plastic, metal).

A selection of the larger companies operating in Vranje is presented hereafter.

Clothing company, Jumko AD Vranje

Jumko is a vertically integrated apparel company covering most of the production cycle from the production of yarn and thread of all types and different material, the production of textiles, dyeing and printing fabrics and knitwear, confection and knitting of men's, women's and children's apparel as well as uniforms for the military and police. 3000 persons are employed at the headquarters in Vranje and subsidiaries in Vladicin Han, Bujanovac. The annual production of 1,500 tons of yarn which are then transformed into 2.5 million meters of 150cm fabric whilst the finishing operations deal with 120 T of knitwear, 250t of ready to wear consisting of about 200 million pieces of knitwear and other types of clothing. Much of the production is on contract with clients in Germany, Italy, France, Holland, Greece, Bulgaria, UK, Austria and Spain. Assets used include production equipment as well as about 17.9ha of buildings and offices around the country on 25.8ha of land. The company is being considered for privatization.

Furniture Company, Simpo AD

Simpo is a conglomerate which has a vertically integrated timber to furniture manufacturing as its main operation. It also operates in the agrifood and chemical production business.

Furniture production is conducted in the following facilities, sawmills, casing construction, fabric production, mechanical components, furniture finishing, soft finishing such as mattresses. The company has 4,231 employees in March 2010 and assets include 80,800m² of building land including retail outlets. Private buyers are being sought for the company since last year.

Furniture Company Divan Divani DOO

Divan Divani, an Italian furniture company is presently renting factory space from Simpo but is considering developing their own facilities.

Tobacco Manufacturing, Duvanska Industrija Vranje

The tobacco factory in Vranje is a State enterprise and 68% of the company was sold in 2003 to the British American Tobacco Co for 50M€. The company produces about 1.6 billion cigarettes mostly for the Serbian market (8% of the Serbian market). It employs around 570 people on about 16,400m² of building land. The company is in direct competition with the Philip Morris factory in Nis and the Japan Tobacco International factory in Senta, both of which were also privatized by the State. BAT is considering relocating from the centre of Vranje to a more convenient location along Corridor X.

Kavim Bus Company, Kavim-Jedinstvo DOO, Vranje





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Kavim-Jedinstvo" Vranje is one of the leaders in the field of bus transportation in Serbian market with 292 employees and a fleet of 98 buses and performing 650 departures daily in local, intercity and international transport. It also has offices in Bujanovac, Preševo, Vladičin Han and Surdulica. The company was auctioned by the State in 2005 and since 2008 has been part of the Israeli Company Kavim Public Transportation International Group

Alfa Plam AD, Vranje

Alfa plam produces consumer goods include solid fuel furnaces and stoves; electrical/gas cookers and hot plates; gas or solid fuel floor heating furnaces, fireplaces and stoves. Exports are directed to Europe, including Bosnia, Herzegovina, Croatia, Slovenia, Macedonia, Bulgaria, Albania, Italy, Russia, and Hungary. Alfa plam a.d. Vranje was founded in 1948 and the company employs 850 people with a production about 160,000units/year, The company was reorganized in 2000 into a joint stock company and 70% of the shares were given to 1,544 employees and ex-employees with the option to acquire the remaining 30%. The company has plans to expand production and has indicated a need for about 20 ha of land which is at present not available in Vranje.

Leather Shoe Production, Minex DOO

Minex, a medium-sized enterprise from Vranje producing leather shoe parts and complete shoes primarily for export to Italy. The Company employs about 80 people in its factory in Vranje and in March 2011 opened a second factory in factory space rented from AD Delises in Vladičin Han with 55 employees, with a grant from the Serbia Investment and Export Promotion Agency (SIEPA) which was targeted towards increasing employment in economically devastated municipalities.

Plastic Goods Production, Hemijska Industrija Vranje AD (HIV)

HIV AD specializes in production of plastic shoe parts in particular soles and heels mainly for the export market. The company employs 158 persons in 640m² of buildings on a plot of 2.7ha. The company was privatized in 2005 to an Italian Company.

Devic Tekstil DOO

Devic Tekstil started operation in 2011 with 150 employees producing clothing for the export market. The company presently rents factory space and is looking to expansion in new premises.

Mikromodeli DOO

Mikromodeli started production of clothing for the export market in 1997 with 85 employees, it now has 150 and is looking to expand production.

6.9 Existing Supply Condition for Industrial Land in Surdulica

Surdulica is a small municipality similar to Vladičin Han and its main centre is only about 10km to the east of Vladičin Han. The town is therefore also an important competitor for the location of any new industrial facilities.

Surdulica is similar to Vladičin Han in that there are a number of industries which have already been privatized. Here also there appear to have been a few successful privatization but just like in Vladičin Han there has also been failures.

Just as in Vladičin Han and Vranje, there is also a lack of quality greenfield industrial area and the city is considering the creation of new industrial park. The issue with land blocked because of failed privatizations compounds the issue of industrial land availability. The local self-government has made a decision to complete the infrastructure on the industrial zone, The major occupier of the zone is Knauf, a large manufacturer of insulation material. Being mostly mountainous, much of the land available is not suitable for industrial development.



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The industrial sectors present in Surdulica are similar to those present in Vladicin Han such as agroindustry (timber, fruits, dairy products), construction and manufacturing (plastic, metal).

A selection of the larger companies operating in Surdulica is presented hereafter.

SVP Masurica, Surdulica

Cooperative enterprise for agricultural production (cereals and other crops). Its assets include 5 buildings and the surrounding land. The company was privatized in 2003 and now privately owned.

AD Narass, Surdulica

Narass is a small manufacturer of clothing which used to have 23 employees at privatization. Its assets include 1,533m² of buildings and it was sold by auction to a private buyer.

Zastava PES DOO, Surdulica

This company used to be a subsidiary of the Zastava company of Kragulevac. It was separated prior to the involvement of Fiat Motors and manufactures electrical components for engines and gears. It employed 257 people at privatization and its assets include 5.1ha of building land, 0.4ha agricultural land and 15,700m² of buildings. The company was privatized in 2007 but the contract is in process of termination.

Knauf Insulation DOO, Surdulica

Knauf is a large manufacturer of insulation material which successfully transformed a former state owned company installed in Surdulica and now producing about 44,000t annually, increased from 20,000t of rock mineral wool. The company is considering expansion of their facilities through purchasing the neighbouring farmland.

6.10 Main Findings

The existing industrial zone in Vladicin Han is fully occupied by privatized companies, some of which are in bankruptcy thus restricting the availability of land for industrial development.

Privatization of some enterprises has been successful and the industrial land related to those industries are bringing benefits to the communities.

Failed privatization locks up the land related to the enterprise for a long time until resolution of all litigations.

The failed privatizations in the Vladicin Han Southern Industrial Zone have locked up at least 70ha of land which are not readily available for redevelopment.

The main industrial sectors operating in Vladicin Han and the region are:

- Agroindustry (food and tobacco)
- Textile and apparel
- Leather and shoe
- Electrical & gas appliances
- Wood and furniture

These industries in particular the textile, leather and electrical appliances sector are generally still in expansion and some companies have indicated expansion plans as follows:

- Knauf manufacturing insulation material in Surdulica is buying private land with the intention to expand
- Devic Tekstil and Micromedia, garments manufacturers of Vranje are seeking to expand production.
- Mlnex, shoe manufacturer of Vranje and with a production facility in Vladicin Han are looking to increase production with their own facilities.
- Alfa Plam, cooker manufacturer is seeking 20ha of land for a new factory to start a new production line.
- BAT, tobacco factory in Vranje is considering relocation to expand its production.





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- Divan Divani, furniture manufacturer presently renting premises is considering obtaining their own premises.

There is a lack of good quality serviced greenfield locations with flexible acquisition plan in Vladicin Han and the two neighbouring municipalities.

The demand for industrial land cannot at present be satisfied by the existing supply situation which includes the following constraints;

- Brownfields which are blocked by failed privatization
- Poor quality of many brownfield premises (poor working condition, poor access etc)
- Lack of quality serviced greenfield sites
- Lack of suitable land in Vranje and Surdulica



7 MARKET ANALYSIS

7.1 Introduction

The pace of economic development in certain regions and cities is dependent on the economic structure of the region or city which needs to continuously adapt to the demand of investors and the economic outlook.

This chapter provides an understanding of these changes and how these changes impact on the provision of land for industrial development whilst taking advantage of spatial economic dynamics. The necessary analysis is carried out at various geographical level, starting from a European perspective and down to the level of Vladicin Han.

The classical economist, Adam Smith in his treatise “The Wealth of Nations” stated in 1776 that national income is the production of labour, land, and capital. These three factors of national production are still valid in our modern time. The availability of raw material and labour used to limit production and distribution of manufactured goods to a distinct area where these two factors are available.

However, technological development has led to improved transport system and as a result it is not necessary for these two factors of production to be available in the same location any more. Production can be moved to where labour is plentiful and distribution of finished products can be to a wider markets especially in urban centres which are rapidly increasing in size. The result is that trade is now carried out not only in raw materials such as iron ore but also in commodities (sheet metal, integrated circuits etc.) or partially assembled goods (LCD screens, auto headlight etc) and finished goods such as computers and automobiles. Trade at global level is now the norm with all the semi-finished goods produced in one country is transported to a different country where it is transformed for export to yet another country.

To understand the necessity for industrial land, it is important to understand the efficient production and distribution chains which are adopted by businesses in the different industrial sectors and segments. Production chain requires obtaining raw material, its transformation into semi-finished goods before final production of the finished product whilst arranging the logistics of aggregating, transporting and storage of the raw or semi-finished goods between the different production locations. The transportation and warehousing of finished goods are also important parts of the distribution chain which can also include packing and repacking of the goods to suit the different markets.

7.2 Typical Example of Modern Supply Chain Management

An example of how improvements in the supply chain can have an impact on a global company is Lego, the toy maker. Having established itself in an era when supply chain management was a matter of moving boxes from here to there, the Lego Group had missed a sea change as retail giants like Wal-Mart and Carrefour gained dominance with efficient supply chain. The company’s supply chain was geared for custom delivery to the smaller retailers that had controlled the toy market in the 1950s when its bricks first became popular. In the early 2000’s facing recurring annual losses, the company reengineered its supply chain by closing some smaller production facilities and terminating the outsourcing of parts of the distribution chain.

The company now has a main factory located in Billund, Denmark, where from raw plastic imported from a limited number of sources, the many different standard plastic components which make up the different Lego boxes on sale to the public are moulded.



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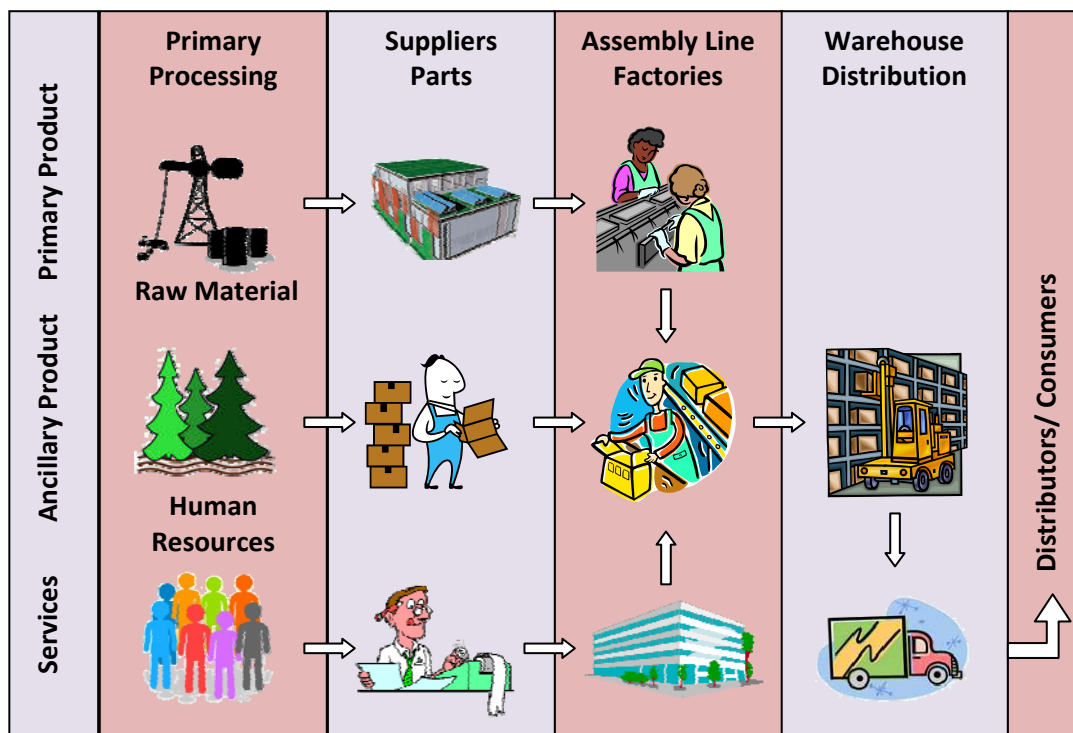
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The different finished parts are then transported to a decoration and packaging factory in Kladno near Prague, Czech Republic where the different Lego retail boxes are assembled with the correct number and combination of plastic components.

From the packaging factory, the Lego boxes are warehoused and distributed from a single 10ha warehouse and logistics centre in Jizny, near Prague. The logistic centre is operated by DHL which in conjunction with its own distribution chain can ensure delivery to any point in Europe within 3 to 4 days.

As can be seen with the Lego example, modern industries have very different supply chain demand than what was considered normal only a couple of decades ago. Industry of Serbia as well as in Southeast Europe is only slowly adapting to this process of globalization of the supply chain and the need to restructure the industrial sector for this process.

Figure 7.2-1 Typical Supply Chain for a Modern Global Business



The illustration above shows the complexity of the supply chain in a modern business and an indication of how important parts suppliers and service providers are within the whole process. It used to be and is still the case in the automotive industry that the primary assembly lines are always retained within the business but nowadays in many businesses large parts of the supply chain are outsourced to third parties. This is particularly true within the white goods, electronic and apparel industry.

Most companies with well-known brands (in the electronics industry these companies are known as original equipment manufacturer, OEM) only design and market these goods and sub-contract the manufacturing to specialist manufacturing companies (known as electronic manufacturing supplier, EMS in the electronic industry). In some cases the retailers place an order for certain goods to the manufacturing company (original design manufacturer, ODM) leaving the responsibility for design and manufacturing to the third party but affixing their own private brands to the goods.





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It is important to recognize this division of industrial processes and the use of third party suppliers in order that the facilities to be provided for Vladicin Han are adapted to the needs of modern enterprises.

This approach leads to the need to understand who the potential investor in an industrial zone can be and what their needs may be and as described above potential investors in the supply chain can be anyone of the following:

- Original design manufacturer (ODM)
- Original equipment manufacturer (OEM)
- Subcontractors for subcomponents or logistics

The other factors which are important for any potential investor and which have to be considered by any municipality offering industrial facilities are as follows:

- Distance and time to market
- Type and size of Industrial facilities

7.3 Distance and Time to Market

On order to achieve an efficient supply chain, all investors in industrial facilities has to consider how fast the product can be brought to the market for the goods in question. The distance and time to market is thus a very important factor considered by investors.

For instance the market for car components include the large automobile manufacturers and as a result many car parts suppliers establish their own supply chain such that they can offer a just in time delivery to the main manufacturer. Some parts manufacturer may establish a distribution centre close by or others may actually decide that an assembly line in the region. This phenomenon or clustering effect can be observed in the Kragujevac region where the demand for industrial facilities have increased rapidly after the installation of Fiat in the old Zastava factory. The same principles also apply to other sectors such as white goods or garments.

On the other hand certain manufacturers of consumer goods have to react rapidly to consumer demand and for this reasons either locate their factories or use subcontractors physically close to the product market. This can be critical for fashion goods which may have to reach market within days.

Serbia is particularly well located for getting goods to the West European market within 3 - 4 days compared to 4 - 5 weeks from the Far East.

The supply chain of many manufacturers are sufficiently critical to take advantage of this to locate in the region. From this reason, all the countries in the region are competing for the market and Serbia has been relatively successful in breaking into this market with a number of fashion goods manufacturers (i.e. Benetton in Nis) opening factories in Serbia and many small to medium garments manufacturer offering subcontracting services to European retailers. Obviously the completion of the main European corridors will improve the transit time for getting goods to market.

For this reason Vladicin Han being located on Corridor X is well connected to the European market.

7.4 Types of Industrial Facilities

The above issues highlighted how important it is to identify the changes in the way business is carried out, what types of industrial facilities are in demand and what the developer of an industrial zone must therefore provide.



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To this effect, the components of the supply chain have been identified and the needs for industrial facilities at each step is summarized as follows:

Table 7.4-1 Types of Industrial Facilities at Different Stage of Supply Chain

Component	Facilities
Primary Processors – Agriculture & Forestry	Farms, agricultural land, forest
Primary Processors – Raw material	Mines, quarries, refining factories
Secondary Manufacturing – Semi-finished goods	Specialist foundries, sawmills, concrete factory
Secondary Manufacturing – Sub-components	Small to medium sized factories
Secondary Manufacturing – Assembly of finished goods	Medium to large sized factories
Tertiary Warehousing - Groupage of goods and produce, semi-finished or finished	Warehouses, logistic centres
Tertiary Finishing - Labeling, packaging and repackaging	Small to medium sized factories
Tertiary Distribution - semi-finished or finished goods	Warehouses, logistic centres
Tertiary Business support services - back office, media, engineering, financial	Offices, call centres, business parks

From the above table industrial facilities can be categorized into five main types as follows:

- Medium to large factories for processing raw materials into semi-finished goods requiring specific design and arrangement
- Medium to large factories for large products like cars or machine tools
- Small to medium factories for production of small sub-assemblies
- Medium to large distribution facilities requiring specific layout
- Medium to large facilities for back office operations

Medium – Large Specialist Factories for Primary Processors

The processing of raw materials into semi-finished products normally requires large specialist machinery for handling and transforming the raw material and a large area for storage of the raw materials and the semi-finished goods. Such factories are typically located close to the source of raw material but with the advent of mass transportation this requirement is not so critical anymore. Such factories are typically medium to large in size typically with a built surface areas of 1 to 5ha and heavy industrial floor loading. The design of the factory is normally specific for the product and cannot be built speculatively. The outside areas can be 10 ha or more depending on the expansion plan of the enterprise or the need for outside storage.

In Vladicin Han, there is already a specialist paper factory in the industrial zone and similar additional facilities are not foreseen. The processing of other type of raw material is not expected in the area except possibly construction material given the large number of quarries in the region.

Medium – Small Factories for Secondary Manufacturing Industries

Most modern manufacturing processes rely on part finished goods or sub-assemblies sourced from third parties which are then assembled in factories which can vary enormously in size depending on the product and the manufacturing process. For manual assembly the factory can be small or big depending on the size of the workforce and the structure can be designed for normal factory loading and ceiling height. Typical factories of this type are small to medium size for garment confection, assembly of small electronic components etc with light industrial floor loading.

However, a final assembly factory can vary in size and complexity depending on the product. An aircraft or car factory is usually very large with complex with large and heavy specialist machinery requiring purpose built facilities. Even factories for building large white goods such as ovens, fridges, washing machine can be large with complex machinery. On the other hand assembly of small white goods such as microwave ovens, electric kettles and similar goods require facilities with normal factory loading and ceiling height.





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The expected factory area for this segment is expected to be between 2 000m² and 1 ha. Factories can either be single storey for assembly of large consumer goods such as refrigerators and washing machine. For smaller consumer goods such as microwave oven and kettles factories are often multistory.

Specialist Facilities for Tertiary Warehousing

Modern and efficient supply chain operates a lean system whereby “just in time delivery” is the objective whereby the minimum stock is maintained along the supply chain. This approach minimizes the capital tied up in the stored item whether it is an input to the manufacturing cycle or the finished goods. In many instances the supply chain of a supplier is linked to the supply chain of the enterprise to ensure the stocks are kept to a minimum. The same apply to the distribution chain where the finished products are shipped to the distributors as quickly as possible.

Thus, in an efficient supply chain the warehousing requirements are dependent on the distribution chain and logistics arrangement and in many instances warehousing is part of the logistic. In practice it means that the need for warehousing near the manufacturing facilities is now much reduced but not eliminated, The modern warehouse is typically medium to large with very heavy floor loading and very high computerized racking system using standard pallets.

The modern warehouse and logistics centre is usually a large facility with surface area between 1 and 5 ha and high ceiling height up to 10m to cater for highly automated retrieval system with high shelves.

Light Industry Facilities for Tertiary Finishing

On completion of the production the finished parts or sub-assemblies are moved for packaging to another building which is not necessarily built next to the production facilities. The packaging facilities are designed to be as flexible as possible to assemble the required parts into the final product and to provide the labeling and packaging desired by the seller. This type of facility can be installed in medium to large factories with normal industrial floor loads and higher ceiling heights to accommodate the printing and packaging equipment.

Light Industry Facilities for Tertiary Distribution

Finally the packaged goods have to be distributed to the different sellers and in a modern supply chain the finished products are first stored in a central location, from where the correct numbers of the different products as required by the distributors and retailers are loaded on to a truck for distribution. It is often the case that small distributors and retailers have small storage areas (50m² – 300m²) close to their main operations. Larger operators obviously have different needs and depending on the size of the operation additional warehouses or logistic centres may be necessary in the distribution chain.

Business Parks for Tertiary Business Support Services

Business support services include information technology maintenance, customer support etc. Most of these services are usually provided from modern offices with good telecommunication links. These offices can either be located close to the main primary business operations or even with the tertiary operations but can also be located on a separate business park. The business’s supply chain will determine the optimum location. It is therefore important that any future industrial zone be optimized to accept such facilities. Given the trend in outsourcing even for business support services it is common to have large call centres which provide services to a large number of manufacturers. In such cases large office buildings will be necessary to accommodate the large number of employees.

In order that the appropriate types of facilities are offered it is therefore important to understand the requirements in each industrial sector. Such an analysis based on the different market segments is presented hereafter.





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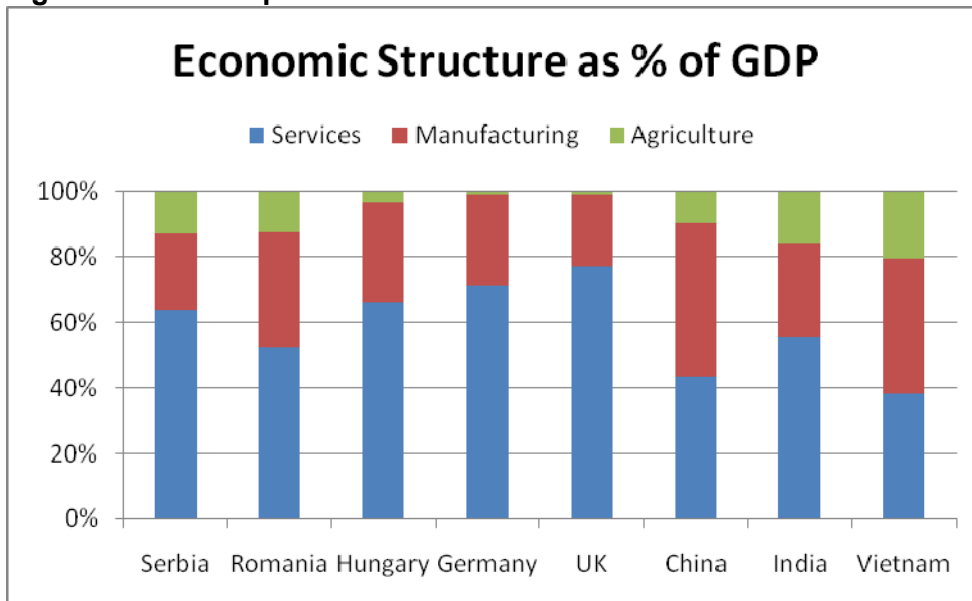


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7.5 Analysis of Market Segments

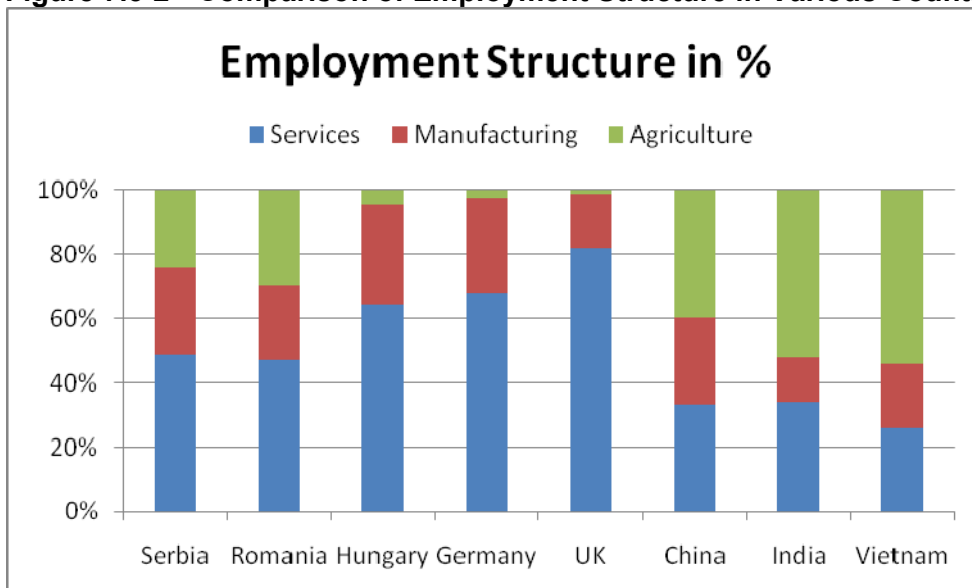
Just as in other west European countries the structure of industries in Serbia the portion covered by services has increased from about 55% to about 63% of GDP and the portions covered by manufacturing and agriculture are expected to decrease. This change has to be recognized in the provision of industrial facilities. A comparison of the principal structure of industries in Serbia and some countries of Europe is provided hereafter.

Figure 7.5-1 Comparison of Economic Structure in % of GDP in various countries



The employment structure follows a similar pattern but the proportions are not the same as for GDP. The employment structure is summarized on the following figure.

Figure 7.5-2 Comparison of Employment Structure in Various Countries





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The economic and employment structure of the Serbian economy shows that about 50% of people are employed in the services sector and generate more than 60% of the economic production whilst about 25% of employed people are in the manufacturing sector and contribute about 20% to the national income. Agriculture on the other hand employs more than 25% of the working population but only contributes about 15% of GDP.

Not only are the economic and employment structures of the economy important but given the importance of global trade the export structure has also to be understood. Recent economic events has upset the world economic development and Serbia economic recovery. After several years of continuous growth marked by a peak of 11.0 bln US\$ in 2008, the value of the exports of Serbia dropped in 2009 but increased again in 2010 by 17.4 percent to amount to 9.8 bln US\$, still well below its 2008 level. Similarly, imports increased by 4.3 percent to 16.7 bln US\$ in 2010. This resulted in a trade deficit of 6.9 bln US\$ in 2010, slightly lower than the 2009 deficit of 7.7 bln US\$. This deficit came largely from trade with Developed Europe (-3.8 bln US\$), Commonwealth of Independent States (-1.8 bln US\$) and Eastern Asia (-1.4 bln US\$). Trade, however, recorded a surplus with South-eastern Europe (+1.2 bln US\$). In 2010, Serbia's trade was diversified across partners: 15 (respectively 20) major partners accounted for 80 percent of exports (respectively imports).

The major exports for Serbia are metal products, agricultural products, rubber tyres, clothing and pharmaceutical as presented below.

Table 7.5-1 Top 10 Export Commodities from Serbia between 2008 and 2010

(Value in million US\$)									
HS code	4-digit heading of Harmonized System 2007	Value (million US\$)			Unit value			Unit	SITC code
		2008	2009	2010	2008	2009	2010		
	All Commodities.....	10972.1	8345.1	9794.5					
7208	Flat-rolled products of iron or non-alloy steel.....	916.3	357.5	607.8	1.0	0.5	0.7	US\$/kg	673
0811	Fruit and nuts.....	257.9	252.1	251.9	2.4	2.0	1.7	US\$/kg	058
1005	Maize (corn).....	129.6	288.1	334.9	0.2	0.2	0.2	US\$/kg	044
4011	New pneumatic tyres, of rubber.....	249.7	198.2	239.8					625
2716	Electrical energy.....	157.3	200.5	237.8	49.9	79.0	54.8	US\$/MWh	351
6115	Panty hose, tights, stockings, socks and other hosiery.....	203.5	187.0	189.9	16.4	16.2	16.1	US\$/kg	846
3004	Medicaments (excluding goods of heading 30.02, 30.05 or 30.06).....	190.6	173.7	190.7	15.6	13.6	11.2	US\$/kg	542
7210	Flat-rolled products of iron or non-alloy steel.....	208.3	157.9	181.4	1.1	1.0	1.0	US\$/kg	674
1701	Cane or beet sugar and chemically pure sucrose, in solid form.....	153.0	137.4	185.5	0.8	0.7	0.7	US\$/kg	061
8544	Insulated (including enamelled or anodised) wire, cable.....	135.1	129.7	209.8	8.1	9.6	9.3	US\$/kg	773

Source: UN Comtrade

The major imports are energy related and also raw materials like iron ores for transformation into manufactured goods.



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Table 7.5-2 Top 10 Import Commodities into Serbia between 2008 and 2010

(Value in million US\$)								
HS code	4-digit heading of Harmonized System 2007	Value (million US\$)			Unit value			SITC code
		2008	2009	2010	2008	2009	2010	
	All Commodities.....	22 875.3	16 047.4	16 734.4				
9999	Commodities not specified according to kind.....	11.1	3 063.0	2 838.9				931
2709	Petroleum oils and oils obtained from bituminous minerals, crude.....	1 915.0	1 001.3	1 088.2	0.7	0.4	0.6	US\$/kg 333
2711	Petroleum gases and other gaseous hydrocarbons.....	1 165.1	765.7	948.0	0.6	0.6	0.6	US\$/kg 343
8703	Motor cars and other motor vehicles principally designed for the transport.....	952.6	452.2	302.0			16.4thsd	US\$/unit 781
2710	Petroleum oils, other than crude.....	910.7	215.6	377.8	1.0	0.6	0.8	US\$/kg 334
3004	Medicaments (excluding goods of heading 30.02, 30.05 or 30.06).....	531.9	280.2	283.1	57.2	37.4	42.6	US\$/kg 542
2704	Coke and semi-coke of coal, of lignite or of peat.....	366.0	193.7	285.0	0.4	0.3	0.4	US\$/kg 325
8517	Electrical apparatus for line telephony or line telegraphy.....	300.4	236.3	270.2				764
2601	Iron ores and concentrates, including roasted iron pyrites.....	300.5	108.1	222.8	0.1	0.1	0.1	US\$/kg 281
8471	Automatic data processing machines and units thereof.....	238.8	162.9	173.4				752

Source: UN Comtrade

The above tables provides a good indication of the active export oriented sector which are predominant in Serbia. Since the Strategy for industrial development of Serbia is promoting the creation of export oriented industries, these are obviously the industrial sectors where efforts should be made to increase the export potential.

The three main sectors can be subdivided into other subsectors as follows:

Table 7.5-3 Identification of Industrial Subsectors

Agriculture & Forestry	Manufacture	Services
Food industry Wood industry	Construction Industrial Components Home appliances Electronic manufacture Apparel	Packaging Warehousing Logistics Back office support

Modern local as well as international companies have complex and long supply chains to support the business across the globe. As the majority of the supply chain costs are locked in the infrastructure, reviewing the supply chain network and creating new supply chain network design is crucial to identify cost savings and service improvements. It is important to understand this aspect as part of the evaluation of any industrial support facilities for each industrial sector.

7.6 Agriculture & Forestry

7.6.1 Food Industry

The agricultural sector is obviously related to the primary production of food but it also includes the industries which adds value to agricultural produce such as the processing of the produce into semi-finished foodstuff as well as into finished meals. However because of the specificity of the raw materials which are subject to seasonality, perishability and variability the facilities have to be designed with great care.

The facilities will thus depend on degree of processing envisaged which can be from simple handling and preservation of fresh fruits and vegetable to highly complex products like ready to eat foods etc. The type of processing and the type of facilities which could be envisaged are summarized in the following table:



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Table 7.6-1 Agro-industry Produce and Processes

Produce	Fruits & Vegetables Eggs	Cereal & Pulses Meats Fibres (cotton, jute et) Timber Latex Oils Spices Yarns	Dairy products Refined sugar Preserves Juices Prepared meals	Instant food Bottled drinking water Carbonated drinks Textured vegetable product Leather
Process type	Manual handling	Mechanical processing	Temperature Treatment	Chemical
Process	Cleaning Grading Packing Pre-cooling Cold storage	Ginning Milling Carding Spinning Cutting Mixing Drying Extraction	Extraction Cooking Pasteurization Canning Dehydration Freezing	Texturization Chemical alteration
Typical Facilities	Medium - large factories, 0.5 -2ha	Medium - large factories, 0.5 -2ha	Medium - large factories, 0.5 - 2ha	Medium - large factories, 0.5 -2ha

The above table provides an insight into the size of factories and the structural requirements for the different type of processes.

To complement the above a desk study of the size and capacity of some agro-industry factories around the world have been completed and the results are summarized on the following table.



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Table 7.6-2 Typical Characteristics of Agro-Industry Factories

Company	Location	Production/ year	Site Area ha	Factory Area ha	Employees	Approx. Cost M€
Friesland Foods Dutch Lady Vietnam	Ha Nam, Vietnam	200MT liquid milk drinking yoghurt, powdered milk		5.8	200	40M
Longkou-Jeongwoo Foodstuff Ltd	Longkou, Shantung, China	35MT Candy	1.2	0.34	80	
Nestle Waters	Rzeniszow, Krakow, Poland	40,000m3 bottled water		3.6	45	5M
C&D Foods	Amsterdam, Netherlands	110,000 tonnes Canned pet food		1.3	84	
Canned food factory	Zhanjiang, Guangdong	10,000T canned food	7.3			
AR Industry	Angri, Italy	Food packaging, canned, plastic	4.0	3.0	400	
AR Industry	Sant'Antonio Abate, Italy	1500 q.li/h of fresh tomato, canned	5.0	3.0	700	
AR Industry	Sant'Antonio Abate, Italy	Processed tomato, fruits, pulses	5.0	2.0	600	
AR Industry	Incoronata, Italy	400,000T tomatoes , canned, bottled, brik	50.0	10.0		
Dalian Lingfa Food Co	Dalian, China	Canned and dried food	1.3	0.58	100	
Beverage factory	Qingdao, China	35T fruit drinks	1.7	0.99	440	
Nestle	Jonesboro, Arkansas, USA	Frozen ready meal		3.2	400	165M inc. logistic centre
Ets Jacques Maes S.A	Boulogne , France	Seafood meals		0.6	80	
Heiploeg	Zoutkamp	Frozen shrimps		2.6	250	
Fruit Modena,	Sorbara di Bomporto, Italy Campogalliano, Italy Rolo, Reggio Emilia	pears, apples, plums, peaches, cherries and tomatoes (80,000T/y, 45M€, 585farms, 2,500ha)		9.8 inc warehouse for 60,000T	44 full time + 250 temp	
Typical			3.6	2.3	282	

The above analysis of data on 14 factories in various parts of the world showed that the average factory is about 2.3 ha in area on a 3.5ha plot and employing about 280 persons or about 100persons per ha of factory.

The agro-industry in Serbia is an important sector of the manufacturing segment. The outlook for agro-industry is quite important in the Vladicin Han region given the high agricultural output of the region based mainly on fruits and wood.



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Table 7.6-3 Typical Characteristics of Agro-Industry Companies in Serbia

Company Name	Location	Activities	No Employees
Sojaprotein doo	Becej	Soybean processing	450
Maize research institute	Zemun polje	Seeds production	340
Hibrid ad	Belgrade	Seeds processing	35
Bambi doo	Požarevac	Production and sales of healthy food	1,400
Crvenka doo	Crvenka	sugar factory	400
Fresh & co a.d	Subotica	fruit processing factory	800
Knjaz Milos a.d	Arandjelovac	mineral water and beverages production	1,800
Arijlje, farming cooperative	Arijlje	frozen fruits vegetable	240
Mondi Serbia doo	Vrdila, Kraljevo	frozen fruits	100
Dijamant doo	Zrenjanin	edible oil, fat and margarine production	1,000
Delta m doo	Belgrade	sunflower & soja oils, detergent	1,100
Pionir doo	Belgrade	chocolate, candy and biscuits	400
Banat ad	Nova Crnja	sunflower oil factory	180
Marbo Product doo	Belgrade	production of crisps, canned vegetables	500
Soko-Nada stark a.d.	Belgrade	production of confectionery goods	2,300
Jaffa a.d	Crvenka	biscuit factory	200
Swisslion-Takovo doo	Belgrade	production chocolate, biscuit	500
Fabrika Hleba I Mleka doo	Vranje	Production of bread and pastry (1.2ha land & 4,400m2 building)	67
Typical			690

The average agro-industry company in Serbia appears to be larger and employs about 650 persons. This average number of employees probably reflects the inefficiencies still existing in Serbian companies and the number of employees is expected to fall with improvement in efficiencies.

Table 7.6-4 Export of Food Products from Selected Countries and Serbia

Export, M\$	1990	2000	2007	2008	2009
World	315,559	431,434	916,151	1,111,964	986,878
EU 27		189,387	410,807	484,056	425,867
Intra-EU 27		143,213	322,496	379,023	335,179
Extra-EU 27		46,174	88,311	105,033	90,688
China	7,868	13,559	33,159	35,885	35,316
India	2,782	5,398	13,872	18,619	14,252
Turkey	2,906	3,521	8,990	10,689	10,561
Ukraine		1,339	6,192	10,748	9,450
Croatia		394	1,293	1,378	1,341
Serbia		290	1,642	1,906	1,906

Source: WTO International Trade Statistic 2010

The export of food is an important component of the sector and the trend to export is expected to increase despite the current economic crisis affecting the World economy. WTO International Trade Statistics indicates that the largest trade decline is in Iron & Steel sector, followed by automobile and fuel & mining products whereas food and clothing are the least affected by the ongoing economic crisis.

The production of tobacco leaves is already well established on small holdings with companies buying the green leaves for curing, aging and fermenting prior to onselling the processed tobacco leaves to factories in Vranje and Nis for manufacturing cigarettes. This activity is expected to carry on but further extension is not expected.

In the Vladicin Han region one of the main agricultural produce is fruit production. Most of the present fruit production is used in the production of juices, however, there is also significant potential to increase export earnings from other types of fruits and in particular berry fruits, particularly as it is exempt from import duties under the current EU trade agreement. As most





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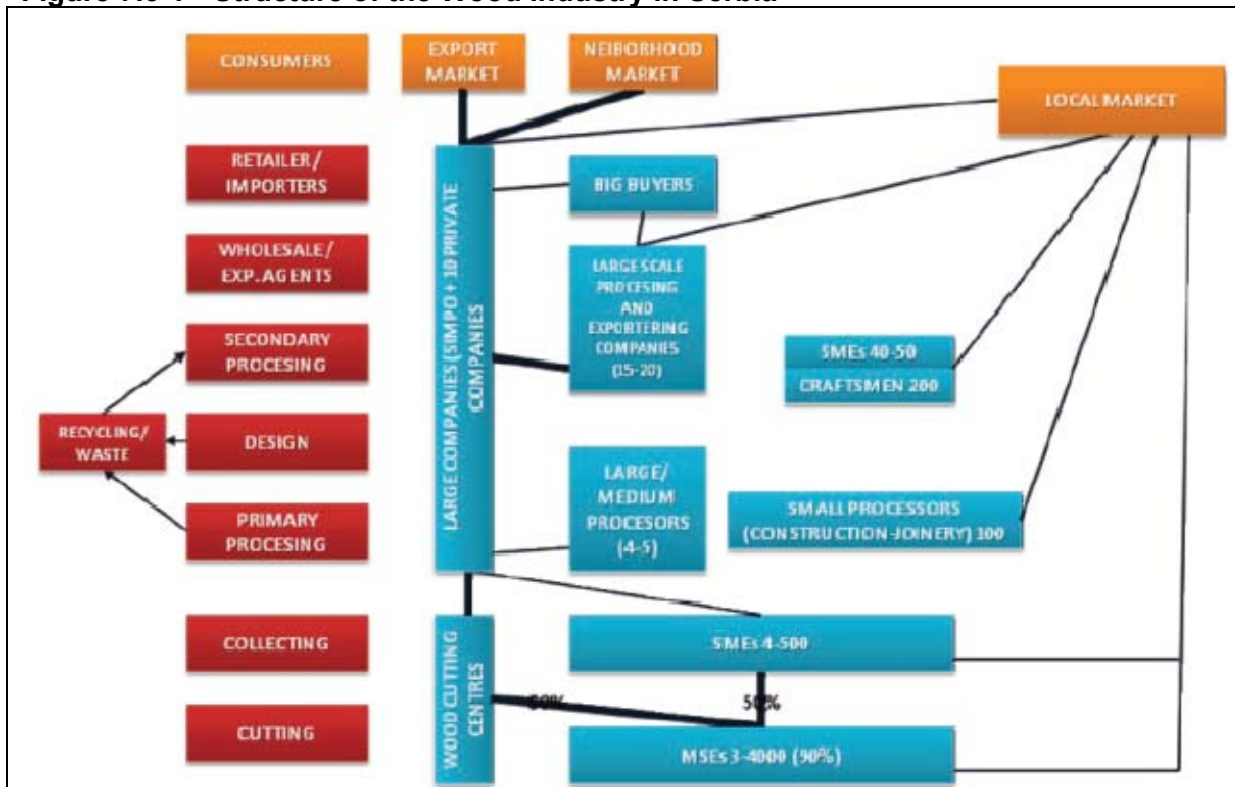
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Serbian berry fruit is currently exported in bulk or packed under Western European labels, there is ample scope to add value to what is already a high-value commodity. Production of berry fruit is ideally suited to small-holder production in many of the hilly areas of the region. The analysis of the existing situation indicated that the region around Vladicin Han continues to have a high potential for agriculture with a few important companies already operating in the region. Some of these companies dealing with fruit processing are looking to increase their production. Nectar DOO, one of the largest fruit juice producers in the Balkans is already established in Vladicin Han. Coca-Cola HBC Serbia, one of the largest non-alcoholic drinks producer in Serbia bottles a natural spring water called Rosa, which originates from a natural spring located at 1.550 m elevation in the pristine natural landscape of Vlasina within the neighbouring municipality of Surdulica. Both of these companies serve the local market and export a large proportion of their production.

7.6.2 Wood Industry Cluster

The Project "Private Sector Development in the South Serbia" with assistance from the Swiss Agency for Development and Cooperation SDC prepared a Market analysis of the wood Industry in Pcinja and Jablanica District in 2010 including the structure of the wood industry in Serbia as presented hereafter.

Figure 7.6-1 Structure of the Wood Industry in Serbia



The report showed that the potential for continued and increased production are present. The number of Pcinja registered companies operating in the sector has increased from about 30 to about 250 between 2000 and 2009 according to the Chamber of Commerce. Most of the companies are small as can be seen in the structure of the wood industry above and





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involved in the cutting and collecting part of the supply chain. Simpo, one of the largest company in the sector is located in Vranje, about 10kms from Vladicin Han.

In the SWOT analysis of the sector, although there are many strengths, the report also highlighted weaknesses such as low productivity, old technology, lack of cooperation and delegation, many of which are symptomatic of Serbian Industry and which have to be addressed.

An analysis of the factory needs for the sector is provided hereafter.

Table 7.6-5 Factory Details and Employees in the Wood Industry

Company	Location	Production/ year	Site Area ha	Factory Area ha	Employees	Approx. Cost M€
VATE Furniture CO LTD	Shaodong country of Huhan Province, China Factory in Guangdong	Office, Hotel furniture	77.3	HO-18.0 Factory 1 – 28.9 Factory 2 – 23.3 R&D – 10.0	HO-270 Factory 1 - 370 Factory – 230 R&D - 180	
Minh Phuong Furniture Co., Ltd	Tan Uyen District, Binh Duong Province of Vietnam	25x2xTEU chairs, tables, and bedroom furniture New Zealand pine, and US, EU hardwood	1.4	0.75	150	0.7
Jiangxi Feiyu Bamboo Products Group Co.,Ltd	Fengxin, Jiangxi Province, China	100MUSD Bamboo furniture & flooring	1,886ha bamboo forest	24	1,600	
Swedspan, IKEA group	Orla, near Bialystok, Poland	250,000m3 UTHDF	100		230	140M
Kronospan Holding Ltd	Smorgon, Grodno Oblast, Belarus	1.5Mm3 to laminare			300	150M
Kronospan Serbia	Lapovo, Serbia	380,000 m3 of particleboard and 11 million m2 of melamine	20		180	80M
Novi Dom Co.	Belgrade, Serbia	Furniture		1.5	400	
Typical				3	250	

Analysis of the wood industry sector shows that only a third of the production in the sector is related to finished goods such as furniture and the potential to increase employment by increasing the volume of finished goods has to be exploited.

The export potential is evident since the volume of export in the sector more than doubled between 2004 and 2009.

The sector is attracting attention from international companies with Ikea having invested 1.5M€ to improve the production line of Simpo in Vranje and the company has indicated a willingness to invest in additional production facilities subject to obtaining the correct conditions and location.



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The importance of the sector is reinforced by the large amount of inward investment in the primary processing of wood into semi-finished products such as the recent opening of a particle board factory by Kronospan in Lapovo. This factory is strategically located to rely on the timber resources of the whole of central Serbia. The current volume of felled timber in Pèinja is only about 140,000m³ per year compared to the 200,000m³ of timber required for a primary processing factory. The area of forest in Pèinja is about 138,000ha assuming a volume of timber of 160m³/ha (estimate for Serbia according to Furniture and wood processing industry, Embassy of Denmark, 2010) and an optimistic felling and processing rate of 10%, the production capacity of the forests of Pèinja is about 220,000m³. Such a production will barely justify the installation of a primary processing plant.

it is therefore not expected that any primary wood processor will be attracted to the region. However, it is possible that some fellers and collectors may set up business in the region to collect the wood for dispatching to primary processors in Central Serbia.

On the other hand much of the broadleaved timber can be used directly with the minimal processing in traditionally made timber furniture. These enterprises tend to be small and do not require large premises.

The existing wood industry company Sloga is under bankruptcy proceedings at present and cannot be saved most probably because the company furniture product line is old as is the equipment.

7.7 Manufacturing Sector

In “The Strategy and Policy development for industry of Serbia” as adopted by the Serbian Government in June 2011, the government is committed to increasing the volume of all export to 50% of GDP from 27.5% in 2009. However, the volume of export of manufactured goods from Serbia between 2007 and 2009 is stagnating as can be seen on the following table.

Table 7.7-1 Exports of All Manufactured Goods for Selected Countries and Serbia

Export x1000USD	1990	2000	2007	2008	2009
World	2,391	4,702	9,529	10,468	8,355
European Union (27)		2,012	4,265	4,609	3,605
intra-EU (27)		1,345	2,858	3,050	2,363
extra-EU (27)		667	1,407	1,559	1,243
China	44	220	1,136	1,331	1,125
India	13	33	95	124	107
Turkey	9	22	87	104	78
Ukraine	-	10	36	47	25
Croatia		3	8	10	7
Serbia		1	6	7	5

Source: WTO International Trade Statistics 2010

Since manufactured goods makes up about 50% of all exports it is logical that particular attention has to be given to this sector of the economy in order that the target of increasing the volume of export to be 50% of GDP can be achieved.

The manufacturing sector can be divided into different segments and this analysis will consider the segments which are already quite important in the region, such as:

- Industrial components
- Home Appliances
- Technology
- Textile and footwear





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7.7.1 Industrial Components

Most industries do not manufacture from raw materials all the components of a consumer goods for reasons of costs and usually it buys in standard industrial components or outsource to specialist factories the manufacture of special components to its own specifications (original equipment manufacturer). Although the industrial components segment does not produce finished goods, it is a very important part of the supply chain of most industries and with the ongoing globalization trends, it is expected that this market segment will continue to develop as producers continue to seek efficiencies in the supply chain. The proximity of Serbia to the main European manufacturing bases in Germany will improve the likelihood that Serbia will increase its market share as consumer goods manufacturers refine their supply chain.

Typical factory details and employment in this segment of manufacturing are provided hereafter.

Table 7.7-2 Typical Factory Area and Number of Employees in the Industrial Components Sector

Company	Location	Production/ year	Site Area ha	Factory Area ha	Employees	Approximate cost M€
Magnate technology co., ltd	Kaoshing, Taiwan	Machine parts, aeronautic, food industry		0.56	195	
Drahtseilwerk GmbH	Bremerhaven, Germany	Wire ropes and mooring ropes		0.8	75	
Changjiang electric furnace	Nanjing, China	Industrial furnaces		4.5	280	
Safe Rain SL	Villaluenga, Spain	Production of Irrigation equipment & distribution of other goods		0.7	50	
Group Sedia	Romania	12,000chairs & 600 tables	21	7.2	500	
Group Sedia	Romania	Semi-finished wood	10	1.1	300	
Lennox	US	Air conditioning units		15.0	1600	
Lennox	Mions, France	Air conditioning units		1.2	120	
Lennox	Longvic, France	Air conditioning units		1.3	200	
Lennox	Prague	Air conditioning units		1.4	200	
Lennox	Burgos, Spain	Air conditioning units		0.7	140	
Tries Hydraulic	Germany	Hydraulic control		2.0	100	
Dongguan Shichang Metals Factory	Guangdong, China	Manufacture of office, garden and contract furniture		12	2,400	
Bega specialist lighting company	Santa Barbara, California, USA	Luminaires, lamp posts		5.1	500	
KK-Mold en	Schenzen, China	Automotive & furniture plastic moldings	1000 designs /year	0.7	400	
Pirelli	Shandong Province, China	3M pieces car tyres		7.0	1,000	65M€
P.T. Automotive Compressor Indonesia	Jakarta, Indonesia	1M car air conditioning compressors		1.0	500	18M€
Sub-assembly	Japan	Car parts		0.002	4	
Yanagawa Techno Forge (Thailand) CO., LTD	Rayong 21140, Thailand	Precision Hot Forging Part for Two-wheeled, Four-wheeled and General Purpose Engine	4.3	1.0	530	
Taiwan Sintong Machinery Co.,	Hsin Chunag City, Taipei, Taiwan.	Forgings	0.8	0.4	100	





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Company	Location	Production/ year	Site Area ha	Factory Area ha	Employees	Approximate cost M€
Ltd.						
Wuhu Hengda Sheeting Metal CO., LTD	Anhui Province, China	hot dipped galvanized steel coil and prepainted steel coil, 150,000T	21.0	0.6 offices 7.5, factory	450	
Typical				3.0ha	400	

The general trend for industrial component manufacturers is to forge long term partnerships with consumer goods producers in order to achieve a large volume of sales which will then translate through economies of scale into savings for all concerned.

Activities in the sector include the proposed doubling of production of tyres by the Tigar company of Pirot with the participation of Michelin, the international tyre manufacturers. This proposal together with the installation of the Fiat motor company in Kragujevac are positive signs which will increase the activity of industrial components manufacturers.

As can be seen on the international level the size of factory can be quite substantial at 3 ha and an employment of about 400 for the typical company.

7.7.2 Home Appliances Sector

An important segment of the manufacturing sector is home appliances which include leading and prominent national consumer market products.

Alongside improved transportation facilities, better availability of electricity and communication systems are also driving economic growth both in the developed and developing regions of the world. The result is increased demand for home appliances such as refrigerators, washing machines, vacuum cleaners, and toasters. In the developed economies the demand is for replacement and also for improved goods either in term of functionality or increasingly in terms of energy consumption or environmental impact and also in new consumer goods. On the other hand within the developing economies the demand for similar products is also increasing as the quality of lifestyle improves with disposable income. The developing countries are showing higher growth in home appliances than the mature economies such as Europe where the number of new homes is less and most homes already own home appliances.

According to the Economic Intelligence Unit, the demand for home electrical appliances has been growing at an annual rate of more than 10% per year up to 2008. Whilst home audio and video equipment reached a peak growth of 10% in 2007 and 2008, the television market maintained an annual growth of about 4% between 2006 and 2009.

The following table provides an overview of the global home appliances market. The recent economic downturn is clearly seen and is likely to continue as the mature economies of the USA and Europe struggle to recover.



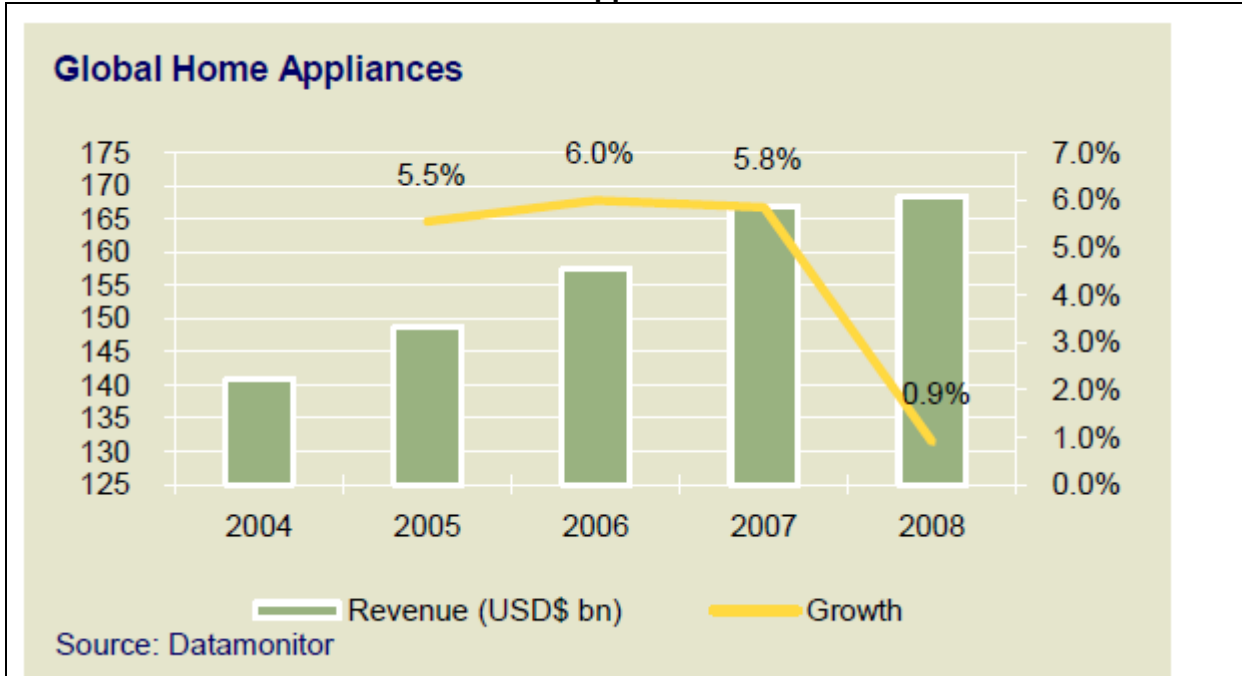
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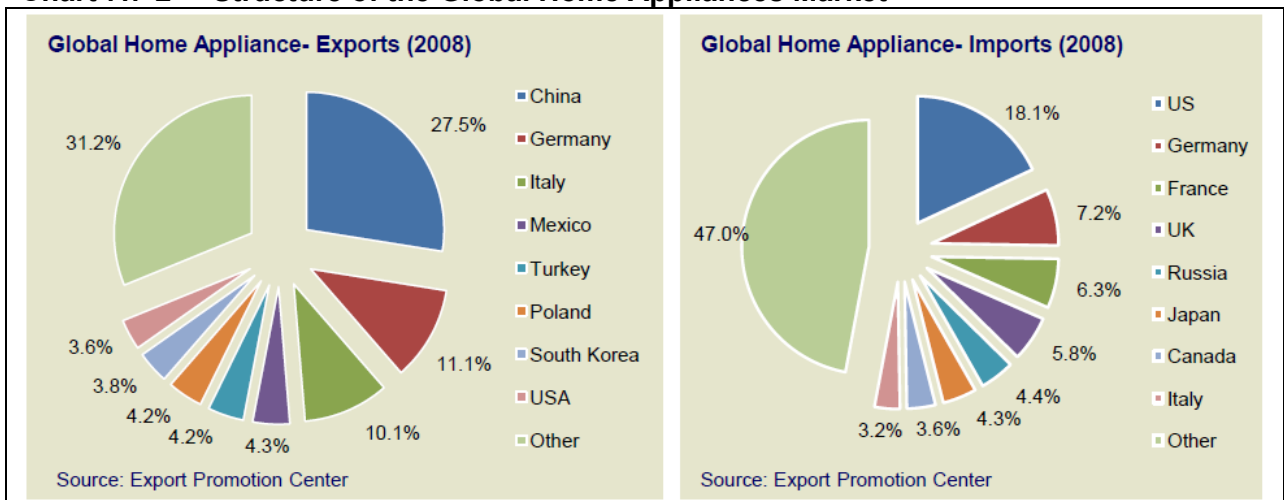
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Chart 7.7-1 Global Demand for Home Appliances



The dominance of China in the manufacture of home appliances can be seen in the following figure whilst the main manufacturing countries in Europe are Germany and Italy. It is obvious from this that the competition for the home appliances market is fierce and very competitive. The consumer countries are also identified in the same figure.

Chart 7.7-2 Structure of the Global Home Appliances Market



An analysis of the land and factory requirements for the home appliances sector is presented in the following table.





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Table 7.7-3 Typical Factory Area and Number of Employees in the Home Appliances Sector

Company	Location	Production/ year	Site Area ha	Factory Area ha	Employees	Approximate cost M€
Tricom/ De'Longhi Group	Hong Kong, China	Kitchen electrical		6.0	1,600	
Taizhou Fangzheng Plastic Factory	Taizhou city, Zhejiang, China	68,000T plastic sprayers and similar		1.6	360	
Ever Splendor Enterprise Co	Schenzen, Guangdong, China	Fans, heaters, coffee makers etc		11.2	4,000	
Ever Splendor Enterprise Co	Schenzen, Guangdong, China	Outdoor electrical barbQs, coffee makers etc		25	3,500	
Dichon Arts & Crafts	Shantou, Guangdong, China	Handcraft & hand-made products		0.3	100	
Gorenje	Valjevo	440,000 Fridge, freezers/ year	11	2.8	650	25
Gorenje	Zajecar, Serbia	Washing machines, dryers	14	1.8	100 1,300 (planned)	20
Typical			10 -15	2 -10	1.000	

The largest white goods enterprise in Serbia is the Gorenje group with factories in Stara Pazova producing thermal and heating appliances whilst the Valjevo factory have been manufacturing refrigerators, freezers and cooling equipment since 2006 on a greenfield site. The company is acquiring the brownfield site of ceramic factory, Porcelan in Zajecar with the intention of converting existing buildings into production lines for washing machines and dryers. The company also has plans to extend its Stara Pazova factory. Most of the production of Gorenje are exported.

In the region of Vladicin Han a Serbian enterprise (Alphapham) specializing in manufacturing of gas cookers is considering expanding its product line with electrical cookers.

The proposed expansion of production by those two companies reflect the buoyant nature of this segment of manufactured goods despite the current depressed growth in the European market for home appliances. The increased production in Serbia provides a good indication of the competitiveness of Serbian labour cost in relation to Asian companies.

7.7.3 Clothing and Footwear Sector

The introduction of defined standard clothing sizes meant that it is now possible to mass produce ready-to-wear clothing and created the multi-billion ready-to-wear clothing industry. As economies of most nations experience an increase in available disposable income the population acquires a higher interest in fashion. The result of this sophistication is a readiness to change and acquire clothing more often in order to follow the trend in fashion. This is particularly applicable to the increasingly more sophisticated young population which is an important segment of the market.

The export market for apparel has been growing at about 8% for the last decade except for the recent economic downturn which has caused a reduction of the export market. Following the introduction of the WTO Agreement on Textiles and Clothing (ATC) which came into force in 2005, the export market is becoming even more dominated by the Asian countries like China and India. However, in many instances smaller developing countries have managed to maintain a presence in the market through specialization and improved technology whilst benefitting from their proximity to the main markets in the US and Europe. The following table provides some statistics on export potential in the apparel sector.





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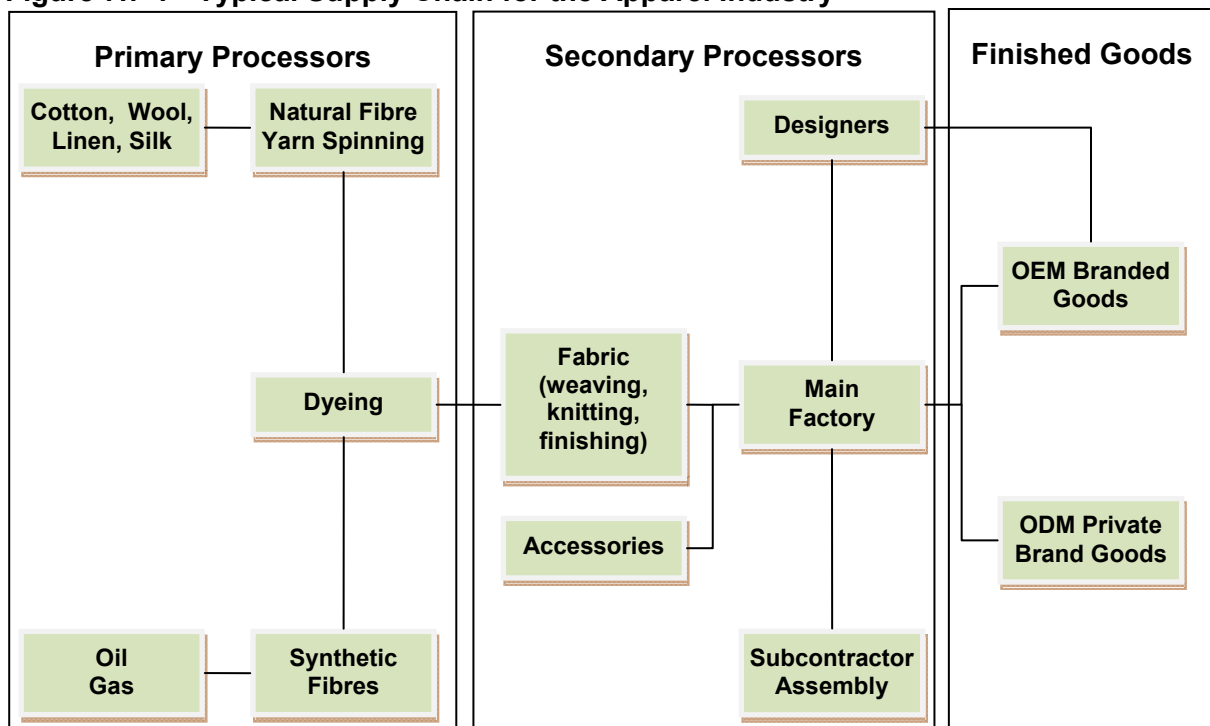
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Table 7.7-4 Comparison of Clothing Exports for Selected Countries and Serbia

Export xM\$	1990	2000	2007	2008	2009
World	108,129	197,570	347,059	364,914	315,622
EU 27		56,240	105,375	114,314	96,797
EU Intra 27		43,286	80,579	86,573	75,115
EU Extra 27		12,954	24,795	27,741	21,682
China	9,669	36,071	115,516	120,399	107,261
India	2,530	5,960	9,932	11,495	11,454
Turkey	3,331	6,533	13,886	13,590	11,555
Bosnia & Herzegovina			177	208	184
Croatia		469	585	604	509
FYR Macedonia		318	635	823	584
Serbia		130	445	552	533

Source: WTO International Trade Statistics 2010

Figure 7.7-1 Typical Supply Chain for the Apparel Industry



Land requirement for primary textile processors can be large because these factories are designed for 24hours operation and be relatively close to the sources of raw material for the maximum economies of scale. Since Serbia do not have the raw material for yarns and threads such factories are not expected. Dyeing and washing can be carried out on a small scale but the environmental impact from discharge of untreated waste can be important. These finishing techniques are used to achieve certain fashion looks. These techniques used to be applied to heavier fabrics but new developments have allowed some techniques to be used for lighter fabrics. Special requirements have to be identified to ensure that on the industrial area the wastewater from these factories are properly treated.





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An analysis of the land and factory requirements for the apparel sector is presented in the following table.

Table 7.7-5 Typical Factory Area and Number of Employees in the Apparel Sector

Company	Location	Production/ year	Site Area ha	Factory Area ha	Employees	Approximate cost M€
Fujian Peak Group	Quanzhou, Fujian Province, China	sports shoes, sports garments and sports bags		7.0	3.000	
GuangZhou HongBao Clothing Co	PanYu, GuangZhou, China	Evening dresses, wedding dresses and fashion clothes		0.25	300	
Tay Son Joint Stock Company	Binh Dinh Province, Vietnam	5M pieces garments		4x1.2	3.000	
Zengcheng Xintang Lianhe Garment	Zengcheng, Guangdong, China	Denim jeans		11.3	2.000	
Shunde San Paula Clothing Factory Co	Foshan, Guangdong, China	6M pieces Denims garments		11.0	4.000	
Typical				7	3.000	

The region has a history of production in the clothing and shoe industry with factories located in most cities and towns such as Nis, Leskovac, Vranje and Vladicin Han, Although many smaller factories have closed following introduction of the market economy, there are still many quite successful companies (Jumko) in the sector. New companies (Yenice jeans, Benetton) are entering both the clothing and the footwear market. On footwear, Serbia is an important producer of leather with primary processors in the Vojvodina area (Kula, Pancevo, Belgrade, Ruma & Vrsac). There are a few footwear companies including associated companies providing accessories. An apparel cluster was created in 2007 in Serbia and can be located on the following website (<http://www.serbianapparel.com>)

7.7.4 Electronic Industry

Over the last two decades, the electronics industry has transformed from finding applications in a narrow traditional market comprising mainly of computers, communication devices, electronic equipment or office electronics and moving into a wide range of sectors including the following.

Industry	Services	Home Appliances
Microprocessor controlled machinery	Telecommunications	Washing machines
Process control	Medical equipment	Refrigerators
Instrumentation	Audio & video equipment	Home audiovisual equipment

The global electronics market has been showing a consistent growth of 1.8% p.a. between 2005-2009 reaching a total revenue of USD 2,367 billion in 2009. The electronic equipment segment formed nearly 70 percent of the total revenue in 2009 followed by computers with 22 percent. IN regional terms, the Asia-Pacific region is the main producer with 51 percent of the production by value, whereas Europe and US each accounted for 23 percent.

The industry suffered a contraction in 2009 following the economic downturn but there has been a rebound during 2010. This downturn is likely to recur with the current pessimism regarding the world economy. Expensive one-off purchases, sales of white goods, audio-visual equipment, televisions, cameras, personal computers and mobile phones are likely to





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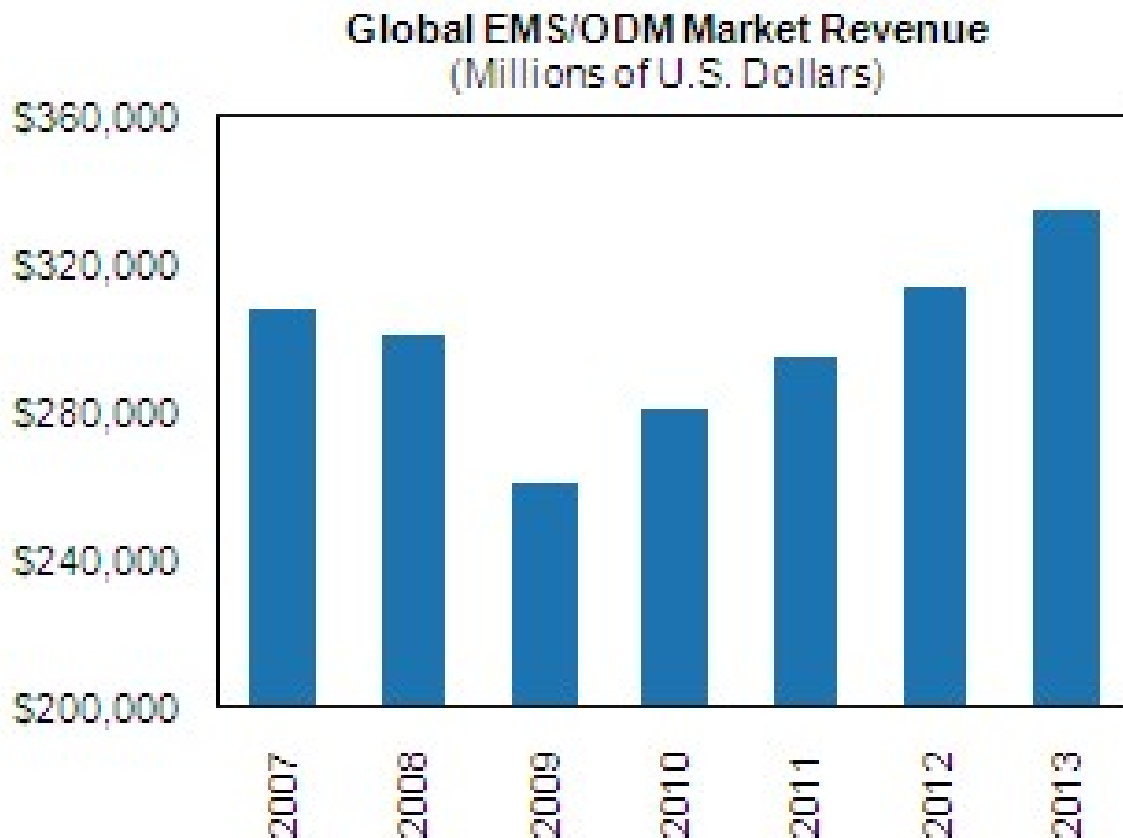
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suffer as a result. There are few plans for further international expansion within the sectors, although Asia is the one bright spot where sales are holding up.

The economic downturn will put more pressure on the original equipment manufacturers (HP, Apple, Hitachi, Phillips) to seek more efficient supply chain and it is therefore expected that adoption of electronic manufacturing services (Foxconn, Flextronics, Celestica) will become more prevalent. Following the economic troubles of 2008, the worldwide electronics manufacturing services (EMS) market recovered from the 8% decline in 2009 and experienced a massive expansion of more than 30%.

The supply chain for the electronics industry is summarized on the following figure.

Figure 7.7-2 Growth of EMS Market (iSuppli).



Whilst some of this growth is catching up the growth only confirms the growing trend to increased outsourcing of manufacturing. Even if most of the growth is occurring in the far east the region is also benefitting from this trend as can be seen with the expansion plan of the Turkish EMS, Vestel as European OEMs seek to reduce the time to market of their products. The growth expected in the EMS market as predicted by iSuppli is shown on the following figure. This trend is also expected to be beneficial to Serbia.



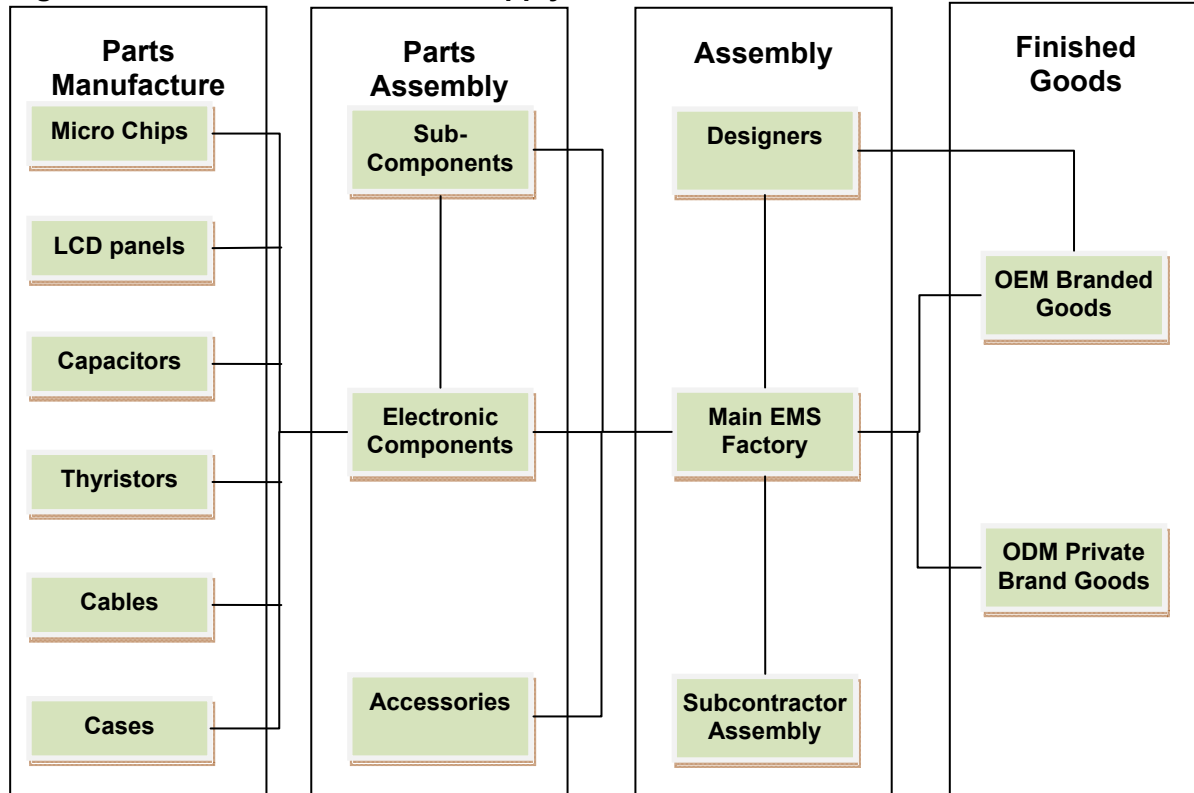
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Figure 7.7-3 Electronics Sector Supply Chain



The land and building requirements for typical factory in the electronics sector as well as the typical number of employees are presented in the following table.

Table 7.7-6 Typical Factory Area and Number of Employees in the Electronics Sector

Company	Location	Production/ year	Factory Area ha	Employees	Approximate cost M€
gli	Xuhou, Suzhou, China	70,000 Speakers (computers, phone)	1.6	1200	
New Sunlink	Donguan, Guangdong, China	80,000 Speakers (computers, phone)	1.8	1500	
Ying hao (panyu) metal manufacture co.	Panyu, Guangdong, China	2,400T brass tubes, rods	1.5	200	
Nanjing feng an antenna material co.	Nanjing, China	36,000 antennas (rod/ rubber)	2.45	780	
Shanghai Zhengke Electronic Ltd	Shanghai, China	35M pieces Quartz crystal	0.25	90	
Zhengke Electronics (Wuxi) Co.	Wuxi, China	70M pieces Quartz crystal	2.0	120	
MSI	Kunshan, nr Shanghai, China	4000 motherboards/ shift 1000 notebooks/shift	49.0	14,000	
Anshan Yes Optoelectronics Display Co., Ltd	Anshan Liaoning China	18M LCD/ LCM units mobile phone Up to 480x370mm	1.5+0.8+1.8	1,500	
Idealand Electronics Ltd	HK, Donguan, China	Metal stmped electronic components	0.4	200	
Typical			1 – 3 ha	100 - 1000	





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The electronics market in Serbia is also quite buoyant with new investors seeking facilities closer to the European market or benefits from the low labour cost base. In 2010, the Embassy Group of India announced the opening of an IT park with 2.5ha of prebuild in Indijja to attract Indian and other technology companies seeking entry to the European market. In 2011, the German company "Muehlbauer Holding AG & Co.. KGaA" plans to open a technology centre in Stara Pazova for the development of advanced wireless network devices. The Mayor of Vranje has signed a memorandum of understanding with a Chinese company for the installation of photovoltaic panels to generate electricity within the territory of the municipality.

7.8 Services & Construction

Services and construction are important sectors which are critical to an industrial nation. Services are required to support the production activities and construction sector is essential to implement the industrial infrastructure.

The Organization for Economic Cooperation and Development, OECD has segmented the service industry as follows:

- Distribution services (commerce, transport, information)
- Business services (financial services, leasing, design, engineering)
- Personal services (hospitality, culture, sport, households)
- Social services (state, health, education, religion)

Both the construction industry and all the segments of the services industry requires land to execute their activities, Some of the services can and need to be carried out within city centres but others can be located in industrial or business parks.

7.8.1 Construction Industry

Public infrastructure in Serbia is old and has suffered from a lack of investment over the last 2 decades. Improvement in public infrastructure is key to achieving the overall national objectives of a stronger economy, a cleaner environment and more prosperous, safer communities.

The successful delivery of these large infrastructure depends on a strong construction industry. In the past the construction sector was a strong component of the economy but it has since declined proportionally with the declining economy.

The ambition of Serbia to be a member of the European Union and its progress towards membership is expected to generate substantial investments in public infrastructure. Under the present Instruments for Pre-Accession Serbia benefits from about 200M€ of assistance annually and of which a substantial amount is directly invested in public infrastructure. As Serbia progresses towards membership of the EU it is expected that these investments will increase substantially to assist Serbia towards convergence.

The construction industry just like manufacturing has its own supply chain which starts with natural resources which are converted to commodities by primary processors before passing through intermediaries for manufacture of sub-components and final inclusion in the works by the main contractor. The following figure provides a summary of the supply chain in the construction sector.



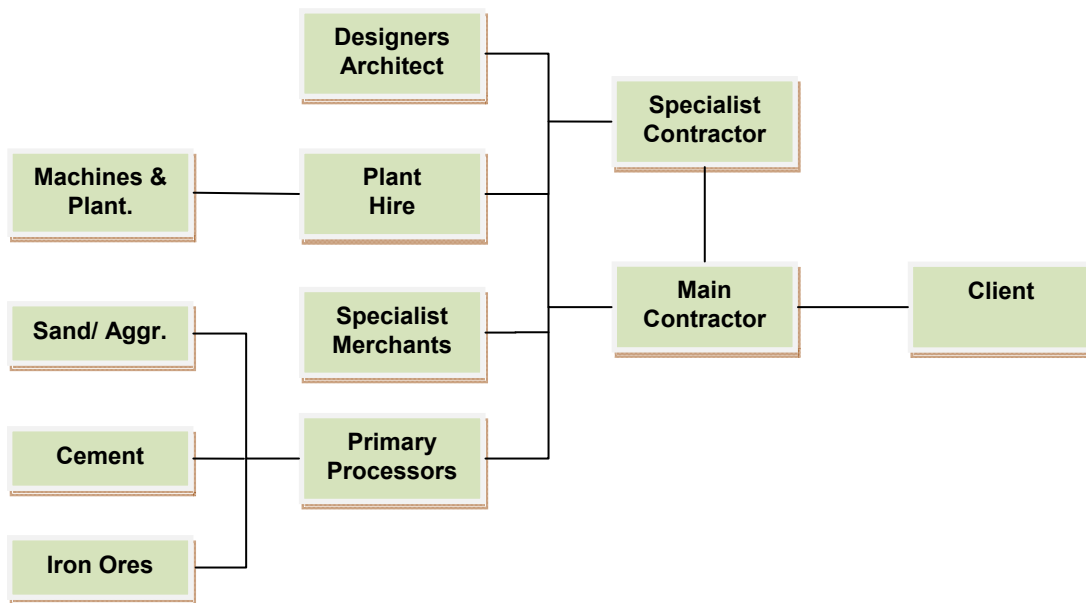
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Figure 7.8-1 Supply Chain for the Construction Industry



From the structure of the construction industry it can be observed that the building needs of the construction industry can be divided into three types:

- Large (mainly open) areas for processing raw materials into semi-finished goods or for plant hire
- Retail outlets for the purchase of construction equipment and components
- Offices for project management, designers and architects

Processors of raw materials such as sand, aggregates, cement, steel bars, precast concrete components usually require large open areas and the environmental impact of such enterprises include large amount of dust, smoke and odours. Such enterprises already exists on the Vladicin Han South industrial zone and can be potential occupiers on the extended industrial zone. However, for industrial zones with limited surface areas the large areas required may jeopardize the introduction of higher value more compact factories or businesses requiring smaller footprint.

Retail outlets are often located on industrial zones and although such outlets can specialize in the construction market, many such outlets now also target the home improvement markets. The land requirement for such outlets can vary widely depending on the strategy of the retailer.

The support services to the construction industry includes engineers, architects, quantity surveyors who will need office space for carrying out their activities.

A study of land requirements for primary processors in the construction industry is provided on the following table.



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Table 7.8-1 Land Requirements and Factory Size for Primary Processors in the Construction Industry

Company	Location	Production/ year	Site Area ha	Factory Area ha	Employees	Approximate cost M€
Becker Bau GmbH & Co	Berlin Brandenburg International City Airport	10,000m ³ /day from 4 batching plants	7.0		100	
Gulf precast concrete company	Abu Dhabi	3 batching plants	9.8	6.2		
Al Hamad Group Co	Jebel Ali Industrial Area, Dubai	Precast concrete beams, cladding etc	3.6	1.6		
Al Hamad Group Co	Ras Al Khaimah, UAE	Precast concrete beams, cladding etc	28.6	4.6		
Meka	Factory 2, Temelli / Ankara	Batching plants manufacture	1.6	1.0		
Meka	Factory 3, Eskisehir	Batching plants	3.1	1.0		
Beijing Yugou Co., Ltd	Beijing, China	100,000m ³ /year precast 800,000 ready mixed concrete	35	3	1000	
Elkon	Factory No1, Turkey	90 batching plants	1.5	0.8		
General Holding Corp.	Al Ain Concrete Block Factories, UAE	36,000blocks/day		6.3		
General Holding Corp.	Al Mafraq Concrete Block Factories, UAE	52,000 blocks/day	31			
General Holding Corp.	Emirates Cement Factory, UAE	1.2MT cement/year	16			
Arab Towers Contracting Company	Al-Mafraq, Jordan	Structural steel fabricators	12	1.4		
CUEL	Laem Chabang fabrication yard, Thailand	30,000T fabricated steel/year				
SIAC	Butlers Steel's Main Fabrication Shop, Portarlington, Ireland	25,000T fabricated steel/ year		2.0		
Balkan Brik Betonjerka	Vladicin Han	Cement blocks	11	1.6	200	
Betonjerka	Vladicin Han	Concrete pipes, kerbs and other components	4	0.4	100	
Typical			13.5		300	

The analysis of the requirements for primary processors in the construction industry factories confirms that large areas are necessary for fabrication of construction components. The construction industry is already represented in Vladicin Han with the presence of 2 factories, one for making blocks and the other one producing concrete components. Given the location, it is not expected that large primary processors will look for premises in the region. The existing smaller enterprises in Vladicin Han and Vranje may increase their production when construction activities pick up. Other business in the supply chain such as specialists merchants and plant hire are also potential tenants.



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7.8.2 Distribution and Logistics Services

Distribution and logistics services have important roles in the supply chain for any industry being the last link to the consumer and in the development of the country's economy. Although many businesses are still carrying out their own logistics, most global businesses are becoming aware of the complexity and cost of this function and it is being increasingly outsourced to specialist companies which operate on a global level. These companies offer a large range of services such as:

- Transportation of components, semi or finished goods
- Warehousing and inventory management
- International/ national distribution centres
- Packaging and printing
- Repacking and labelling
- Groupage and tracking
- Retailing (shopping centres, supermarkets)

Distribution and logistics services in the modern business environment require full monitoring and control of the flow of the goods. The land and building requirements are usually specific and large whilst the employment indicators tend to be lower compared because of the highly mechanized systems which are used nowadays in modern warehouses. On the other hand retailing can employ quite a large number of people. Typical land and building areas for logistics centres and the number of employees are presented in the following table.

Table 7.8-2 Typical Facility Area and Number of Employees in the Logistics Sector

Company	Location	Production/ year	Site Area ha	Built ha	Area	Employees	Approximate cost M€
Viewis Vehicle Logistics Centre	Viewis, Lithuania	6,000 vehicles storage, 45,000 vehicles transported on 80 transporters	16	8.5		130	
Autoverslas	Vilnius Lithuania	Logistics Warehousing 42,000T		2.4		70	
HB Reavis Group	Malý Šariš, Prešov, Slovakia	Logistics		1.1		170	
Mercedes-Benz Canada	Toronto, Canada	Logistics Centre & Training Academy 45,000 parts warehouse, 700,000 orders		2.2		100	
Nippon Express U.S.A.	Chicago, USA	Logistics centre with office		2.7		200	
Geis Group 11.5M orders for 3,500 employees, 1000 trucks, 48ha warehouses	Erlangen, Germany	Logistics centre with office, 36 loading bays, 6 entrances, 10.5m high warehouse		3.0		200	
Audi Logistic Centre	Ingolstadt, Germany	Components logistic centre 2,500 deliveries, 20 suppliers	118	31.9		4,200	
Privalia	Barcelone, Spain	Logistics centre 25,000 orders/day		1.35		50	3.7M€
Agility	Stuttgart	Logistic centre 13 loading bay 4500m2 warehouse 1500m2 packing 3000m3 handling		0.9		40	
Groupe	Boulogne, France	Packing frozen		0.4		150	





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Company	Location	Production/ year	Site Area ha	Built Area ha	Employees	Approximate cost M€
Conegan		seafood, 16,000T				
Nestle/ Millard Refrigerated Services	Jonesboro, Arkansas, USA	Frozen ready meal		2.0 refrigerated	65	165M inc. plant
Goodman investor, operated by Schenker for BMW,	Leipzig, Germany Next to BMW plant	Cars		6.3	600	33M
Lego	Kladno	Warehouse		0.52		
Lego operated by DHL	Jirny, near Prague, Czech R	Logistic centre		6,8	280	2009, 13.5M€
Nelf Logistics	Dobanovci, Belgrade, Serbia	Logistics centre		6	500	
Milsped	Stara Pazova, Belgrade, Serbia	Logistics centre		6	600	
ITM Group	Šimanovci, Serbia	Logistics centre	3.2	1.2	400	
Lagermax AED	Šimanovci, Serbia	Logistics centre		1.2	200	4.0M€
Typical				2 - 7	200-600	

International logistics companies (ITM Group, DHL) are already present and active in Serbia alongside local logistic companies (Nelft, Milsped). At the same time the larger local companies, in particular retailing companies (Maxi DOO, Actavis), have already adopted modern logistics systems within their organization.

The 4 supplier of logistic services in Serbia listed in the table above provides most of the modern warehousing facilities totalling about 15ha in the Belgrade area, around the Nikola Tesla Airport, along the E70 motorway, and in the Port of Belgrade. In the regions logistic centres have been developed in the major regional cities such as Subotica, Indjija in the north and Niš in the south.

According to real estate agents, prospective tenants are seeking modern warehouse space with flexible layout in attractive locations and completed transport infrastructure. Internal requirements include good ceiling heights 9 to 12 meters, reliable power supply, temperature control storage, loading docks, etc. Until recently, there appears to be an undersupply of such facilities which resulted in higher rents compared with similar locations in the region. The recent appearance of speculative industrial facilities has eased the rental market which has seen an increase of around 25% for prime warehouse around Belgrade, according to Colliers.

Closer to Vladicin Han, at the airport complex in the City of Niš, the Eyemaxx Real Estate jointly with the Chayton Capital Fund UK plan to develop a cargo centre with a usable area of approximately 13.6ha, including a shopping centre, office space and a hotel.

7.8.3 Business Support & Services

All business requires administrative support and other services such as marketing and advertising, design, engineering, consulting, legal services, human resources and staffing, leasing, security and facility management. For many companies these activities are carried out within the company but for the larger companies, the business services industry can provide an efficient alternative.

Whatever the outsourcing approach, all businesses will have need for office space which may only be a few square metres for a small manufacturing company with few employees but for a large corporation with a high proportion of desk based activities the office area required can be very large. For many small industries, the office requirements are provided adjacent to the production facilities but for others support facilities are often provided in





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separate locations. The quality of the offices will also depend on the purpose expected of the building. Typical office requirements and potential location are indicated hereafter.

Town Centre Up to 10.000m²	Industrial Park 0.2 – 4ha	Business Park 0.2 – 4ha or more
National or regional head offices Shared services centres	Data centres Call centres Engineering R & D centres	National or regional head offices Training centres Engineering

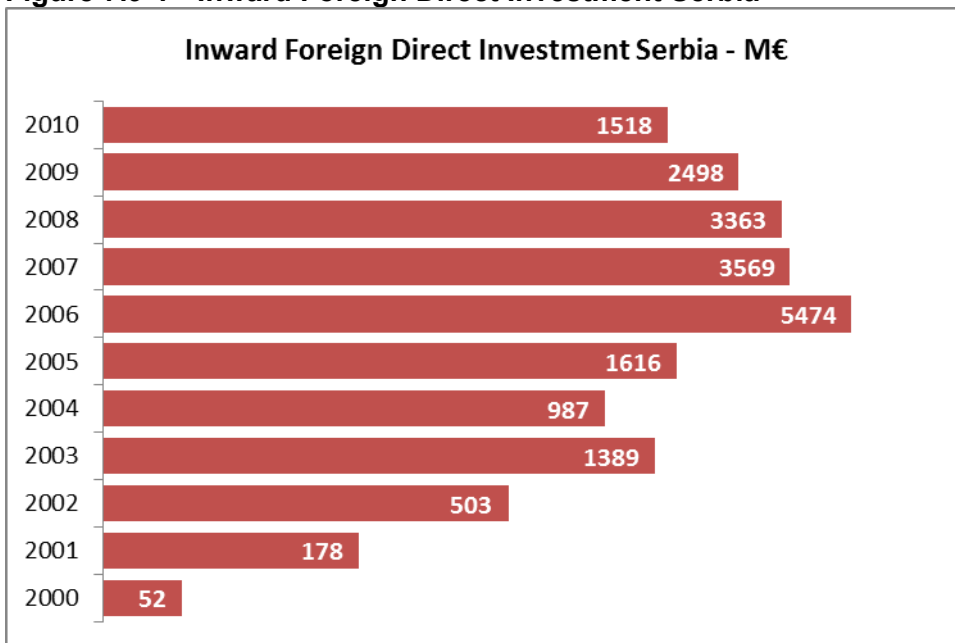
For Vladicin Han, although large corporation are unlikely to set up their offices in the industrial park since the area around the southern industrial zone is already of an industrial nature. However, it is important not to exclude the possibility that business may wish to establish small offices in the industrial park.

7.9 Foreign Direct Investments

The analysis of the industrial sectors highlighted the global significance of most industrial development and investments therefore a good indicator of the demand for industrial land is the level of foreign direct investment.

Over the last decade, Serbia has grown into one of the most important investment locations in Central and Eastern Europe for global companies such as FIAT, Telenor, Stada, US Steel, Michelin, Gazprom, Siemens, Intesa Sanpaolo and many others.

Figure 7.9-1 Inward Foreign Direct Investment Serbia



In recent years, the service sectors have shown to be the most attractive to international investors with banking and insurance providing the largest FDI inflow followed by manufacturing industries. The transport and telecommunications sector also showed substantial investments. These indicators confirms the importance of manufacturing in the development of the Serbian economy as already identified in the earlier part of this section.





Table 7.9-1 Inward FDI for Period 2004 and 2010 by Industry

Inward FDI by Industries (2004-2010)	MUSD
Financial intermediation	5,789.7
Manufacturing	3,906.8
Real estate & rental	2,974.0
Transport storage and communication	2,976.6
Wholesale, retail repairs	2,431.8
Mining , quarrying	586.5
Construction	408.1
Other utility, social and personal services	183.1
Agriculture	155.1
Public administration and social insurance	100.7
Hotels and restaurants	100.3
Electricity, gas & water	24.1
Fishing	7.1
Education	2.6
Health and social work	0.5
Total for period 2004 -2010	19,647.0

Source: National Bank of Serbia

7.10 Enquiries from Potential Investors

In the recent years, the Municipality of Vladicin Han has received numerous enquiries from potential investors who have shown interest in setting up a business within the municipality and the list of enterprises and their field of activities is as follows:

1. Heming B&G d.o.o. Beograd – Green energy, requesting 2000m²
2. SoilTech GmbH Shoffengrund Germany – waste from construction sites recycling, requesting 5ha
3. LTH Skofja Loka d.d. Slovenija – Metal forging
4. Yu Point d.o.o. Beograd, Srbija – Agroindustry trading
5. Urban-Technics d.o.o. Valjevo, Srbija – Plastic and Aluminium building products
6. ETI Elektroelement d.d. Obrežje, Slovenija – Electrical components
7. Brest Pohistvo d.o.o. Cerknica, Slovenija – Furniture manufacture
8. El Fath Trading Group, Alexsandria, Egypt

Copies of the enquiries are provided in the annexes.

7.11 Supply Side Factors

7.11.1 European Market Analysis

The demand for industrial premises collapsed during 2009 in Europe with the rapid decline in manufacturing output and the decrease in consumption as consumers reduce their spending to counteract the economic downturn.

The strong economic upturn in Germany led by export oriented companies has improved the market there as vacant premises are reoccupied. Volumes through the main ports such as Antwerp, Rotterdam and Hamburg increased between 10% to 15% during 2010 and resulted in increased needs for warehousing and logistics centres.

Although the market in Eastern and Central Europe remained relatively flat during 2010, it is expected that the positive outlook in Western Europe will gradually translate into better confidence in the region and an improved share of the market. Of course the stability of the



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market will also depend on resolution of the ongoing turmoil in financial sector in Greece or Portugal and generally across the Europe.

Across Europe, the storage and distribution activities associated with logistics and supply chain management are the principal drivers of industrial property demand and are attracting attention from developers and investors. Although weaker the demand for industrial units and estates is still important.

On the investment front, according to Capital Analytics the European Market has improved during 2010 with industrial property investments amounting to 10.6B€ or an increase of 54% over 2009 but still lower than the peak of 28.8B€ in 2007. The focus during 2010 was on Western Europe with the United Kingdom and Scandinavia taking about 50% of the market, France and Germany another 30% whilst Southern Europe only had 9%.

However, investors are mainly interested in established good quality property with long term potential, low quality properties were not attracting any attention. Most new build are completed to client's specifications and there has been very little speculative ready built units except for logistic centres. The demand for third party logistics is expected to increase as the recovery progresses and companies seeks cost reduction in their supply chain. This trend also reflects the centralisation of distribution centres in the retail sector where the larger companies are continuously reassessing their logistics and warehouse needs.

Modern logistics and warehousing are designed to minimize all transportation and storage time with the objective of just in time delivery to the intended recipient which can be an assembly plant where the goods are assembled into the final product or a large supermarket for sale to the final user. Modern warehouses are almost completely controlled by warehouse managements and warehouse control systems with systems of pallets which stores goods on shelving systems up to 10m high.

The same cannot be said on the demand for manufacturing units in Western Europe which is expected to reduce as companies move their production facilities to less costly areas such as Eastern and Central Europe. Large manufacturing facilities are usually owner occupied and the build to let market has always been a limited market where small and medium sized companies can seek rental properties. The ongoing credit crunch will continue to impact the investment potential of these companies and lead to a downturn on the build to let market. The few fortunate companies who are seeking to open new manufacturing units will favour areas with lower cost bases.

7.11.2 Serbia and Region Market Analysis

The spatial organization of Serbia's industry is a reflection of the previous development policy of distributing industry as widely as possible over the whole territory. This approach meant that there is no coherent national prioritization plan which can be used to locate industrial zone. This issue is partly resolved with the adoption of the National Strategy for industrial development.

With the transition from a centrally organised economy to a market economy and the general trend for the transfer of manufacturing facilities towards Asia has resulted in the reduction in the number of the dispersed manufacturing facilities and the polarisation of surviving industries to the larger and more accessible centres of population such as Belgrade, Novi Sad and Nis. This process has resulted in the relocation of industries to more adapted production locations and accelerating the depopulation of rural areas.

With the current slowdown in industrial activity across Europe and the World, a moratorium on private speculative development has reduced the supply of quality facilities as capital assets values are declining and credit is in short supply. This is particularly noticeable in the Belgrade area including Vojvodina.





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Although the pattern varies from country to country, much of brownfield warehousing available in many countries, including Serbia is sub-standard and unsuited to modern logistics operations. According to King Sturge’s “European Logistics & Industrial Markets” in March 2011, only around a quarter of the second-hand stock available in the UK at the end of 2010 provided the specification occupiers seek in large facilities, namely good height and column grid layout, dock level and ground level access, sufficient yard depth and appropriate office space.

During 2010, according to King Sturge, now Jones Lang Lasalle there has been a patchy recovery of the industrial facilities market in Europe. In the UK, the take-up of new warehouse floor space (units of 10,000m² and over) doubled in 2010 compared with 2009, whilst in Germany, the take-up of logistics property (in units of 5,000m² and over) increased by around 40% in the major conurbations. In France, takeup during 2010 was only marginally higher than 2009, although activity in the Ile-de-France region increased more significantly. In Central and Eastern Europe, take-up increased by 49% in Poland, by 106% in the Czech Republic and by around 86% in Romania.

Again according to King Sturge, while the take-up in eastern Europe is quite impressive during 2010 this was from a very low base recorded during 2009 which had the lowest level of take-up for many years. There is also no doubt that some of the demand during 2010 were driven by opportunities which occupiers are taking advantage of to acquire new facilities, or to renegotiate leases on existing ones at very competitive terms.

7.11.3 Land and Rental Market Estimates for Europe

The rental market provides a good review of the supply side of industrial facilities and an analysis of the market follows.

The economic downturn since 2008 has depressed the demand for land and warehousing facilities across Europe. The market has partially recovered during 2010 but prices are still depressed in Southern Europe, Central Europe. In the rest of Europe prices appear to remain stable except for certain areas of Germany. The upturn appeared to have been maintained at the start of 2011 and the optimism can be beneficial to Serbia.

Analysis of the rental market are frequently carried by the numerous real estate advisers such as DTZ, Colliers, Richard Ellis and King Sturge (now operating as Jones Lang Lasalle). Copies of some of the analysis prepared by Colliers are presented in the annexes.

The latter three companies have offices in Belgrade. King Sturge recently published its evaluation of land prices and prime rents for many location in Europe and this evaluation is presented on the following table.

Table 7.11-1 Cost of Land and Prime Rent for Various Locations in Europe

Country	Location	Prime Rent (warehouse) €/m ² /year	Land Value (Serviced Plot) €/m ²
Serbia	Belgrade	48	30
Ireland	Dublin	65	55
UK	London	163	430
UK	Birmingham	69	80
Netherlands	Amsterdam	85	275
	Rotterdam	67	200
Belgium	Antwerp	43	130
	Brussels	45	160
France	Lille	43	60
	Paris	50	80
	Lyon	44	65
Spain	Madrid	72	200
	Barcelona	72	220
Italy	Milan	48	220
Switzerland	Geneva	120	160
Luxembourg	Luxembourg	102	350





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Country	Location	Prime Rent (warehouse) €/m ² /year	Land Value (Serviced Plot) €/m ²
Germany	Hamburg	60	150
	Dusseldorf	53	85
	Cologne	53	85
	Frankfurt	66	160
	Stuttgart	58	250
	Munich	56	210
Czech Republic	Prague	54	60
	Plizen	48	25
	Brno	54	60
Austria	Vienna	102	70
Poland	Warsaw	48	45
	Wroclaw	42	30
	Poznan	42	25
Slovenia	Bratislava	47	55
Hungary	Budapest	42	27.5
Croatia	Zagreb	72	40
	Split	72	30
Romania	Cluj	45	25
	Bucharest	48	30
Bulgaria	Sofia	54	30
	Elin Pelin	48	30
Greece	Athens	60	150
Turkey	Istanbul	57	146
Russia	St Petersburg	73	48
	Moscow	88	73

Source: King Sturge, Dec 2010.

Land value for a 2.5ha serviced plot on an industrial zone with planning consent.

Warehouse space: Defined as 2,000 sq m or more with up to 15% office space, the balance being general industrial/ logistics/ distribution space with 6 to 10 meter ceiling heights. All loading is dock height. Built in 1990 or later and standing in a prime industrial location.

Prime rent (warehouse space): Top open-market rent estimated to be achievable for a unit of the highest quality and specification in the best location, excluding service charges and taxes and not reflecting tenant incentives.

Since manufacturing within Europe is on a downward trend it is expected that demand for manufacturing facilities will not grow except perhaps in the economies where labour costs are lower such as in Eastern and central Europe including Serbia. This trend is expected to continue only for a few years in the Balkan states whilst their economy catches up with the rest of Europe.

Given the economic circumstances and the general lack of prime industrial and distribution opportunities, it is expected that prime rent will remain stable over the near future.

However, in some areas such as Frankfurt and Stuttgart, despite the substantial recent investments in modern logistics centres in these towns Colliers has seen rises in prime rents for warehousing of about 6% during 2010 which appears to come from improvement of exports from the area.

According to DTZ, a global real estate adviser operating across EMEA, Asia Pacific and the Americas, the warehousing rental prices will rise by 1,6% annually in Europe. This matches more or less the average predicted annual GDP growth in Europe. The costs will rise just moderately till 2012, which will be favourable for the tenants. Then a stable rise of prices is expected in the warehousing market till 2014.

In the next three years the biggest rebound in the rental prices can be expected in the regions which have been most affected by the global crises, like Madrid or Barcelona. However the level of the prices will not reach even in 2014 those before the crises. The lowest warehousing rental prices will remain in Bucarest during the mentioned period. The most expensive is the Scandinavian market including Oslo, Helsinki and Stockholm, where the construction costs are higher because of the cold climate and there is a shortage of the 'A' category facilities.





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Regarding the Central Eastern European market, the Polish warehousing prices are the highest with Warsaw leading the list, while Prague is on the second place. Budapest is about 30 percent cheaper than Warsaw but will have a stronger rebound of the rental prices, which is estimated as 2 percent annually.

7.11.4 Land Market Price Estimates for Serbia

The polarisation of industries has impacted on land prices and the result is evident in the analysis of underlying land prices for a serviced plot being asked in Serbia as provided in the following table.

Table 7.11-2 Land Market Estimate in Serbia

Municipality	Lowest Range of Land prices €/m ²	Average Land prices €/m ²	Highest Range of Land prices €/m ²
Belgrade		30	
Subotica		10	
Sombor		9.5	
Indija	11		30
Loznica		5	
Šabac	6.6		7.83
Lajkovac		5	
Batočina		7	
Kragujevac city	60		100
Kragujevac city		1 (with employment conditions)	
Jagodina		Free with employment conditions	
Leskovac	4.5		5.8

Source: MISP 2011, Colliers 2011 Excludes land development fee

The analysis shows a wide ranging difference of prices for industrial land depending on location. The prime areas around Belgrade are attracting quite high prices of 30€/m² whilst in the Vojvodina region prices range from 8 to 10€/m² and in the south of Serbia prices are of the order of 5€/m². However with the recent installation of Fiat in Kragulevac, land prices in the region have displayed abnormal overheating which the Municipality is trying to contain by creation of new industrial zone.

7.12 Supply Side Incentives

The earlier part of this section concluded with positive indicators for the productive capacity of the Serbian economy and demand for industrial land. However, it is now generally accepted by most governments that in order to achieve the optimal level of demand and supply, improved supply-side policies are necessary for sustained and balanced economic development.

Supply-side economic policies consists mainly of micro-economic policies which are designed to provide supply-side incentives to attract markets and industries to install in certain areas in order to and operate more efficiently thereby contributing to a faster rate of growth of real national output.

Supply side policies are designed to serve two broad objectives:

- Improving the labour market
- Encouraging competition and innovation in the product market





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7.12.1 Supply Side Policies for the Labour Market

As mentioned previously, labour is a factor of production and can be considered as commodities like rice or sugar and as such firms and businesses can be supplier of jobs whilst the State and municipalities are on the demand side buying jobs for their population. In practical terms, it means that the State and municipalities must offer the incentives necessary to attract investors. The incentives offered do not have to be financial but the State and municipality must understand these mechanisms to attract the desired businesses or as necessary to discourage other businesses.

In Serbia where unemployment is high, increasing employment is of high priority and therefore the State is proposing different programmes which are designed to improve the labour situation.

State Incentives

At State levels in order to attract investments the State are providing incentives as described in the decree on terms and conditions for attracting direct investment (“Official Gazette of Republic of Serbia”, no. 42/11). The areas in which incentives are provided can be grouped in four programmes as follows;

- Incentives for investments of special importance in manufacturing
- Foreign direct investment incentives
- National Employment Service Incentives
- Municipal Incentives

The programme for investments of special importance provide Government grants for very large investments in sectors of special importance to the Serbian economy. This programme has been used for instance in attracting Fiat to take over the Zastava automobile factory in Kragujevac.

Table 7.12-1 Government Grants Available for Direct Investments of Special Importance

Financial Grants		
Eligible Investments	Direct Investments of Special Importance	
	Manufacturing	
	Capital and Labour Intensive Projects	Capital Intensive Projects
Grant Amount (EUR)	Up to 20% of the total investment	Up to 20% of the total investment
The Minimum Investment Amount	€ 200 mn	€ 50 mn
The Minimum Number of New Jobs Created	1.000	300

State Grants are also provided to attract general investments in some key sectors such as manufacturing, tourism and export oriented investments as presented in the following table.



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Table 7.12-2 Grants for Foreign Direct Investment

Financial Grants					
Eligible Investments	Direct Investments				
	Manufacturing			Internationally Marketable Services	Tourism
	Investment Realised in Underdeveloped Regions and Regions of Special State Interest	Investments in Automotive, Electronics and IT, Realised in Regions of Special State Interest	Investment Realised in Other Regions of the Republic of Serbia	Investments in All Regions of the Republic of Serbia	Investments of Strategic Importance in All Regions of the Republic of Serbia
Grant Amount (EUR)	€ 4,000 - 10,000 / per job created	€ 5,000 - 10,000 / per job created	€ 2,000 - 5,000 / per job created	€ 2,000 - 10,000 / per job created	€ 2,000 - 10,000 / per job created
The Minimum Investment Amount	€ 0.5 mn	€ 0.5 mn	€ 1 mn	€ 0.5 mn	€ 5 mn
The Minimum Number of New Jobs Created	50	50	50	10	50

National Employment Service Incentives

On a general level, the National Employment Service is tasked with encouraging the creation of jobs across the country and for this objective three programmes have been devised as follows:

- The Employment Subsidies Program
- The Apprentice Program “First chance 2011”
- The Training Program

The **Employment Subsidies Programme** is designed to encourage creation of employment in the disadvantaged regions of Serbia as defined in the Law on Regional Development. The programme is a grant scheme where creation of employment in the most disadvantaged regions are for obvious reasons provided with higher grants as shown on the following table.

Table 7.12-3 Employment Subsidies by Regional Development Level

Municipalities/Employees	Grant Amount*
Groups I and II	RSD 100,000 (app. €1,000)
Group III	RSD 200,000 (app. €2,000)
Group IV and devastated regions for up to 10 workers	RSD 300,000 (app. €3,000)
Group IV and devastated regions for 11 or more workers	RSD 400,000 (app. €4,000)

*Grant amount per new job created, based on the average exchange rate in 2010: 1 EUR = 103.48 RSD





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The **Apprentice Programme “First chance 2011”** provides grants for the professional training of newcomers to the job market who are registered as unemployed with the National Employment Service. The objective is to encourage employment of those seeking employment for the first time. It will provide reimbursement of monthly salary and social insurance charges for newly employed staff who will be undergoing training. The target for 2011 is to train a total of 19,000 first-time employees. The following table presents the potential grant depending on the educational level of the apprentice.

Table 7.12-4 Apprentice Programme Grant for 2011

Employee Education Level	Amount of Salary Reimbursement for 2011
Secondary school certificate	18.000RSD/month
2 year college certificate	20.000RSD
University degree	22.000RSD

*Grant amount per month per new job created

The **Training Programme** is intended for retraining of existing staff within a company and covers training expenses up to RSD 90,000, or roughly €900 per employee as well as the costs of transportation and insurance for the trainees throughout the training program.

The training programme seek to make the labour market more flexible so that it is better able to match the labour force to the demands placed upon it by employers in expanding sectors thereby reducing the risk of structural unemployment. The result is an expansion in the supply of people willing and able to work and the supply can come from several sources for example: encouraging older people to remain or come back in the workforce; labour migration from one sector to another and promoting measures to get non-working parents to actively look for jobs.

Municipal Incentives

There is also competition between municipalities to create jobs within their respective municipalities and many municipalities are also providing job related incentives to encourage investors to locate on their territory.

The incentives proposed can be as follows;

- Free or reduced price for land (subject to positive cost benefit analysis and approval of the Ministry of Finance)
- Reduced land development charges
- Subsidized utilities costs

The offering of financial incentives has to be carefully evaluated to ensure that the financial implications on the Municipality are understood by all concerned. In the case where the land is already owned by the Municipality, the financial implications are not great.

Financial incentives reduce the economic benefits of the project leading to a reduction in the economic internal rate of return. In case of land already in the ownership of the Municipality, the economic loss is limited to the opportunity cost of the land. However, where land has to be purchased the economic loss will be the opportunity cost of capital.

7.12.2 Supply Side Policies for Product Markets

One of the pillar of the European Union since its creation by the Treaty of Rome is increased competitiveness. For this reason the importance of supply-side policies in product markets has to be highlighted since they are intended to increase competition and efficiency. Competition means more choices and value for money for the consumer and obliges companies to innovate to reduce costs or to bring new products to the market. One of the additional benefit of increased competition is increased productivity.





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In mature markets, competition will gradually become stifled as the major players gain market share and start to dominate the market. In order to avoid this situation the trend is to encourage new entrants in the different existing product markets and to create new product markets. This approach can also be extrapolated to states and municipalities who wish to break into any particular market dominated by companies from developed nations.

Great care has to be exercised in the provision of supply side policies because these policies can by their very nature contravene competition laws and EU Directives and regulations.

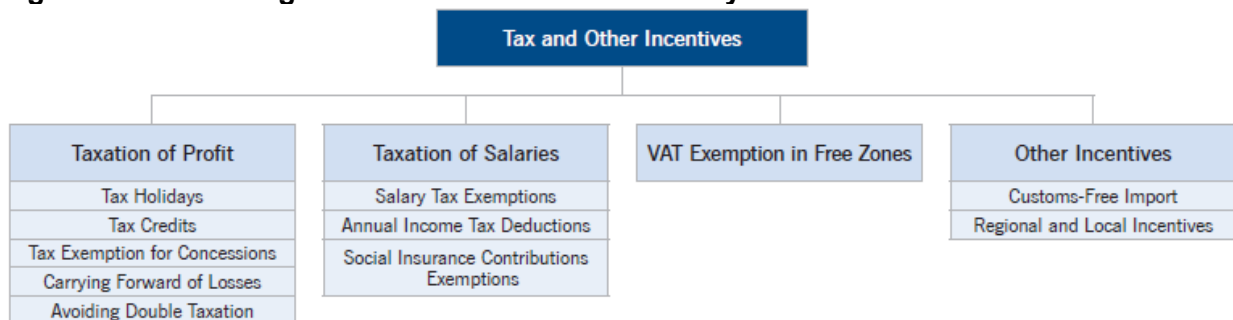
The types of measures which could be offered are wide ranging and can be grouped as follows;

- Fiscal incentives
- Improved business environment
- Support to SME
- Creation of free zones

Fiscal Incentives

Fiscal measures are intended to provide support to enterprises through a package of tax relief to encourage certain activities. Serbia like every other country in the world is competing to attract investors and it has designed a fiscal package which can benefit investors in providing competitive products for the international market. The current fiscal package available is summarized hereafter.

Figure 7.12-1 Package of Fiscal Incentives offered by Serbia



Corporate income tax is the second lowest in Europe, while Value Added Tax is among the most competitive in Central and Eastern Europe.

Having a good fiscal policy can bring about great benefits as can be seen in the case of Ireland, a good example of a country inside the EU that has benefited hugely from cutting company taxes (12.5% in 2003) which has led to a large rise in foreign direct investment. Another example is Estonia which has introduced a cut its corporation tax rate to zero per cent (0% in 2000) in a deliberate attempt to attract new investment and stimulate economic growth and employment. Although corporate tax is nil, the company still has to pay the tax on distribution of the profits. In Estonia this incentive became ineffective because of an EU Directive which prohibits taxation on financial transfers between parent and daughter companies in the EU which would have effectively eliminated all form of fiscal revenue from corporations. Estonia has since 2009 reestablished a corporation tax of 21%. There are still big differences in corporation tax rates among the twenty five nations of the European Union.





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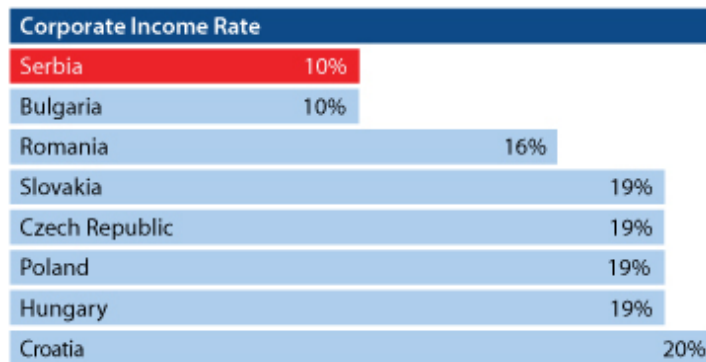
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Table 7.12-5 Current Level of Corporate Taxes in Serbia

Corporate Income Tax	Uniform rate – 10%
Withholding Tax	10% (for dividends, shares in profits, royalties, interest income, capital gains, lease payments for real estate, and other assets)
Personal Income Tax	Salaries – 12%
Annual Income Tax	10% (for annual income above 3 average annual salaries)

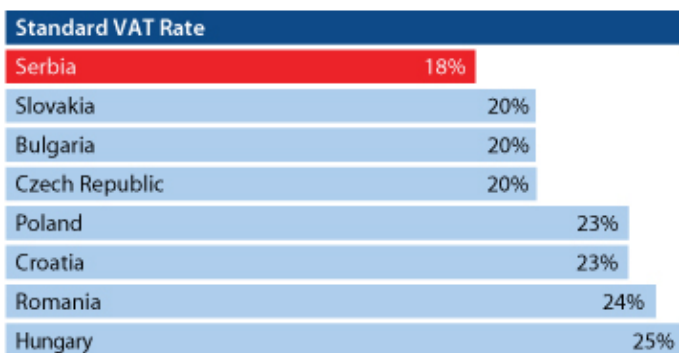
Corporate income tax is the lowest in the region as shown on following figure.

Figure 7.12-2 Corporate Tax in Serbia and Region



Value Added Tax is modest compared to those in the region and is even lower at 8% for basic necessities such as food stuffs, daily newspapers, utilities, etc.

Table 7.12-6 Value Added Tax in Serbia and the Region



Tax holidays to existing enterprises are also often offered to encourage capital investments required for retooling, introduction of new technology, introduction of new product line etc. Companies are exempt from Corporate Income Tax for a period of 10 years starting from the first year in which they report taxable profit if they invest in fixed assets an amount exceeding approximately €8 million, and throughout the investment period they employ at least 100 additional employees. Tax holidays are also offered for special purposes such as the 5-year tax holiday granted for concession-related investments, from the day the concession investment has been completed. No tax is due if income is derived before the completion of the concession investment.



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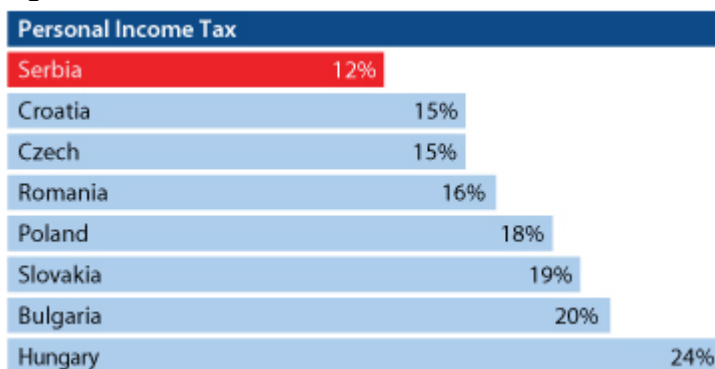
Tax Relief for Research and Development

Research and development is an important area through which new markets can be created and can result in increased competition in existing product markets. Many countries provide fiscal incentives for such investments, although not specifically targeted at research and development some of the incentives provided by the Serbian government on investments in general are applicable also to investments in research and development.

Withholding tax is designed to facilitate payment to foreign companies not in the same group. It is not applicable to dividend payments between Serbian entities. For non-residents of Serbia, a 20% withholding tax is calculated and paid on certain payments such as dividends, shares in profit, royalties, interest, capital gains, lease payments for real estate and other assets.

Personal Income Tax is also designed to encourage the arrival of international expatriates to settle in Serbia and to help stimulate the economy. The following table compares basic personal income tax rate with the region.

Figure 7.12-3 Personal income Tax Rate in Serbia and the Region



Improved Business Environment

Although the fiscal environment may encourage investors, entrepreneurship requires an business friendly environment to flourish and can be easily stifled by many factors such as;

- Ambiguous laws and regulations
- Overtly complex and lengthy procedures

Ambiguous laws and regulations as well as complex and lengthy procedures may lead to petty corruption in order to simplify and accelerate the process. Corruption obviously has a direct impact on fair competition necessary for development of the economy.

The International Finance Corporation, a World Bank company regularly prepares benchmarks on the procedures for carrying out a certain number of business activities in all countries of the world. These benchmarks for year 2010 were compared with other neighbouring countries and a summary is presented on the following table.



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Table 7.12-7 Benchmarking of Procedures for Doing Business in Serbia

Rank on Doing Business 2011	Serbia	Greece	Slovak Rep.	Romania	Bulgaria	Hungary	Best	Worst
Starting a Business	83	149	68	44	43	35	New Zealand	Guinea Bissau
Dealing with Construct. Permits	176	51	56	84	119	86	Hong Kong	Eritrea
Registering Property	100	153	9	92	62	41	Saudi Arabia	Timor Leste
Getting Credit	15	89	15	15	6	32	Malaysia	Palau
Protecting Investors	74	154	109	44	44	120	New Zealand	Afghanistan
Paying Taxes	138	74	122	151	85	109	Maldives	Belarus
Trading Across Borders	74	84	102	47	108	73	Singapore	Afghanistan
Enforcing Contracts	94	88	71	54	87	22	Luxembourg	Timor Leste
Closing a Business	86	49	33	102	83	62	Japan	Timor Leste
Overall Rank – Ease of doing business	89	109	41	56	51	46	Singapore	Chad

Source: Doing business in Serbia 2011, World Bank
<http://www.doingbusiness.org/~media/FPDKM/Doing%20Business/Documents/Annual-Reports/English/DB11-FullReport.pdf>

The benchmarking exercise shows that Serbia has still to do quite a lot of improvement to provide a business friendly environment to start a business and to carry out the normal activities of doing business. Two of the three main issues which merit attentions are related to property, particularly worrying are the difficulties in obtaining a building permit whilst the last one concerns payment of taxes.

From the same set of statistics relevant information on doing business in 22 cities in 7 countries of the region have also been evaluated. The evaluation was carried out on 4 of the 9 benchmarks used for the national evaluation. A summary of the evaluation and ranking of the 5 Serbian cities which were part in the evaluation is provided hereafter.

Table 7.12-8 Benchmarking of Procedures for Doing Business in 5 Towns in Serbia and in the Region

Rank on Doing Business in South East Europe	Starting Business ^a	Dealing with Construction Permits	Registering Property	Enforcing Contracts
Belgrade, Serbia	11	21	16	11
Krusevac, Serbia	16	20	10	11
Uzice, Serbia	12	16	10	6
Vranje, Serbia	14	13	5	7
Zrenjanin, Serbia	14	13	6	1
Balti, Moldova	13	8	1	4
Chisinau, Moldova	17	19	1	2
Bitola, Macedonia, FYR	2	12	3	5
Skopje, Macedonia, FYR	1	2	15	9
Tetovo, Macedonia, FYR	3	3	6	3
Niksic, Montenegro	5	1	6	17
Pljevlja, Montenegro	4	6	4	7





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Rank on Doing Business in South East Europe	Starting Business ^a	Dealing with Construction Permits	Registering Property	Enforcing Contracts
Podgorica, Montenegro	6	18	20	16
Pristina, Kosovo	22	17	18	21
Prizren, Kosovo	21	6	14	22
Banja Luka, Bosnia and Herzegovina	18	3	21	15
Mostar, Bosnia and Herzegovina	20	13	22	20
Sarajevo, Bosnia and Herzegovina	19	9	19	19
Durres, Albania	9	11	13	14
Shkodra, Albania	8	3	9	11
Tirana, Albania	10	22	16	18
Vlora, Albania	7	9	10	10

Source: Doing business in South East Europe 2011, World Bank

This evaluation highlights the following facts:

- The creation of one-stop shop in FYR Macedonia simplified the procedures for setting up a business. Serbia is one of the worst country in the region except for Kosovo in the ease of starting a business.
- The costs of starting a business in the 22 cities in 7 countries, although very different in monetary term, are very similar in percentage of the total cost of setting up a business.
- In general, doing business in Belgrade is more difficult than in the other 4 Serbian cities evaluated.
- The cost of obtaining a building permit is highest in Serbia with an average of 76% of the overall cost or the equivalent of US\$ 83,278 of the whole process. However the average cost is still less than the amount necessary in Podgorica where it costs the equivalent of US\$ 100,221.
- Serbia is the most difficult country to obtain a building permit and within Serbia the situation is worst in Belgrade compared to the other 4 cities.

This analysis demonstrates the importance of creating the best environment to attract potential investors. It is important that the Municipality of Vladicin Han learns from the errors of the others to improve the opportunities available for making a success out of this development.

The World Bank report on “Doing Business in South East Europe” of 2011 proposed the following institutional reforms:

- Consolidate government approvals at a single access point (one stop shop)
- Simplify registrations with municipal authorities
- Introduce a single tax and business identification number
- Introduce modern building codes
- Introduce risk based approvals of building permits

The one stop shop to assist potential investors have been successfully used in the Vojvodina region in particular in Vrsac, Zrenjanin, Subotica. The creation of a one stop shop does not remove the ambiguities and inconsistencies in the Laws and regulations but it helps the investor to navigate the pitfalls which can be in the path of the would be investor.





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The position of Serbia in the Doing Business benchmarking exercise shows that there are many areas which require attention and these weaknesses can easily put off potential investors even though they were attracted by the FDI, employment and fiscal incentives.

The necessity to ensure that the Laws and regulation are simplified and clarified, is evident and this study is not intended to identify all the weaknesses or to propose amendments. This exercise has to be properly carried out by a proper survey of businesses in conjunction with the relevant technical experts and experienced jurists.

Measures to encourage small business start-ups / entrepreneurship

The small businesses of today can often become the larger businesses of tomorrow, adding to national output, employing more workers and contributing to innovative behaviour that can have positive spill-over effects in other industries. Governments of all political persuasion argue that they want to promote an entrepreneurial culture and to increase the rate of new business start-ups.

There are two types of small business start-ups—those that intend to be small-scale operations (usually with single location and no more than a handful of employees), and growth-oriented start-ups. Both types of start-ups play a role in job creation, but the biggest impact over time comes from successful high-growth start-ups.

A 2010 Kauffman Foundation study in the US shows that just 1 % of businesses i.e. those growing the fastest, generate roughly 40% of new jobs in a given year and 75% of those businesses are less than five years old.

Supply side policies to encourage business startups and entrepreneurship include:

- Loan guarantees for new businesses;
- Advisory services for new firms
- Business incubators

Business incubators are an important support instrument to the newly established companies to successfully overcome the early years of business operations, providing them the possibility that under favourable conditions, use office space and necessary support and business development services. Long international experience in this sphere shows that business incubators contribute significantly to local economic development through entrepreneurship and job creation, and greater use of innovation through the collaboration of science and economy.

The introduction of business incubators was started in Serbia in 2006, with the support of funds from the NIP and international donors, for the arrangement and equipping of space for business startups. There are currently 19 functional business incubators around the country.

7.12.3 Free Trade Zones

The National strategy on industrial development is putting a strong emphasis on export to boost the economy and has set an objective of increasing the share of exports to 50% of GDP in 2020 from the current 31% as can be seen in the following figure which shows the export trend in Serbia compared to large exporting countries.



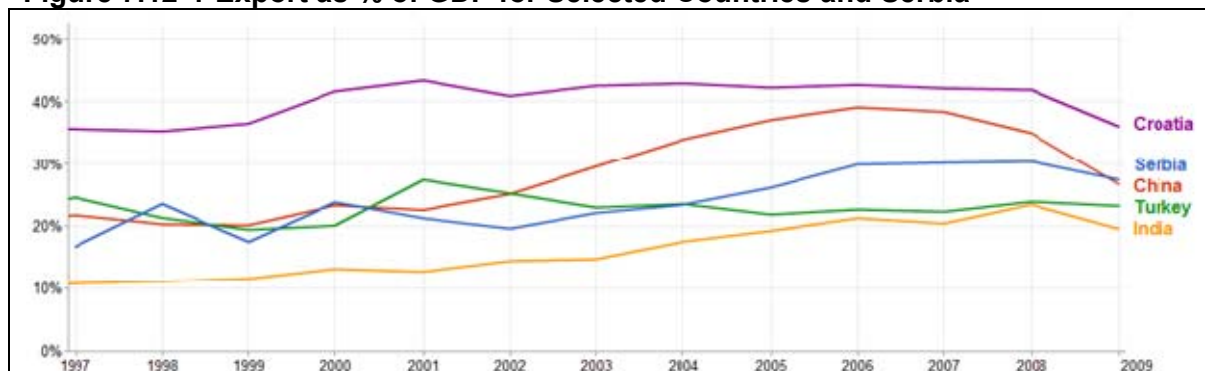
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Figure 7.12-4 Export as % of GDP for Selected Countries and Serbia



Source: World Bank World Development Indicators

The figure shows that export from Serbia has been showing a gradual upward trend with a peak volume of 14.852MUSD in 2008 and reached a peak of 31% of GDP in 2010. The export trend in figures are presented in the following table.

Table 7.12-9 Volume of Export as Percentage of GDP

Year	Value, x1000MUSD	Value, x1000MUSD	% of GDP
1997	21381	3571	16.7
1998	16204	3824	23.6
1999	17633	3086	17.5
2000	6083	1454	23.9
2001	11390	2426	21.3
2002	15108	2961	19.6
2003	19676	4368	22.2
2004	23711	5548	23.4
2005	25234	6611	26.2
2006	29221	8737	29.9
2007	39385	11894	30.2
2008	48857	14852	30.4
2009	41654	11788	28.3
2010	39128	12091	30.9

Source: World Bank World Development Indicators

The current trend is still up with an increase of about 10% in the last decade. Serious efforts have to be exercised to accelerate the trend in order that the proposed increase of 20% in the next decade can be achieved to meet the target of 50% of GDP by 2020.

This target is particularly tough considering that relatively small proportion of countries in the world are actually achieving this benchmark. A list of countries whose export is greater than 40% is presented hereafter.

Table 7.12-10 Countries with Export as % of GDP greater than 40% in 2009/2010

Country	Export as % GDP	Country	Export as % GDP
Azerbaijan	48	Lesotho	49
Belarus	54	Maldives	64
Bosnia & Herzegovina	41	Mauritania	48
Bulgaria	60	Mauritius	45
Chad	44	Nicaragua	66
Congo Republic	80	Panama	65
Costa Rica	41	Papua New Guinea	56
Cote d'Ivoire	41	Paraguay	56
Estonia	78	Saudi Arabia	56
Fiji	46	Singapore	211
Gabon	52	Slovak Republic	103
Honduras	43	St Kitts & Nevis	46
Hong Kong	223	St Lucia	49
Lithuania	68	Sweden	49





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Country	Export as % GDP	Country	Export as % GDP
Luxembourg	168	Switzerland	62
Macau	90	Thailand	71
Macedonia	44	Tunisia	47
Malaysia	96	Turkmenistan	82
Jordan	45	Ukraine	47
Kazakstan	45	Vietnam	71
Kyrgyz Republic	56	Zambia	44
Latvia	53		

As part of this export oriented drive the Government of Serbia has adopted in 2011 a strategy to create and promote free zones. In addition to the fiscal incentives provided for FDI and employment, the free zones provide additional opportunities and inducements as described hereafter. Reciprocally, the creation of free zone will serve to attract foreign direct investments to benefit from convenient location and low labour cost base.

Starting a business within a free zone in Serbia provides the opportunity of exporting to a 1 billion people market without paying any customs duties.

For companies installing in Serbia the export opportunities are very large. Serbia is a member of the Central European Free Trade Agreement (CEFTA) comprising of a free trade area with 29 million people. Serbia is the only country outside of the Commonwealth of Independent States with a Free Trade Agreement with Russia. The Free Trade Agreements with Turkey, EFTA members (Norway, Switzerland, Iceland, and Liechtenstein), Belarus, and Kazakhstan envisage mutual abolishment of customs and non-customs duties in trade between the countries. Exports to the European Union and the United States are duty free.

Free trade zones are areas fully enclosed (by a fence or wall, with a controlled entry and exit), within which are granted certain economic and financial incentives in order to facilitate trading, such as:

- Exemption from import duties and taxes, and other trade restrictions and formalities;
- Tax exemption, such as VAT, excise taxes, property taxes, income taxes, etc;
- Exemption from regulation, which relates to minimum wages, social payments, working conditions, etc;
- Existence of infrastructure for efficient handling and storage loading;
- State grant schemes.
- One stop shop

The essence of a free zone area is that it can apply special measures of customs supervision and special exemptions in customs procedures, concerning the free circulation of goods without payment of customs duties and taxes. Free trade zones comprise property, or land, buildings and other real estate in a particular location, as well as rights and obligations in relation to that property (ownership, right to use). The entrance to the free zone is controlled by the customs authorities, so that goods can be stored, resold, processed or exposed, provided that the re-export to other countries, will not subject to customs of the host country.

Typical activities within the free trade zones include the following:

- Warehousing and re-export;
- Processing of goods;
- Industrial production;
- Transport services;
- Wholesale trade and commission trade;
- Banking services; and
- Insurance and reinsurance of property and persons;

The Law on free zone of 2006 defines the procedures for creating and operating a free zone as follows.





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Free trade zones are designated through approval by the Government and are administered by a zone management company. The zone management company, i.e. Municipality submits an application for approval for the designation of the area of the zone to the Government through the Ministry of Finance. (Art. 4).

The zone management company is responsible for making the application for a free trade zone, in accordance with Articles 5 and 6 of the Law, which states that the zone management can make an application provided:

- Founders of the zone management company are the founders of the free trade zone (note: founders can only be founders of one zone management company);
- It is entered in the Register of Economic Operators (for engaging in the activity of zone management);
- The responsible person (founder of the zone and responsible person of the zone management company) does not have a criminal record for economic, property, illegal trading etc acts;
- The responsible person of the zone management company was not (in preceding 3 years) a member of the managing board or supervisory board, or was vested as a responsible person in liquidation or bankruptcy procedures;
- The founder of the zone was not the founder of the company for management of a free zone for in which the approval process of a free zone failed (not including self-government authorities).

The application process (Art.6) for forming a free zone should contain:

1. The name, corporate domicile, and fiscal identification number of the founder of the zone;
2. The name, corporate domicile, and fiscal identification number of the zone management company;
3. Data about the initial capital of the zone management company;
4. Name of the zone and the area of the zone with defined borders;
5. Data about the restructuring, if any economic operators which are undergoing the restructuring process are located in the area of the zone;
6. An economic justification for designation of the area of the zone, with special consideration of the estimation of foreign investments, estimate of expected effects, and in particular in respect of the production of goods and provision of services, employment and transfer of new technologies, with the indication of activities to be conducted in the zone; and
7. Other data which the applicant deems to be relevant for the decision-making.

Other supporting information should include:

1. The decision of the managing board, the contract, or other act of the founder of the zone concerning the foundation of the zone, including the name of the founder of the zone and the name of the zone;
2. The register in which the zone management company is entered, namely a certified translation of the entry from the register;
3. A certificate confirming that responsible persons were not sentenced for criminal acts referred to in Article 5 paragraph 1 item 3 of the Law (not be issued more than 30 days before the submission of application);
4. Evidence that the founders of the zone have the ownership rights, namely the leasehold right, or the right of use over the land on which the area of the zone is designated;
5. Evidence that compliance shall be ensured with the spatial, building, organizational and technical requirements, the environmental requirements and other requirements for the conduct of activity in the zone; and





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6. The opinion of the local self-government authority about the justifiability of the foundation of the zone.

Regulation and Management of the free zone must follow the following;

1. Free trade zones are administered by the Free Zone Administration (FZA) which is sub-ordinated to the Ministry of Finance. (Art.10).
2. Free trade zones should be managed by one single zone management company, taking into consideration a number of key requirements – the free trade zone management company sets out specific organizational and technical requirements for conducting activities in the zone, together with the working hours of the zone, movement of persons and goods within the zone, obligations for compliance with spatial, technical and organizational requirements for use of the zone, compliance with occupational safety measures and environmental protection measures, rights and obligations of users of the zone. (Art.10).
3. The zone management company has a requirement to report (including income of the zone management company; number of users and activities they undertake; total value of goods produced and services provided; total volume of imports and exports in the zone; amount of foreign capital contributions; and number of persons employed within the zone management company and number of persons employed by the zone users) results of its business operations within 90 days after the end of the calendar year to the FZA.(Art. 11).
4. Users of the zone may include the founder of the zone, the zone management company and other domestic and foreign legal and natural persons. Users should conduct the economic activity in the zone in accordance with regulations and on the basis of the contract that regulates mutual rights and obligations with the zone management company. (Art. 12).

The free zone must be provided with physical Infrastructure as described;

1. The free zone should be enclosed, visibly marked and identified as a free zone, at the entrances to and exits from the zone, as well as from the riverside, if applicable. The zone may consist of several parts provided they make up a single functional unit. The zone or its part, if the zone consists of several parts, should be enclosed, marked, and regulated in such a manner that any movement of goods and persons into the zone or from the zone may take place only through designated entrances to and exits from the zone. The enclosure, entrances and exits must be suitably regulated, secured and illuminated at night. (Art. 13).
2. The zone management company should also provide the premises in which the customs authorities would operate. The measures for customs supervision and control should apply to the goods being introduced into or taken out of the zone, as well as to the goods stored in the zone, in accordance with the provisions of the law governing customs system and customs procedure. (Art. 13).

Activities governing the commencement and operation of the free zone include the following;

1. Commencement of the operation of free trade zones is determined by the FZA. Prior to the operation of free trade zones the FZA determines the compliance with a number of key pre-requisites, including spatial and energy, environmental protection, other relevant technical factors, together with adequate measures for operation of the zone, including the proposed management structure and procedures for customs activities. (Art. 14).
2. The FZA should normally issue a decision within 30 days after receiving the proposal of the commission. The law governing general administrative procedure applies to the procedure of issuing the decision. The decision referred to in paragraph 3 of the Law is deemed to be final in the administrative procedure. (Art.14).



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3. The user may, in accordance with this Law and the contract with the zone management company, engage in the production and provision of services in the zone, in accordance with the regulations. By conducting activity and providing services in the zone, companies may not endanger the environment, human health, material goods and security of the country. (Art 15).
4. Foreign-trade transactions in the zone should be conducted without restrictions, in accordance with the contract. The exports of goods and services from the zone and the imports of goods and services into the zone should be unrestricted and should not be subject to quantitative restrictions and commercial policy measures should not apply to such imports and exports. Goods may not be imported into the zone or exported from the zone if their importation or exportation is prohibited. (Art.16).
5. Goods that are introduced into or taken out of the zone and goods stored in the zone, should be treated as customs related goods, which should also be notified to the customs office. The user may temporarily take out goods from the zone to the other part of the territory of Serbia, or introduce goods into the zone from the other part of the territory of Serbia for the purpose of placing it into the procedure of inward or outward processing. Additionally, the user may temporarily take out goods from the zone to the other part of the territory of Serbia and introduce goods into the zone from the other part of the territory of Serbia for the purpose of testing, attestation, repair and marketing presentation. (Art. 17).
6. Certification confirming that the goods are produced in the zone shall be issued by the customs authority conducting supervision in such zone, under the prescribed conditions.(Art. 18).

In terms of customs duties, the following criterion applies:

1. Customs duties and other import duties are not be payable for importation of goods intended for the conduct of activity and construction of facilities in the zone. (Art 19).
2. Goods that are placed on the market on the territory of Serbia from the zone are subject to the payment of customs duties and other import duties (using the appropriate procedure), and should be declared as appropriate by the person placing the goods on the market.(Art. 20).
3. The liability to pay customs duties and other import duties for such goods are instigated on the day the goods cross from the zone to the territory of Serbia. The amount of customs duties and other import duties for the goods will be determined according to the condition of goods and pursuant to the regulations in force on the acceptance date of the customs declaration. (Art. 21).

Other key factors related to customs include:

2. It is the responsibility of the user (of the FZA) to enable implementation of the measures of customs supervision and control and to keep the prescribed records on goods that are imported, namely introduced into the zone, exported, namely taken out of the zone, and used in the zone. (Art. 22)
3. The payment, collection of payment, transfer, purchase and sale in foreign and local legal will be performed in the zone in accordance with the regulations on foreign exchange operations.(Art. 23).
4. The establishment and operation of banks in the zone are performed in accordance with the regulations on banks. The conduct of insurance activity in the zone shall be performed in accordance with the regulations on insurance. (Art. 24).
5. The labour relations between the employees and the employer (user) in the zone is governed by the labour contract, in accordance with the regulations governing labour and labor relations. (Art. 25).



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7.13 Main Findings

There is great potential for industry in the Pcinja district in agroindustry and manufacturing sectors in particular the wood, tobacco, garment segments and a good understanding of the supply chain in each of the target sectors is essential.

Demand for industrial premises collapsed in 2009, slightly recovered during 2010 and 2011 but depend on resolution of the ongoing turmoil in financial sector in Greece or Portugal and generally across the Europe. However, investors are mainly interested in established good quality property with long term potential, low quality properties are not attracting any attention.

Creation of a free zone will be advantageous to the industrial zone in particular to attract foreign direct investments.

The government and municipalities are offering generous financial and fiscal incentives to enterprises establishing in the region and in particular in deprived regions such as Vladicin Han.

However, there is an urgent need to improve and streamline the administrative procedures for setting up businesses generally across Serbia.

Potential investors expect quality assistance from Municipalities who are potential suppliers of industrial land and will not hesitate to seek all possible advantages from other competing municipalities.

The average selling price of land within serviced industrial zone in South Serbia is about 5€/m².



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8 LONG TERM DEVELOPMENT PLAN

8.1 Introduction

The challenge of industrial zone/ park development is to ensure that adequate industrial land is developed to meet the established and expansion needs of new and existing industrial investors.

All the issues which investors consider in selecting a location for their projects have been evaluated earlier and it has been demonstrated that Vladicin Han has the necessary advantages to attract potential investors. This chapter brings together all these factors to provide an answer to how large a development is required to match the demand.

This chapter therefore considers the long term development of industrial zones, parks and free zones in Vladicin Han and is effectively a strategic development plan for industrial development in the municipality and the region mentioned as a requirement within the Spatial Plan for Serbia 2010 – 2020.

This chapter is intended to synthesize the findings of the earlier chapters and consider them in relation with each other in deciding the long term development plan.

8.2 Land Demand Factors

This section will consider the short medium and long term demand for land. Demand for industrial land is determined and influenced by many factors such as.

- Economic situation
- Quality of location
- Availability and cost of finance
- Fiscal and other incentives
- Cost of land
- Ease of doing business

8.2.1 Economic Situation

Most of these factors have been addressed in Chapter 6 and the following conclusions are founded on the earlier analysis.

General GDP trend for Serbia is positive but GDP is highly dependent on the general trend in Europe. Having slightly recovered from the downturn in 2008, the Serbian economy recovered through 2010 but it is now threatened by the currently on-going sovereign debt crisis in Greece and Italy is threatening the general economic situation in Europe. The European Economic and Monetary Affairs Commission has recently revised downward its 2012 growth forecast in the Euro zone from 1.8% to 0.5%.

This is likely to have a direct impact on Serbia with potential investors less likely to embark on any expansion plan in the short term.

In November 2011, Serbia Central Bank Governor forecasted that Serbia's economy will expand slower than previously forecast through 2012, because of concern Europe's sovereign-debt crisis will hinder investment and trade, The bank lowered this year's growth forecast to 2 percent from 2.5 percent, while gross domestic product will grow 1.5 percent next year, compared with an earlier prediction of 3 percent,

The economy expanded 0.7 percent in the third quarter of 2011, according to a flash estimate, down from 2.4 percent in the previous three-month period. The revision takes into account slowdowns in the country's big trading partners, especially Italy, Germany and Romania.

Many companies in the Pcinja district have expressed the intention to expand production but are still seeking appropriate land to initiate the expansion plan. Although the latent demand



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exists, the present economic uncertainties are causing investors to rethink and delay their expansion plan.

As a result the demand in the short term is expected to be restrained but expected to recover in the medium to long term.

The Municipality of Vladicin Han has received enquiries on availability of land from the potential investors as described earlier.

8.2.2 Location

Although Vladicin Han is not close to large metropolitan conurbations, the location of Vladicin Han on E75 road linking Greece to the main centres of Western Europe is beneficial for imports of raw materials and exports. Improvements of the E75 road which is part of the transport Corridor X will make Vladicin Han even more integrated into the European transport network and increase the demand.

The proximity of Vranje with a population of about 90,000 ensures a relatively large pool of potential labour despite the limited population of about 20,000 in Vladicin Han.

The convenient location of Vladicin Han will increase the demand in the medium term and continue in the long term.

8.2.3 Availability and Cost of Finance

The current economic crisis is centered around the availability and cost of finance for countries with high indebtedness and the possible repercussions on the banking sector.

The availability of finance for enterprises is therefore predictably scarce and expensive, thus making it more difficult for those business without substantial reserves to consider large capital investments.

The dearth of finance will certainly reduce the demand for industrial land as businesses struggle to balance their borrowing requirements.

The short term forecast on availability and cost of finance is pretty negative as bankers are becoming very pessimistic and very stringent on the quality of their investments. This pessimism will take a long time to disappear and the optimism of the recent years is not expected to return fully in the medium to long term.

8.2.4 Fiscal and Other Incentives

Chapter 6 shows how Serbia provides a comprehensive basket of fiscal and other incentives for new investors whether foreign or local.

These incentives will encourage investors to consider or in some cases finalize their project.

The fact that Vladicin Han is in Group IV and V of the most deprived municipalities as defined in the regulation on level of development means that the demand for land in Vladicin Han will increase in the short term because of the additional incentives offered to businesses setting up in the most deprived municipalities but as the development level improves this advantage will disappear and the demand will diminish unless Vladicin Han maintains and develops the other factors which are attracting investors to the area.

8.2.5 Cost of Land

Earlier analysis in Chapter 6 shows that the cost of acquiring land can vary between obtaining it for free and paying up to 100€/m². The upper range above 50€/m² is a blip on the prices for serviced industrial land in Kragulevac resulting from the recent installation of Fiat in the town and which should disappear as the availability of serviced plots improves with new



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industrial zones. The 50€/m² is the current prices around large metropolis in the region including Belgrade and is therefore not applicable to Vladicin Han. Serviced plots further away from Belgrade to the south are achieving about 5€/m².

The provision of land by some municipalities for free is very attractive but it cannot be sustainable especially where municipalities have to purchase land in the first place. The offer of land to potential investors below market value must be verified by a cost benefit analysis. Investors will be attracted in the short term but with improvement of other factors it is expected that cost of land will become a less important factor in the future except in metropolitan areas where land cost will remain quite high.

8.2.6 Ease of Doing Business

In Chapter 6 it is reported that the report on Doing business in Serbia highlighted many areas which require improvements in order to increase entrepreneurship in Serbia. These hindrances are not expected to disappear in the short term but it is expected that as Serbia moves forward in its transition to membership of the European Union, many of these hindrances will disappear as Serbian Laws and regulations become aligned with those of the EU.

A summary of the trends in the demand for industrial land for each of the above demand factors is presented in the following figure.

Figure 8.2-1 Summary of Demand Side Trends

Forecasts	Economic Outlook	Location	Availability /Cost - Finance	Fiscal/ Other Incentives	Cost of Land	Doing Business
Short Term 1-3 years	↓	↑	↓	↑	↑	↓
Medium Term 1-3 years	↔	↑	↔	↑	↔	↔
Short Term 1-3 years	↑	↑	↔	↔	↔	↑

8.3 Job Creation Forecast

The purpose of all industrial zones is creation of jobs to develop the economy of the country and the jobs forecast is based on the country's strategy for industry.

8.3.1 The Strategy and Policy Development for Industry of Serbia, 2011-2020

The strategy provides objectives for Serbian industry, the details of which have been discussed earlier and in this section a summary of the jobs projection adopted is presented. Although the short term outlook is not very promising, the long term forecast is positive and therefore there is no reason to modify the existing long term forecasts.





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Table 8.3-1 Projected Increase in Employment between 2010 and 2020

	2010	2015	2020	Absolute increase 2020-2009	Increase in % 2020/2010
Employees Manufacturing	2.540,0	2.719,3	2.968,3	428,3	16,9
Agriculture	621,0	628,8	640,9	19,8	3,2
Industry	614,5	689,5	782,3	167,8	27,3
Mining and quarrying	27,3	30,5	34,5	7,2	26,4
Manufacturing	422,1	450,8	497,1	75,0	17,8
Electricity, gas and water supply	45,8	46,4	47,2	1,4	3,0
Construction	119,3	161,8	203,6	84,3	70,6
Services	1.304,5	1.401,0	1.545,1	240,6	18,4
Wholesale and retail trade, repair	347,2	403,1	498,0	150,8	43,5
Hotels and restaurants	76,4	79,2	82,4	6	7,9
Transport, storage and communications	158,4	177	205,1	46,7	29,5
Other community, social and personal service activities	119,1	123,4	128,4	9,4	7,9
Real estate, renting activities	89,6	92,5	102,9	13,3	14,8
Financial intermediation	55,5	57,5	59,9	4,4	7,9
Public administration and social security	128,2	130,3	130,3	2,1	1,7
Education	148,6	152,3	152,3	3,6	2,5
Health and social work	174,1	178,3	178,3	4,2	2,4

Source: Statistical Office of RS

The projection indicates an increase of 500,000 jobs across Serbia by 2020 with the highest increase in manufacturing with an increase of 75,000 jobs and construction sector with 84,000 whilst in services, the sectors in which most growth is expected are in wholesale and retail with 150,000 new jobs and in the transport and storage sector an increase of 47,000 is expected. The total new jobs therefore expected in these sectors are 356,000.

These sectors of industry are already present in Vladicin Han and are the same areas already identified earlier where new investments can be expected in Vladicin Han.

The structure of new jobs in Vladicin Han can be assumed to be the same as that at national level as presented in the strategy and policies for industrial development and as a result the percentage of jobs can be split in the following proportion.

- Manufacturing 21%
- Construction 24%
- Wholesale and Retail 42%
- Transport and Storage 13%

The job projection and structure across Serbia for manufacturing can be divided into segments as presented on the following table.



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Table 8.3-2 Projected Employment in the Manufacturing Sector in Serbia

		No Jobs	No Jobs	Base indices	Structure %	Structure %
	NACE Rev. 1.1 classification	2009	2020	2020/2009	2009	2020
	Total Manufacturing	441472	499356	113,1	100,0	100,0
15	Manufacture of food products	87848	92662	105,5	19,9	18,6
16	Manufacture of tobacco products	2003	2065	103,1	0,5	0,4
17	Manufacture of textile yarns and textiles	16726	19473	116,4	3,8	3,9
18	Manuf. of wearing apparel and fur	20034	23003	114,8	4,5	4,6
19	Manuf. of leather and leather products, footwear	12248	12860	105	2,8	2,6
20	Manuf. of wood and products of wood and cork	11198	11760	105	2,5	2,4
21	Manuf. of pulp, paper and paper products	8432	10251	121,6	1,9	2,1
22	Publishing, printing and reproduction	19401	22310	115	4,4	4,5
23	Manuf. of coke and refined petroleum products	823	1048	127,3	0,2	0,2
24	Manuf. of chemicals and chemical products	25526	33130	129,8	5,8	6,6
25	Manuf. of rubber and plastic products	21904	22537	102,9	5,0	4,5
26	Manuf. of other mineral products	20004	21000	105	4,5	4,2
27	Manufacture of basic metals	20677	25845	125	4,7	5,2
28	Manuf. of metal products, except machinery	35856	37290	104	8,1	7,5
29	Manuf. of office machinery and computers	37009	42190	114	8,4	8,4
30	Manuf. of office machinery and computers	5509	6554	119,0	1,2	1,3
31	Manuf. of other electrical machinery and apparatus	18386	23386	127,2	4,2	4,7
32	Manuf. of radio, TV and communication equipment	2734	3115	114	0,6	0,6
33	Manuf. of precision and optical instruments	6138	7152	116,5	1,4	1,4
34	Manuf. of motor vehicles and trailers	20296	26000	128	4,6	5,2
35	Manuf. of other transport equipment	8295	11000	132,6	1,9	2,2
36	Manuf. of furniture and related products	36851	39800	108	8,3	8,0
37	Recycling	3574	4925	137,8	0,8	1,0

Source: Statistical Office of RS

The projection shows the highest growth in jobs will be in the environment with recycling, in the automotive and transport related goods where Serbia has decided to focus on automotive manufacturing as a strategic objective with the recent agreement with Fiat on the Zastava plant in Kragulevac.

It is unlikely that Vladicin Han will benefit from the clustering effect of the automobile industry because of its location in relation to Kragulevac. However, this may be remote possibility that some auto parts suppliers may decide not to locate in the Kragulevac region because of the high cost of premises in the region and decide to locate in regions with attractive subsidies. There is an existing automotive parts factory in Surdulica.

The next group of industry segments with important job projections are in the electrical and pharmaceutical industries. The largest Serbian manufacturer Hemofarm (large holding by Glaxo Smith Kline) is already installed in Vrsac and the number two Zdravlje-Actavis is locating in Leskovac, It is therefore unlikely that Vladicin Han, which does not have a history of pharmaceutical industry will attract a pharmaceutical company. Modern pharmaceutical companies usually have large factories requiring a minimum of 10 hectares of land and such factories will only install in Vladicin Han if the investment is a new strategic investment and incentives are available.

The electrical industry is more interesting for the region where there is already an electrical goods manufacturer, Alfaplam of Vranje who is already considering the acquisition of about





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20 hectares of land for starting production of electrical cookers, a strategic investment in order to diversify its product line. However, the municipality of Vranje was unable to offer any location to the company.

The clothing and leather segment is not the focus of the strategy on industrial development but nevertheless still expected to provide about 10% of all the jobs in Serbia. It can be expected that as the more technology jobs are created in the more affluent northern part of the country the more labour intensive jobs will become available for the southern part of Serbia. This segment is therefore expected to be an important source of jobs especially since clothing and leather industry have always been important for the local economy.

The same can be said of the furniture industry which is expected to provide 8% of all jobs in Serbia by 2020. The Pcinja region was an important furniture manufacturing area but the present bankrupt status of many existing privatized furniture enterprises is cause for concern. However, there are new startup enterprises in this segment which provide a positive outlook. Although food industry was important in the region the new job projection in this sector is not promising considering the agricultural production of the region is not very important.

8.3.2 Job Creation Targets for Vladicin Han Industrial Zones

A starting point for determining the job creation targets is to assume that jobs have to be found for the people who are presently unemployed in the project area, namely the municipalities of Vladicin Han, Vranje and Surdulica.

Earlier analysis showed that the present number of unemployed in the three municipalities is about 15,000 or equivalent to about 37% of the labour pool of 39,000.

Although the ultimate objective is to eliminate unemployment, it is not realistic because of long term mismatch between the specificities of the demand for labour and the poor flexibility of the labour market which results from a combination of the following factors;

- Inappropriate skills or experience
- Mobility of the labour force
- Retraining needs
- Labour productivity
- Age trap
- Poverty trap
- Unemployment benefits
- Imperfect information
- Cost of jobs

Obviously some combinations of these factors can be resolved fairly rapidly but it will take a long time to resolve all the possible combinations. As a result not every employer that is looking to hire finds a worker and not every job searcher finds an employer. Therefore, the labour market does not fully clear in each period, and some job openings remain unfilled at the same time that some job seekers remain unemployed.

This mismatch between demand and supply is therefore likely to be semi-permanent and is now recognized as structural unemployment.

The degree of structural unemployment is dependent on how much unemployed people are provided inducements in overcoming the factors which makes them unemployable or not wish to offer labour. IN the United States prior to the recent economic downturn the structural unemployment rate was 5%. But recent research is indicating that this indicator is now more likely to be 6.5% because of the increased impact of the above mentioned labour inflexibility factors. In the United Kingdom structural unemployment is also about 5% but in the Euro zone it is about 8%. The differences reflect the differences in labour laws and benefits which protects the labour force but discourage the creation of new jobs.



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Given the conditions in Serbia it is not unreasonable to consider that structural unemployment in Serbia to be about 10% of the labour force.

Jobs Numbers Targets

The Serbia Industrial Development Strategy has targeted the creation of 500,000 new jobs in the whole country by 2020 or the equivalent of 14 new jobs per inhabitant. With the current population within the project area of about 130,000, there is a need to create about 9,400 new jobs by 2020 to be in agreement with the strategy. This will leave about 4,600 or about 12% of the workforce which is acceptable long term unemployed.

With improvement in the labour supply conditions through vocational training and incentives to encourage mobility, the long term unemployed in the project area can be expected to be 10% of the 39,000 workforce or about 4,000. The more pessimistic assumption would be 12%.

The number of unemployed which could potentially be employed is therefore estimated to be about 10,000 for the three municipalities for the base scenario.

Jobs Structure and Numbers by Industrial Sectors

Based on the structure calculated previously the number of jobs to be created by sector in Vladicin Han is presented hereafter for a base scenario with structural unemployment of 10%. The same analysis has also been carried out for an optimistic scenario with 8% structural unemployment and a pessimistic scenario with 12%.

Table 8.3-3 Job Creation Forecasts and Structure

Sector	Structure	New Jobs Pessimistic Scenario	New Jobs Base Scenario	New Jobs Optimistic Scenario
Manufacturing	21%	1,930	2,100	2,270
Construction	24%	2,210	2,400	2,590
Wholesale and Retail	42%	3,860	4,200	4,540
Transport and Storage	13%	1,200	1,300	1,400
Total Jobs	100%	9,200	10,000	10,800
Structural Unemployment		4,800 (12%)	4,000 (10%)	3,200 (8%)

The above forecasts are for all jobs which will have to be created and not all of the jobs will be created in the proposed industrial zone. Most of the construction jobs (90%) will be on construction sites with 10% on the industrial zone and for the wholesale and retail segment it can be expected that about 30% of the jobs could be in the industrial zone.

8.4 Land Requirements Forecast

Successful forecasting of industrial land demand means building the correct property in the right market at the right time. The land requirement is related to the number of jobs which can be expected within the proposed industrial area. Serbia's strategy and policy development on industries provide a time line for successful implementation of the strategy and this study has adopted the same timeline.

Earlier analysis has provided an indication of the land requirement for an average industrial facility in the different market segments. The table hereafter provides a summary of the findings.





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Table 8.4-1 Typical Land Requirements by Industry Segments

Industry Segment	Land Area ha	Factory Area ha	Employees No	Employees/ hectare land
Food	3 - 4	2.3	280	80
Wood & furniture	5	3	250	50
Components Manufacturing	4	3	400	100
Home Appliances	10	2	1000	100
Clothing	3	7*	3000	1000
Electronics	0.5 - 1	1 - 3*	100 - 1000	300
Construction	10		300	30
Logistics	3 - 10	2 - 7	200 - 600	100
Business Services	0.3 - 3	0.1 - 2	20 - 500	200

* Usually in multistorey factories

Based on the Strategy and Policy Development of Industries in Serbia between 2010 and 2020 the structure of the jobs to be created in Vladicin Han was estimated earlier and the mix of industries which can achieve the jobs target and the land requirements, excluding areas which investors may wish to reserve for future extension, have been calculated for the three scenarios presented previously. It has been assumed that most of the land requirement will be for greenfield sites although some of the land can obviously come from brownfield sites.

It is likely that the industrial zone will not be completed until 2014 at the earliest and for the purpose of estimating land requirements the same assumptions as for the period 2010- 2020 will be used for the period 2014 -2024.

This conservative approach is necessary to ensure the required flexibility desired by investors. The reorganization of existing enterprises is beyond the scope of this report.

The land requirements and jobs creation potential by market segments for three scenarios have been evaluated in the following tables

Table 8.4-2 Land Requirements for Pessimistic Scenario between 2014 and 2024

Sectors	Segments	Structure %	New Jobs in Project Area	% in Industrial Zone	Jobs in Industrial Zone	Jobs by Segment	Jobs/ ha	Land Required ha
Manufacturing		21%	1,930	100%	1,930			
	Wood & furniture					90	50	2
	Components Manufacturing					460	100	5
	Home Appliances					460	100	5
	Clothing					460	1,000	1
	Electronics					460	300	2
Construction		24%	2,210	10%	220		30	8
Wholesale & Retail		42%	3,860	30%	1,160		200	6
Logistics		13%	1,200	100%	1,200		100	12
Total		100%	9,200		4,510			41





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Table 8.4-3 Land Requirements for Base Scenario between 2014 and 2024

Sectors	Segments	Structure %	New Jobs in Project Area	% in Industrial Zone	Jobs in Industrial Zone	Jobs by Segment	Jobs/ ha	Land Required ha
Manufacturing		21%	2,110	100%	2,100			
	Wood & furniture					110	50	3
	Components Manufacturing					500	100	5
	Home Appliances					500	100	5
	Clothing					500	1,000	1
	Electronics					500	300	2
Construction		24%	2,400	10%	240		30	8
Wholesale & Retail		42%	4,200	30%	1,260		200	7
Logistics		13%	1,320	100%	1,300		100	13
Total		100%	10,000		4,900			44

Table 8.4-4 Land Requirements for Optimistic Scenario between 2014 and 2024

Sectors	Segments	Structure %	New Jobs in Project Area	% in Industrial Zone	Jobs in Industrial Zone	Jobs by Segment	Jobs/ ha	Land Required ha
Manufacturing		21%	2,270	100%	2,270			
	Wood & furniture					150	50	3
	Components Manufacturing					530	100	6
	Home Appliances					530	100	6
	Clothing					530	1,000	1
	Electronics					530	300	2
Construction		24%	2,590	10%	260		30	9
Wholesale & Retail		42%	4,540	30%	1,360		200	7
Logistics		13%	1,400	100%	1,400		100	14
Total		100%	10,800		5,290			48

The assumptions made include the following:

Only 30% of wholesale and retail will be located in the industrial zone since most of such development is located in the city centre or close to the city centre,

Since construction jobs are mostly site related, only 10% of the jobs are assumed to be created in industrial zones. In the long term it is also expected that the number of construction jobs will diminish as capital investments slows down and this sector adopts a long term cyclical trend.

The land requirements analysis is based on the mix of industrial sectors and segments recommended in the Industrial Development Strategy but there are other factors which could make the recommended industry structure different and impact on the land requirements. The following factors have been identified:

- Different regional structure (i.e. clothing industry will require less land)
- Planned or unplanned extension of production



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Given the above uncertainties linked to how entrepreneurs react to economic and other uncertainties, it is prudent to err on the side of caution and to proceed cautiously with all future development whilst keeping options open.

Entrepreneurs are likely to take up or put options on at least 100% more land than is required for their short term plans. Others may be buying land purely for speculative reasons as has been the case in the privatization of some state enterprises. Such a strategy if implemented will mean that some land whilst equipped may actually be under used, i.e. not productive for the economy. This speculative approach has to be controlled by appropriate contractual covenants within the lease contract.

On the other hand investors must not be put off by very stringent conditions and therefore a pool of easily developed land has to be available for development at short notice. Although this pool of land does not have to be fully equipped, it is advisable to resolve the following land and planning related issues:

- Ownership (purchase from or partnership with land owners)
- Availability of spatial and regulation plan
- Clear and flexible planning rules within the zone
- Construction permit

Based on the above analysis it can be concluded that there is a need for at least 100 hectares of greenfield sites of which at least 50 hectares are to be fully equipped.

It can be observed that the land requirement is between 40 and 50 hectares depending on the scenario and for the mix of industries expected in the industrial zone and the average jobs created per hectare is 110 jobs.

Demand can also be complicated by speculation, i.e. investors who buy land for the purpose of selling later at a higher price and the long term planning needs of the investor who buy land for possible extension of the production facility at a later stage. These two demand factors cannot be estimated and their impact will only be estimated through different demand and jobs creation scenarios. Obviously if land is sold and factories are not built the number of jobs per hectare of land sold will be lower.

8.5 Land Supply Factors

Demand on its own does not lead to successful completion of any transaction, there has to be an equivalent supply to satisfy the demand. This section will look at the supply side objectives and constraints.

8.5.1 Zoning Constraints and Requirements

The proposed industrial zone in Vladicin Han is recognized within the Spatial Plan for Serbia which also recognized the need to decentralize industrial development away from the metropolis of Belgrade and Novi Sad.

There are a number of important industries located in various parts of the town centre which developed on an ad hoc basis. The present approach to urban development is to propose zoning regulations to control such ad hoc development and protect the living environment of the citizens.

It is expected that future industrial development within the town centre will be restricted to small business related enterprises. In the longer term the relocation of the existing factories to a regulated industrial zone can be considered. No new industry should therefore be allowed in the town centre.



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The Spatial Plan for Vladicin Han has already identified three new areas for industrial development and a regulation plan has been prepared for the extension of the existing industrial zone about 4 km to the south of the town.

However, the area is only partly developed to service the existing industries which were mostly State enterprises which were privatized or is still in the process of privatization. Many of the privatized companies were not successful for many different reasons but the results are similar in that the land occupied by these enterprises were blocked for years. It has therefore become urgent to provide additional green field site to satisfy the demand which has been building over the years.

Prior to defining the areas which might be reserved for various types of uses it is necessary to provide an indication of the usual zoning types for different uses.

The modern approach to town planning is to relax the Euclidean approach to zoning which clearly defines the activities which can be carried out in each zone by allowing within the zone the mixing to certain degree of industrial and businesses activities requiring intensive interaction, thus creating the mixed use zoning concept.

Business & Retail Parks

In any large town or city the location of large offices or retail facilities are sometimes not desirable within the town centre and for this reason sprung the idea of business and retail parks. The area is usually provided with a high quality environment to be attractive to both office workers and shoppers. Parking arrangements are very critical for such facilities.

The locations which are suitable for these business parks are on the edge of town with good public transportation and access to highway corridors to have as large a catchment area as possible.

Activities which can be considered inside business and retail parks are as follows:

- (a) Offices and head offices
- (b) Printing shops
- (c) Retail premises
- (d) Beverage and food packaging
- (e) Food shops and restaurants
- (f) Supermarkets/ hyper markets
- (g) Large retail centres excluding building material centres
- (h) Cinemas and entertainment centres
- (i) Laboratories not involving the significant storage or use of toxic, volatile, flammable or radioactive materials

Light Industrial and Commercial Zone

This zone is intended for commercial uses with a repair, maintenance, service or distribution component or small scale manufacturing uses. These commercial developments have large outdoor areas designated for storage, handling and servicing of material, goods and equipment. In the mixed use concept this zone can also include wholesale or retail centres trading in construction and building materials or similar goods. Small scale manufacturing which does not produce smoke, vibrations, noise, noxious fumes or electrical interference would also be allowed in this zone. The industrial segments expected can be clothing and garment, electrical product, fabrication, leather goods, nonmetallic products, and wood products.

Permitted industrial uses may include fabrication, assembly, and servicing of finished products, packaging and wholesale distribution.



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The suitable locations of these zones are usually on the edge of town with good transportation access to the town centre whilst also accessible to the highway corridor. This type of zone is the objective for Vladicin Han.

Industries which are acceptable as light industry includes the following:

- (a) Appliance assembly and repair;
- (b) Beverage and food packaging;
- (c) Cabinet making and furniture assembly;
- (d) Electronic and computer components (and accessories) assembly and repair;
- (e) Printing processes involving use of small quantities of chemicals;
- (f) Laboratories not involving the significant storage or use of toxic, volatile, flammable or radioactive materials;
- (g) Light metal fabrication;
- (h) Motor vehicle accessory installation;
- (i) Motor vehicle repair not involving panel beating or spray painting;
- (j) Plastic extrusion and moulding;
- (k) Printing and signwriting;
- (l) Small engine repair; and
- (m) Trade yards (e.g. plumbers or builders storage yards).
- (n) Warehouse
- (o) Building material centres
- (p) Clothing cutting, assembly and washing

Industrial Park

This zone allows similar activities to the industrial zone consisting of light industry and related commercial uses as well as those in business parks. The difference is that the industrial parks have high level of site services, landscaping and design thereby intended to be more attractive to a more sophisticated customers using the industrial park. Permitted uses could include auto repair, car sales and rentals, road haulage, moving and storage, commercial printing and publishing, warehouse and storage, retail sales of building materials and home improvements, operations, transportation depots, warehousing, wholesale distribution and offices associated with construction and engineering.

The locations of these zones are similar to light industries on the edge of town with good transportation access to the town centre whilst also accessible to the highway corridor.

General Industrial Zone

Some of the industries which are allowed in the light industrial zone may not be suitable in those zones when the volume of production or the number of workers is excessive.

Such industrial zones allow for full range of industrial uses such as manufacturing of components and subcomponents, of finished products or parts; including processing, fabrication, assembly, treatment, packaging, incidental storage and wholesale distribution. Some wholesale trading are usually also allowed within these zones.

These industrial zones are located outside the towns and adjacent to a highway corridor to facilitate the transport of raw materials and finished goods.

A typical list of potential industries in general industrial zone can be as follows:

- (a) Appliance assembly and repair;
- (b) Cabinet making and furniture assembly;
- (c) Electronic and computer components (and accessories) assembly and repair;
- (d) Laboratories involving the significant storage or use of toxic, volatile, flammable or radioactive materials





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- (e) Plastic extrusion and moulding;
- (f) Light metal fabrication;
- (g) Motor vehicle repair involving panel beating or spray painting;
- (h) Small cement, cement product manufacture and concrete batching works;
- (i) Logistics and distribution centre
- (j) Small food processing facilities
- (k) Intermodal hub
- (l) Cloth dying, printing

Heavy Industrial

As discussed in Chapter 6, there is always a need for zones which allow for industrial functions that are “engaged in the storage, processing or manufacturing of materials or products predominantly from extracted, bulk, or raw materials, or a use engaged in storage of, or manufacturing processes using flammable or explosive material, or storage or manufacturing processes that potentially involve hazardous or commonly recognized offensive conditions but specifically excluding the storage processing or handling of special waste.”

Heavy industry is difficult to pre-zone because of its particular needs with potentially heavy environmental and social impacts and should be dealt with on a case-by-case basis or as identified by the industry interested in locating to the region.

Typical heavy industries include the following:

8.5.2 Availability of Land

One of the most critical factor is ensuring the availability of land to match the market demand for industrial land. As can be seen by the analysis carried out so far there is no single factor which will guarantee the uptake of land in any location. It is therefore important for the sustainability of any investment that a flexible approach is adopted so that responses to market demand can be implemented as rapidly as possible.

It is important therefore to have available a pool of land for which all legal and administrative procedures have been cleared so that market demand can be satisfied rapidly whenever the demand appears.

The table below provides a summary of the availability of land in Vladicin Han as identified in the Spatial Plan and the level of readiness for occupation.

Table 8.5-1 Land Availability for Industrial Zones in Vladicin Han in Hectares

Location	ha	Land status
A - Suva Morava	145	Detailed regulation in place; land acquisition plan in place; land not procured
B - Stubal	106	Detailed regulation in place and land acquisition plan not in place; land not procured
C - Priboj	108	Detailed regulation in place and land acquisition plan not in place; land not procured

At least three of the privatized enterprises located within the Suva Morava zone are in the process of bankruptcy and their plots, equivalent to about 48 hectares could become available for industrial development once the bankruptcy proceedings are completed.

The uptake of the greenfield sites will obviously depend on the development of the existing brownfield, development of which is mostly in the hands of speculators and beyond the control of local governments. The existing brownfield factories will benefit from development of the industrial zone and it is very likely that existing owners will not put their property on the market until completion of the fully equipped industrial zone. These brownfield factories will therefore become competitors in the sale of industrial plots





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8.6 Development Scenarios

The industrial property market consists of two main segments: the sale of serviced industrial land plots (SILP) in estates, parks, and zones; and the rental of ready-built factory (RBF) buildings including warehouses.

8.6.1 Supply and Demand Match of Serviced Land

Demand analysis shows that there is a need for about 50 hectares of land to satisfy the projected creation of about 5,000 new jobs by 2020 and a need for an extra 50 hectares to ensure flexible development and extension.

The existing regulation plan which covers about 139 hectares of brownfield and greenfield development shows that for greenfield development about 47 hectares net is available for industrial plots. An additional 47 ha of brownfield factories can also be available but the uptake will depend on investor's assessment.

The area covered by the existing regulation plan is not sufficient to cover the long term needs for industrial land of 100 hectares by 2020 and therefore additional land has to be identified, acquisition of which has to start immediately at the same time as acquisition of the land covered by the regulation plan.

Three concepts have been developed to satisfy the potential demand for 2020 and beyond as follows:

Concept 1 – location A - Suva Morava

Concept 2 – locations A - Suva Morava and B - Stubal

Concept 3 – locations A - Suva Morava, B - Stubal and C - Priboj

For all three concepts were made analysis of existing and required infrastructure in order to meet the demand of future customers after completion of phase 1 and phase 2. Details of infrastructure improvements are presented into chapter 8.7 *Design criteria and proposed infrastructure development*. All three concepts are proposed according to the Spatial plan for the municipality Vladicin Han and Detailed regulation plan. As the objective is to mobilize as much as available land, concepts have to present locations where industrial zone could be developed. As Spatial plan contains three locations for industrial development, Suva Morava, Stubal and Priboj and Detailed regulation plan is adopted for the location Suva Morava, first phase of zone development in all three concepts is the same location - Suva Morava and difference between the concepts is the location and size of the second phase.

8.6.2 Concept I

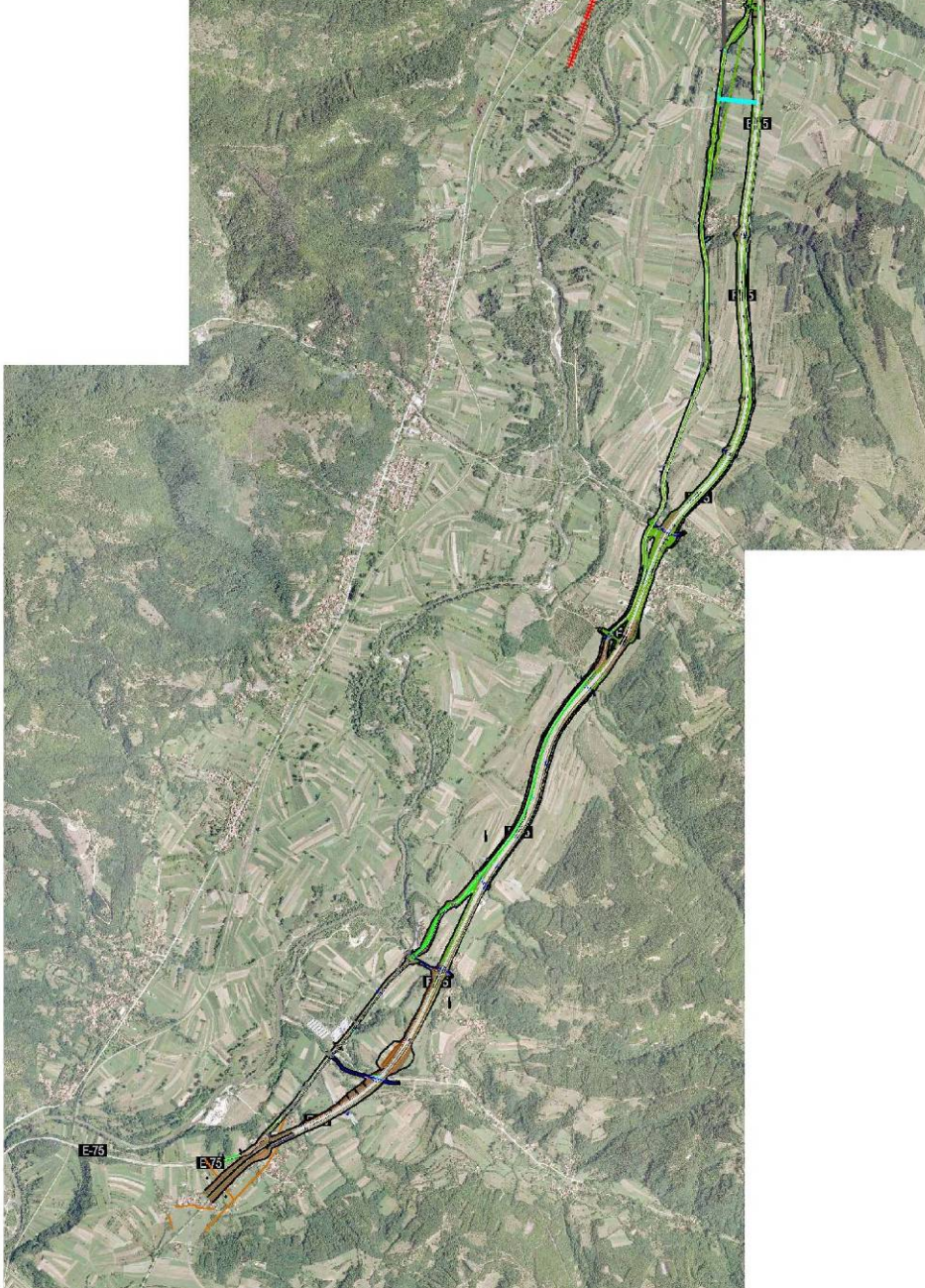
According to the concept I, industrial development is planned in one location A - Suva Morava, on the both banks of the river Juzna Morava.

At present, brownfield occupies 47 ha on the left bank of the river Juzna Morava. On the left bank is the land owned by Republic of Serbia with water source Suva Morava and for flood protection dikes is 34 ha. Greenfield could be developed on 64 ha on the left bank of the river Juzna Morava and 127 ha on the right bank of the river Juzna Morava. For the land on the left bank is prepared Detailed regulation plan and for the land on the right bank is not.





Land for the industrial development in the phase 1 is bounded by the railway corridor and regional road and rivers Lepenica and Juzna Morava. Land in the phase 2 is between river Juzna Morava and Corridor X.

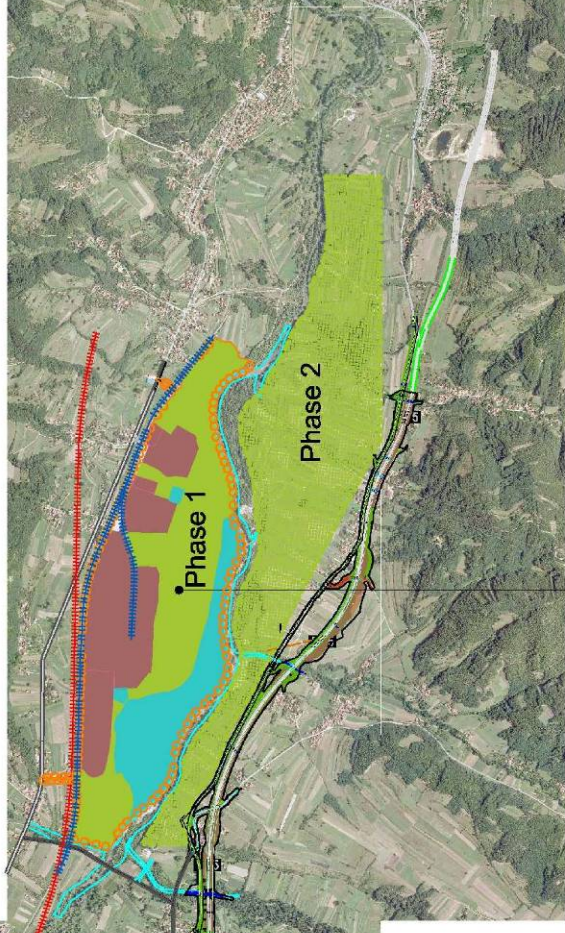
Industrial zone "Jug" in Vladicin Han

Concept I - location A - Suva Morava









Location A "Suva Morava"

	land owned by R. Serbia & other	34.43ha
	brownfield	47.06ha
	greenfield phase 1	64.10ha
	greenfield phase 2	126.89ha



Location A "Suva Morava"

LEGEND:

-  existing road
-  corridor X
-  existing railway
-  future railway
-  boarder of the ind. zone in phase 1
-  boarder of the ind. zone in phase 2



0,1 0,2 0,5 1 km



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Greenfield activated in two phases results in infrastructure improvement and construction in two phases. Access from the zone to the Corridor X is the same for the phase 1 as well as for the phase 2 and has to be constructed into phase 1. Other infrastructure, such as water supply, wastewater collection and treatment, electro power supply and telecommunication has to be constructed in two phases. Details of all infrastructure improvements are presented into chapter 8.7 *Design criteria and proposed infrastructure development*.

8.6.3 Concept II

Concept II proposes industrial development in two locations - Suva Morava and Stubal, on the left bank of the river Juzna Morava.

At present, brownfield occupies 47 ha in location A - Suva Morava and the land owned by Republic of Serbia with water source Suva Morava and for flood protection dikes is 34 ha. Greenfield could be developed in location A - Suva Morava on 64 ha on the left bank and 47 ha on the right bank of the river Juzna Morava and 106 ha in location B - Stubal.

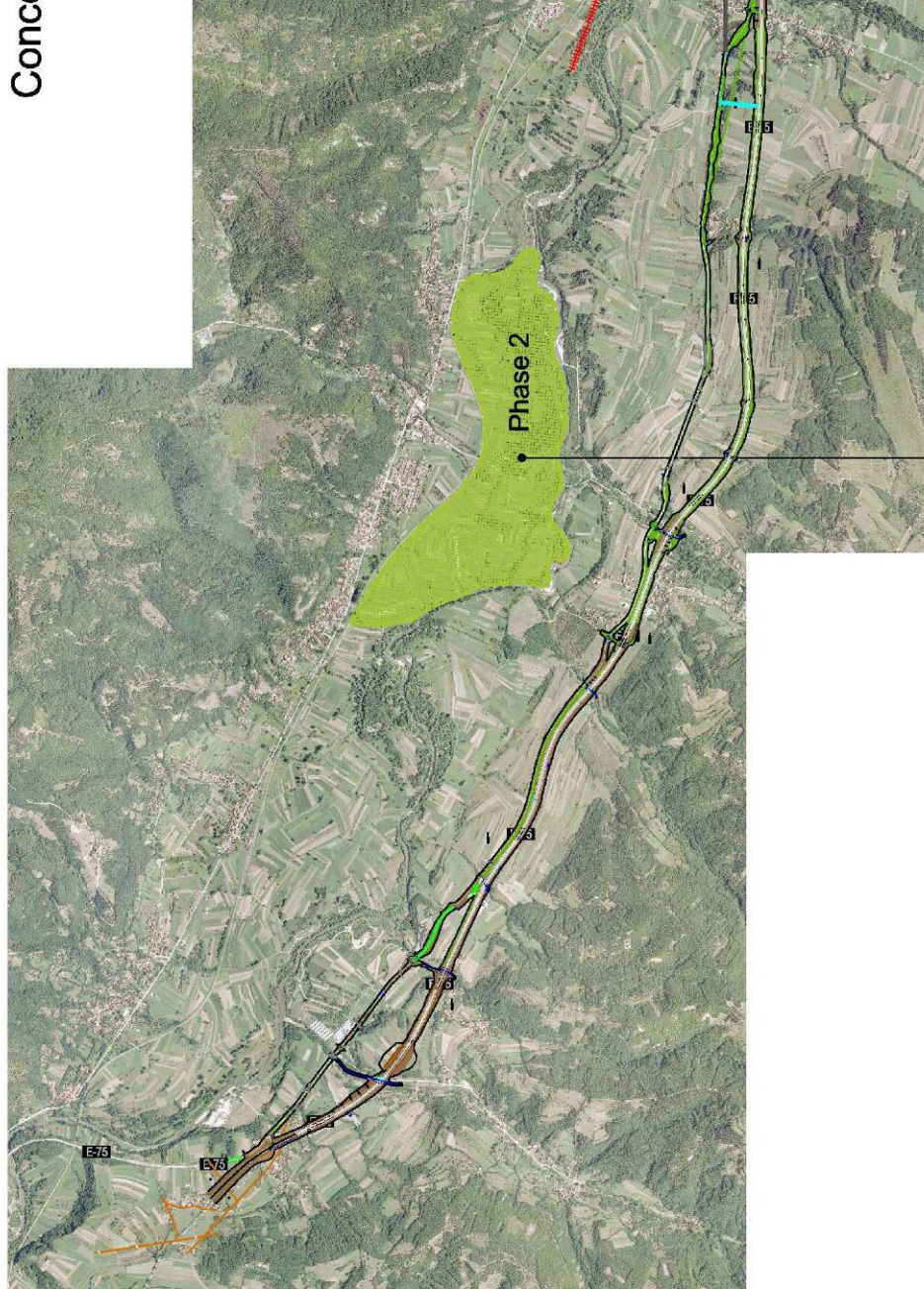
For the land on the left bank in location A - Suva Morava is prepared Detailed regulation plan. For the land on the right bank in location A - Suva Morava and for the location B - Stubal, detailed regulation plans are not prepared.

Land for the industrial development in the phase 1 is in location A - Suva Morava, on the left bank of the river Juzna Morava, bounded by the railway corridor and regional road and rivers Lepenica and Juzna Morava. Land in the phase 2 is in location A - Suva Morava, on the right bank of the river Juzna Morava and in the location B - Stubal.







Greenfield activated in two phases results in infrastructure improvement and construction in two phases. Access from the zone to the Corridor X is the same for the phase 1 as well as for the phase 2 and has to be constructed into phase 1. Other infrastructure, such as water supply, wastewater collection and treatment, electro power supply and telecommunication has to be constructed in two phases. Details of all infrastructure improvements are presented into chapter 8.7 *Design criteria and proposed infrastructure development*.

Industrial zone "Jug" in Vladicin Han

Concept II - locations A - Suva Morava and B - Stubal





LEGEND:

-  existing road
-  corridor X
-  existing railway
-  future railway
-  boarder of the ind. zone in phase 1
-  boarder of the ind. zone in phase 2



0,1 0,2 0,5 1km

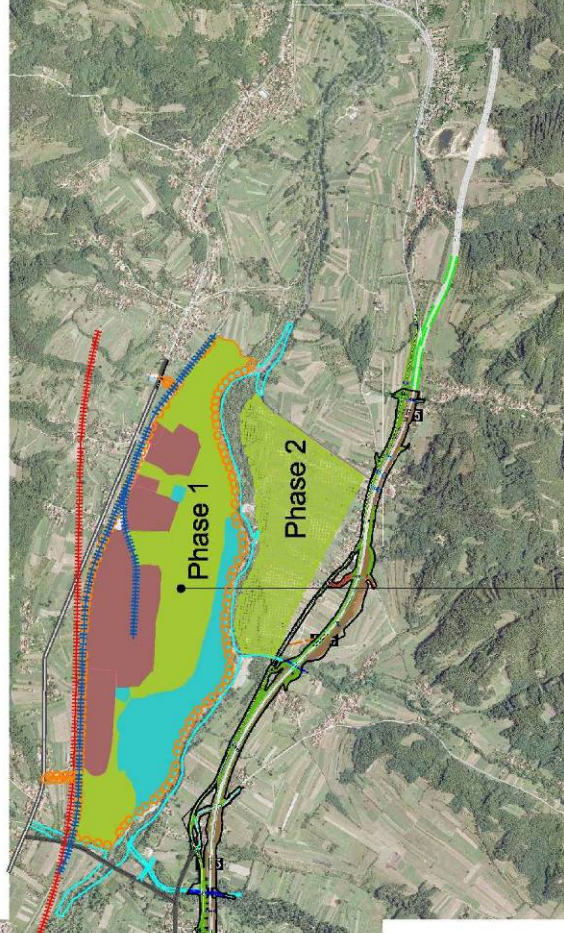
Location A "Suva Morava"

	land owned by R. Serbia & other	34.43ha
	brownfield	47.06ha
	greenfield phase 1	64.10ha
	greenfield phase 2	47.20ha

Location B "Stubal"

	greenfield phase 2	106.30ha
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Location A "Suva Morava"



Location B "Stubal"



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8.6.4 Concept III

Concept III proposes industrial development in three locations - Suva Morava, Stubal and Priboj, on the left bank of the river Juzna Morava.

At present, brownfield occupies 47 ha in location A - Suva Morava and the land owned by Republic of Serbia with water source Suva Morava and for flood protection dikes is 34 ha. Greenfield could be developed on 64 ha in location A - Suva Morava, 106 ha in location B - Stubal and 108 ha in location C - Priboj .

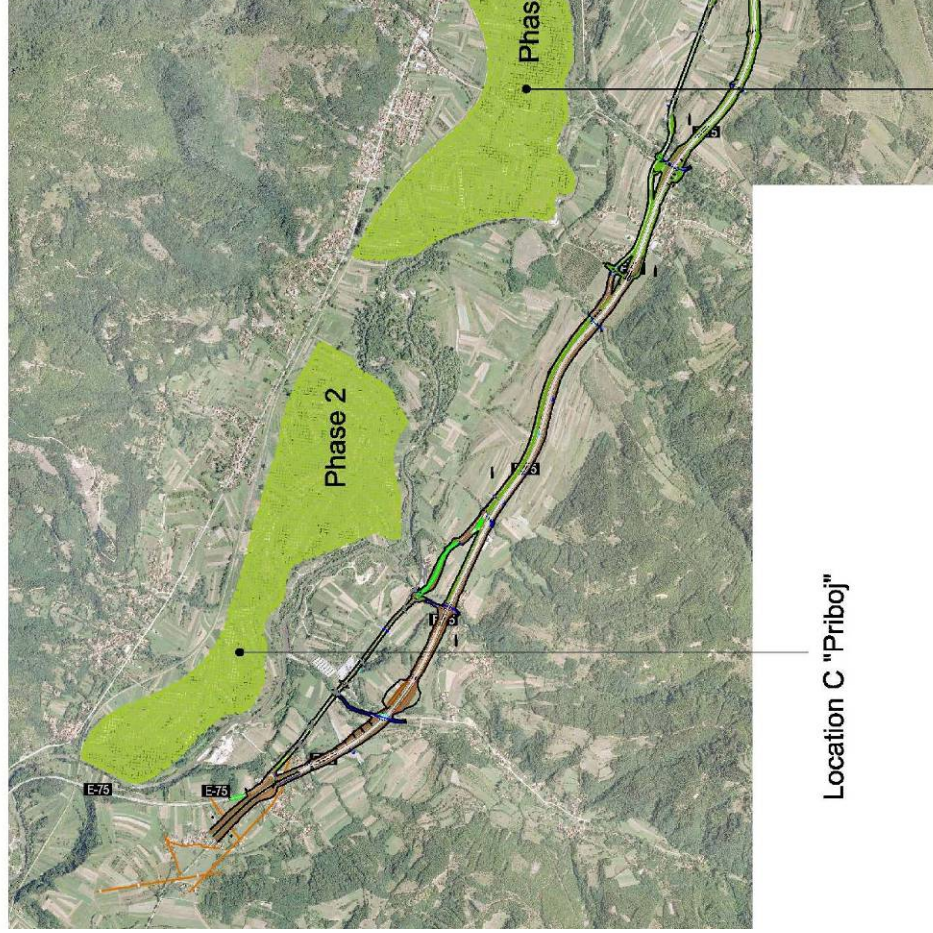
For the land in location A - Suva Morava is prepared Detailed regulation plan and for the locations B - Stubal and C - Priboj are not.

Land for the industrial development in the phase 1 is in location A - Suva Morava, bounded by the railway corridor and regional road and rivers Lepenica and Juzna Morava. Land in the phase 2 is in location B - Stubal and C - Priboj.

Greenfield activated in two phases results in infrastructure improvement and construction in two phases. Access from the zone to the Corridor X is the same for the phase 1 as well as for the phase 2 and has to be constructed into phase 1. Other infrastructure, such as water supply, wastewater collection and treatment, electro power supply and telecommunication has to be constructed in two phases. Details of all infrastructure improvements are presented into chapter 8.7 *Design criteria and proposed infrastructure development*.

Industrial zone "Jug" in Vladicin Han

Concept III - locations A - Suva Morava, B - Stubal and C - Priboj



Location A "Suva Morava"

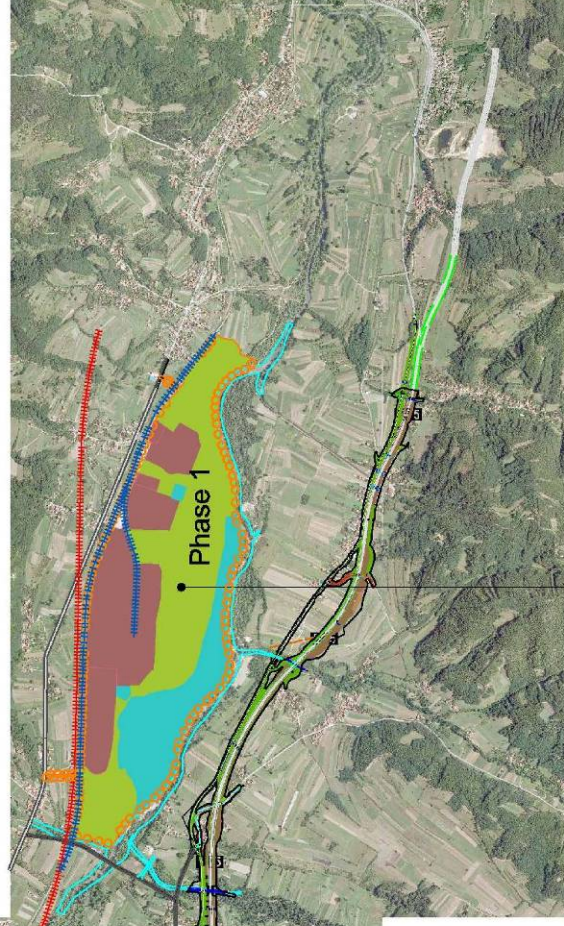
land owned by R. Serbia & other	34.43ha
brownfield	47.06ha
greenfield phase 1	64.10ha

Location B "Stubal"

greenfield phase 2	106.30ha
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Location C "Priboj"

greenfield phase 2	108.10ha
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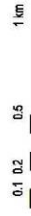
Location A "Suva Morava"

Location C "Priboj"

Location B "Stubal"

LEGEND:

- existing road
- corridor X
- existing railway
- future railway
- boarder of the ind. zone in phase 1
- boarder of the ind. zone in phase 2





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8.6.5 Other Services to Provide Added Value

Vladicin Han is in competition with other municipalities offering similar or better advantages or facilities. The attractiveness of the Vladicin Han industrial zone can be enhanced by offering prospective investors additional facilities and services which may tilt the balance in favour of Vladicin Han in preference to other locations. The possible services are considered hereafter.

Marketing and Communications

The competitiveness of municipalities and states in trying to attract investors require specialist attention to promote the positive aspects of the Vladicin Han industrial zone. A marketing plan is therefore important to identify the necessary marketing activities such as attracting prospective tenants, maintaining good communications with potential as well as existing tenants.

In the light of the optimistic industrial development strategy adopted by the government and given the current market situation, marketing and communication are most important activities especially in the early years of the development. Getting the first customers and keeping them satisfied are the most effective means of establishing the zone's reputation and encouraging others to locate within the park. The service to existing and operating tenants can be improved. Dissatisfied customers, even a single one can bring about serious negative reputation for the zone. Tenant relations means keeping tenants up to date with issues related to the zones and proposals to resolve them. Good communications also imply provision of an information service on the zone or park.

One Stop Shop

The report on "Doing Business in South East Europe" of 2011 highlighted a few areas where administrative procedures in Serbia can be particularly difficult. In order to get around these issues, the World Bank proposes the creation of a one stop shop where most approvals can be requested and assistance provided in overcoming the administrative procedures.

One stop shop can also cover some of the marketing and communication activities essential for the development of the zone. Typical activities which can be covered by the one stop shop are as follows:

- Marketing
- Registration of ownership
- Dealing with design approvals, construction and other permits
- Dealing with customs
- Provision of security

The creation of the one stop shop unit must be started immediately if only to start communicating to potential investors the information on the progress being achieved on the completion of the industrial zone.

Business Incubators and Ready Built Factories

Ready built factories (RBFs) are popular with small to medium-sized companies whose start-up funds are limited. With ready built factories, these companies can quickly mobilise operations once they get orders from a customer. Existing factories belonging either to recently privatized or to be privatized companies have been used for this purpose in Vladicin Han and Vranje. The use of existing factories is problematical because for most industrial



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developments these older buildings are not adaptable to modern industrial production for the following reasons:

- Poor access
- No loading quay
- Low ceiling heights
- Small clear span
- Inflexible floor plan
- Difficult to convert for computerized production

The construction of ready built factories is a speculative business model best left to private investors who are specialists in this field. However, this should not preclude any public private partnership initiative but obviously the appropriate safeguards have to be built into any agreement.

On the other hand as part of its drive for increased competitiveness and noting that small and medium enterprises' contribution to economic growth, social cohesion, employment, regional and local development, the European Union is encouraging the creation of SMEs by providing assistance. One type of assistance for SMEs is provision of business incubators where SMEs can establish their startup operations for a limited period of time with assistance on management of financial and administrative issues, training, education, business advice, legal and accounting advice. Depending on the configuration of the business incubator, tenants will receive free use of office equipment and materials and office support thereby reducing their operating costs and improving chances for survival in the market.

The possibility of creating such an incubator could be considered as part of this phase of investment. This facility does not just imply the capital investments required for building the facility but it also has operating and maintenance costs linked to maintaining the built facility and provision of the support staff.

Business incubators have been created in Serbia since 2005 and in the region, business incubators have been created in Nis and Vranje. In both cases space was provided for about 15 startups each with about 150m² of production space. Most of these business incubators are housed in premises available within brownfields and in factories provided by existing industries and which are surplus to requirements.

Ideally such a facility should be considered together with a one stop shop facility to reduce the costs of overheads. The municipality can seek assistance from special funds which are available for such facilities. For ready built factories the Municipality may seek the partnership of a developer who has the capital to invest in such a speculative venture.

Clusters

It is recognized that businesses have a clustering effect as smaller businesses spring up alongside larger businesses in order to provide services or components. Associations created to promote the industry and its associated companies are known as Clusters.

Clusters thus represent geographic concentration of interconnected companies, related and different industries, specialized suppliers, service providers and associated supporting institutions (educational and scientific research institutions, agencies, etc.), competing, but also cooperating in a specific field. Clusters are established on the basis of common interest and needs in the sphere of procurement, sales, sectoral specialization, labour etc.

Depending on the concentration of particular industries, the industrial zone can offer the hosting of a cluster within the zone. There are special funds available for hosting business clusters and as new business starts to set up within the industrial zone, the Municipality is recommended to seek assistance for such a service.



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Free zones

The possibility of creation of a free zone must not be ignored, it is recommended that an area should be reserved for a potential free zone within the industrial zone.

Considering that a free zone company exists already, albeit in a dormant state, it would be advantageous to make use of the existing institutional arrangement to apply for and prepare for the eventual granting of free zone status by the Ministry of Finance.

Such a facility will be attractive to companies targeting the export market.

It is recommended that the existing free zone company is reactivated when new investors seeking freezone status become active on the industrial zone.

8.7 Design Criteria and Proposed Infrastructure Development

Earlier analysis has indicated the type of industries and the type of development which will be installed in the industrial zone Suva Morava. This section develops the functional requirements of the zone.

Many of the requirements are already included in the Detailed Regulation Plan.

Basic principles of urban development of the industrial zone are:

- compliance with current state of development with environmental protection requirements
- respect of planning conditionality
- ensuring respect for the principles of environmental protection
- rational use of land
- providing conditions for the development of various activities and scope of construction
- rational solution for traffic areas and infrastructure systems

The industrial zone Suva Morava is planned for industrial, economic and commercial activity, utility outlets, traffic areas and protective greenery.

8.7.1 Plot Planning

Within the subject area of the planned industrial zone Suva Morava the following types of business locations were identified and planned :

- Production facilities (Factories) - smaller production units that can function independently or could be grouped in an industrial park. Provided locations from 0.5ha to 20 ha.
- Industrial zones – manufacturing and technological complex usually technologically associated with same or similar industries. Industrial zones include land size from 10 ha to 20 ha.

Building site is divided into ten (10) urban blocks. As part of building land following zones are distinguished:

ZONE 1 - production facilities and industrial zones

In the area between the existing industrial sites and new regulation of the river bed of Juzna Morava is planned the construction of the large warehouses, food processing, textile industry, metal industry and chemical industry of individual facilities.

- Maximum number of floors of the building P +2
- Maximum site coverage up to 40%
- The maximum plot ratio 0.8
- Minimum percentage of the greenery on the plot (no parking) 20%

Industrial zone "Jug" in Vladicin Han

Concept I, phase 1 - Land occupation



LEGEND:

- existing road
- new road
- corridor X
- main entrance to Industrial zone
- emergency exit
- existing railway
- future railway
- existing dike
- future dike
- sanitary protection zone for the wells
- future WWTP
- lagoons
- regulation line
- future lot
- 1-water pumping station, 2-transformer station
- greenfield
- boarder of the ind. zone in phase 1

	future lots - total	47.00 ha
	greenfield phase 1	64.10 ha
	Traffic	4.00 ha
	location A	145.60 ha





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ZONE 2 - production facilities (factories)

The area along the railway line is planned for the construction of large warehouses and shopping centers (gross floor area greater than 5000 m²), food industry and textile industry.

- Maximum number of floors of the building P +2
- Maximum site coverage up to 60%
- The maximum plot ratio 1.0
- Minimum percentage of the greenery on the plot (no parking) 20%

Table 8.7-1 Plot ratios table

ZONE 1		block no.	2	3	4	5	6	
Gross building area (GBA)	PLOT area		4.40 ha	6.35 ha	13.40 ha	5.50 ha	2.60 ha	
	plot ratio	0.8	35200 m ²	50800 m ²	107200 m ²	44000 m ²	20800 m ²	
	plot occupancy	site coverage	40%	14080 m ²	20320 m ²	42880 m ²	17600 m ²	8320 m ²
		Hmax	12m					
		No of floors, max	3					
ZONE 2		block no.	1	7	8	9	10	
Gross building area (GBA)	PLOT area		4.80 ha	0.60 ha	2.25 ha	2.50 ha	2.00 ha	
	plot ratio	1	48000 m ²	6000 m ²	22500 m ²	25000 m ²	20000 m ²	
	plot occupancy	site coverage	60%	28800 m ²	3600 m ²	13500 m ²	15000 m ²	12000 m ²
		Hmax	12m					
		No of floors, max	3					

Gross building area (GBA) of the plot is the sum of all useful floors of the building above the ground.

One complex could consist of multiple buildings in accordance with the functional organization and technology needs. Special Infrastructure facilities like - factory funnel, windmills, water towers, etc..within given construction lines are not included in Gross building area (GBA) .

SITE COVERAGE is represented by the ratio of surface area and associated facilities on the building site , can be up to 60%.

The manipulative or traffic areas (parking) are not included under the surface area.

PLOT RATIO is the ratio of the gross building area (GBA) of the buildings and the plot area.

The maximum allowed height of buildings is 15 m. Height of buildings for storage and production facilities is one floor (groundfloor) with the necessary floor height depending on the production process. Exceptionally, due to the technological needs, it could be allowed the construction of buildings with a height greater than 15 m.

Other buildings may have a height of Groundfloor and G +2 floors. For existing complex retains the existing height of buildings.

If production and storage facilities do not require a a special technological height it is allowed to have G +2 floors, not more then 15m.

The position of the building on the plot is determined by the construction line

Underground construction line coincides with the above ground line construction.

It is not allowed to underground construction line exceeds regulation line.

The distance from the lateral boundaries of the plot is at least 1/ 2 height of the higher building or at least 8 m.





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The distance from the rear boundaries of the plot is at least 10 m. Distance between buildings (in the case of construction of several buildings on the plot) are:

- At least 2/3 of a higher object in relation to the facade with openings
- At least 1/3 of a higher object in relation to the facade without openings.

Predominantly commercial facilities - administration and public facilities with visitors (showroom, sales rooms, etc.), have to be placed on the regulation line on the street side, especially at the entrance routes to the main access road for the planned area.

Other buildings can be placed on the regulation line or inside the plot in accordance with the requirements of production process.

Fencing at the borders of the complex plot, on the side of the road and to the neighboring parcels, is up to 1.5 m to the road (part of the masonry fence maximum 0.9 m), and on the side and rear plot boundary to 2.0 m (part of the permitted built up to full height of the fence).

Green areas in the planned area complement the primary purpose of economic zones and at the same time improve overall microclimatic conditions of the area. It is planned to provide greenery protection line consisting of compact planting deciduous and coniferous vegetation. Protecting greenery have to be set perpendicular to the direction of dominant winds, in the northwest-southeast direction.

Along the borders of the complex on the regulation of the railroad have to be predicted continuous protection greenery line widths up to 6.0 m.

For the plots for the production facilities (Factories) has to be planned min. 20% to 30% of green, as follows:

- area of 1.0 hectares to provide min. 20% of green
- area of 1.0 ha to 5.0 min to provide 25% of green
- area of over 5.0 ha to provide min. 30% of green

The market analysis of the industrial segments which are likely to install in Vladicin Han shows that most of the demand will be for plots of about 3 hectares, there are still some segments such as electronics assembly which only needs about one hectare and others requiring up to 10 hectares.

For the development of the Suva Morava industrial zone it is proposed that plot to be divided in modular units of about 3 hectares with possibility of joining adjacent plots to create 6 to 10 hectares.

According to the planned conditions, the min. area for one modular unit is 4000 m² for the building site and the min. width of the front of the building plot is 50 m.

One of two of the plots should be reserved for further subdivision into plots of about one hectare.

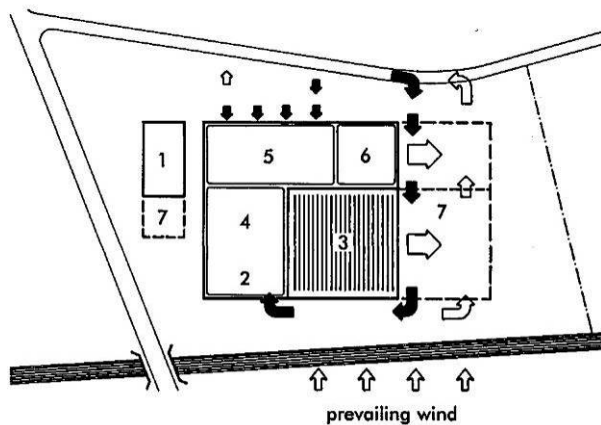
Where plots larger than 10 hectares are desired, the extension area could be offered on a partnership agreement with the investor.

8.7.2 Plot Access, internal Circulation and Parking

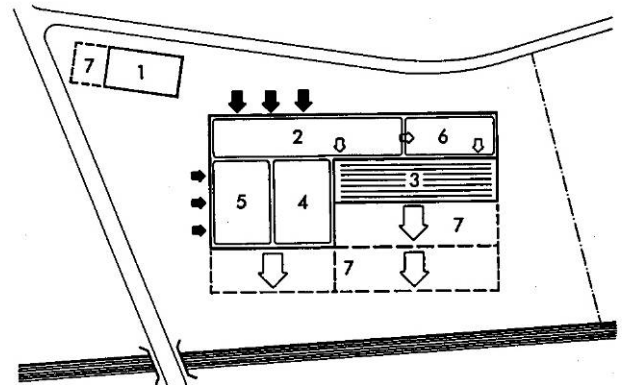
A new road is planned through the industrial zone connected with the national road no. 214, and with the planned highway E-75 and Corridor X, indirectly through municipal roads. Newly planned road (New 2) is planned for duplex traffic, the carriageway width of 3.0 m. Because of the volume of pedestrian traffic in the industrial zone, two-sided 1.5 m wide sidewalks are predicted. The greenery is planned on both sides of the road with minimum width 2.0 m. For the purpose of serving the area of the industrial complex a service road is planned with one carriageway width of 3.0 m and sidewalks on both sides of 1.5 m.



Figure 8.7-1 Internal Circulation and Parking



1 office; 2 goods inward; 3 racked bulk pallet store; 4 order picking area;
 5 order and dispatch assembly area; 6 repackaging and processing area;
 7 expansion



1 office; 2 goods inward; 3 racked bulk pallet store; 4 order picking area;
 5 order and dispatch assembly area; 6 repackaging and processing area;
 7 expansion

Parking should be organized within the plot. Depending on the technological process in the complex plan the corresponding handling areas and parking areas for trucks have to be planned.

Norms for calculation of the required number of parking spaces:

- Economic activity - production - 40 Parking Spaces (PS) to 100 employees
- Economic activities - depots and storage - 1 PS to 100 m² GBA
- Economic activities - administrative buildings and sales areas - 1 PS to 60 m² GBA
- Commercial activities - 1 PS to 50 m² GBA

8.7.3 Factories Design Standards

As is normal with any development the proposed structures on the site will be of a design and height, which does not obstruct sightlines and to minimise the impact of the development from vantage points.

In order to reduce the visual impact, external finishes shall be non-reflective and muted in tone. Further, the bulk of the building shall be visually relieved through measures such as alternating materials on the same elevation and highlighting external features including fascias and down pipes.

Site layout for factories and warehouses is determined by:

- shape and size of building
- expansion potential
- services running through site (e.g. gas mains, power cables)
- topography, which will affect access for heavy vehicles and building economics (cut and fill)
- energy conservation, including exposure to prevailing and storm winds
- ground conditions and drainage (e.g. to avoid piling or potential flood areas)
- surrounding neighbourhood, keeping noisy external plant and loading bays away from residential area
- vehicle (road and rail) manoeuvring and marshalling area in relation to loading bay.



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Factories should be designed to serve a variety of uses within their life and production sector. A frequent problem is inefficiency of factory buildings through obsolescence, whether structural (including short spans and capacity of roof structure), insufficient services support and inadequate headroom. The function of 'how' the product is manufactured or stored may well be more important than what the product 'is'. Buildings should not be considered merely as weather-proof envelopes around the production process. Form and disposition of their structure

fundamentally influence essential freedom to optimize production layout, and to route services equally freely to serve that or any future production layouts, without demanding long periods of down-time for alteration. Selection of the structure, particularly the bay size, is the key factor in providing efficient and flexible operation. There is a range of structural types that have proved efficient and adaptable, and technological innovation may add to these types (e.g. stressed-skin construction, requiring only minimal frame support for the envelope).

The internal arrangement is the responsibility of the investor but it is expected that functional design standards particularly regarding clear span and ceiling heights are adapted for the functions expected and are sufficiently flexible such that the facility can be rearranged with ease.

The thermal insulation of all buildings shall be to a standard which provides the most economical solution whilst respecting the local planning requirements and any adopted carbon emission standards.

Space or other means of heating shall be provided to maintain the required temperature as required under local working environment guidelines.

Sanitary requirements shall be as required under local regulations.

Industrial effluents shall be pretreated so as to satisfy the effluents standards acceptable into municipal sewers.

Loading bay and parking area shall be provided as necessary for the number of trucks expected and the number of employees who will be provided with parking permits.

All industries are expected to provide their own security fencing.

Office space shall be provided in each factory.

Noise level must be controlled and any machinery or activity considered to create a noise nuisance must be adequately sound-proofed to the level required by legislation or a minimum of 65dB at 1m.

A landscape plan, prepared by an appropriately qualified horticultural consultant, shall be submitted in conjunction with any application for industrial development and shall detail the location, density and species of proposed planting. The landscape plan shall also identify the siting and species of existing vegetation throughout the site, with significant vegetation to be retained.

The landscaping plan will include screening of buildings, car parking and outdoor storage areas. A landscape strip including a low level landscaped bed shall be provided adjacent to the frontage of any subdivided industrial lot, adjacent to the internal access road. The landscape ratio shall be as per the detailed regulation plan.

An on-site stormwater plan shall be prepared to minimize the stormwater emanating from each plot. Drainage within the plot shall be provided by the investor and the impermeable ratio shall be limited to 70% and the run off including roof drainage shall be directed to soakaways, soakage trenches or rain garden if the permeability of the ground so allows otherwise it shall be collected by the centralized stormwater drainage system. Car parks and large impermeable areas shall be as far as possible be provided with porous paving. The remainder of the stormwater



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8.7.4 Access to Industrial Zone

Design vehicle 40 tonnes GVW on five axles (a two-axle tractor towing a three-axle trailer) with the drive axle weight not exceeding 11,500kg as per 96/53/EC. Width shall be 2.6m with a length of 15.5m for articulated lorries.

With the objective to facilitate transportation between European countries, Pan-European transport corridors were proposed at the second Pan-European transport Conference in Crete, March 1994 with additions made at the third conference in Helsinki in 1997. These development corridors are distinct from the Trans-European transport networks (TEN), which is a European Union project and include all major established routes in the European Union. There are proposals to combine the two systems, since most of the involved countries now are members of the EU. Eleven corridors have been identified so far.

Of particular interest to this project is Road Corridor X which is a North-South 1,450km link joining Salzburg - Ljubljana - Zagreb - Beograd - Niš - Skopje - Veles – Thessaloniki and an additional 4 branches to Graz, Budapest, Sofia, Florina with a total of 850kms. About 72% of the main axis is dual carriageway with the remainder single carriageway. Within Serbia the missing dual carriageway sections are Belgrade bypass and the section Leskovac – Presevo. Both sections are under construction under multiple contracts. Of particular interest to Vladicin Han is the construction of the section between Vladicin Han and Presevo for which construction has started in Spring 2011. Financing for the section between Vladicin Han and Leskovac has yet to be finalised. The Serbian section of road Corridor X was planned to be completed by 2005 and obviously this has not happened. However, it is clear that the Serbian government is serious in completing this section as soon as possible.

A good connection to the road corridor is thus vital for the industrial zone. An interchange for the Vladicin Han industrial area has been planned to increase transport efficiency, in section of highway between Vladicin Han and Donji Neredovac. The part of the future Corridor X, Highway E-75 is located on the right bank of the Juzna Morava and near existing national road M-1. Interchange "Vladicin Han" is situated on the km 897+500 while interchange "Gramadja" is planned on the km 903+800. The proposed road network of the industrial zone "Jug" and Corridor X have a very poor road connection in terms of traffic operations as well as in terms of traffic safety. In line of good traffic engineering practice to improve traffic safety and avoid traffic congestion as well as to improve environment issue traffic from industrial zone "Jug" is proposed to be directed to national road R-214a. For this reason the new intersection, which will be connected with main road inside the industrial zone is proposed between railway corridor and the river Juzna Morava (drawing-Proposed road network infrastructure and access to Corridor X). This proposal from one hand will accommodate direct connection from industrial zone to Corridor X over national road R-214a (avoiding railway crossing at grade and improving traffic operations and safety) and other hand construction of two bridges (according to Detail Regulation Plan) over the railway corridor will be cancelled. The benefit of proposed road connection between industrial zone road network and Corridor X is uncertain.

The Rail Corridor X has a length of 1750km with an additional 800kms for the 4 branches to Graz, Budapest, Sofia and Florina. The infrastructure consists of single (64%) and double tracks (36%) lines with 90% electrified.

Although this corridor has been planned and an ambitious implementation programme has been prepared. The implementation of the programme is behind the plan and this situation is not expected to improve in the near future.



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Figure 8.7-2 Layout of Road Corridor X between Salzburg and Thessaloniki



Industrial parks are locations with heavy truck traffic and moderate levels of automobile circulation. This makes them different from most urban areas. The most important aspect in industrial park road design is therefore truck traffic and its specific requirements. Trucks require large turning radii, large vision spans and clearances. Road networks in industrial parks should be designed with this in mind. During the master planning phase of the industrial park, the market assessment might identify certain industries that will not have truck traffic or identify industries which will not use trucks in their operations; however, even if such industries are present at the time of the study, the design team should still design the access patterns with trucks in mind for future truck use, future tenants or changing needs. Truck roads should also be designed in a way that allows for adequate shoulders, wide enough lanes; preferably international standard lanes of about 3.7 meters on divided carriageways and lane widths up to 4.0 meters on two-lane undivided carriageways. Locations for truck tire debris and truck weighing stations are usually required. Most truck shoulders need to be paved and designed with enough clearance from sidewalks or pedestrian movement. In addition, arterial roads should envision future expansion or lane additions, and the design should allow for enough space for future expansion in the case of an expanding industrial park. In general, clearances for future road expansions range somewhere between 4-6 meters, which allows for enough space for an extra shoulder and lane, if required. In the best case scenario, this number can increase up to eight meters.





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Designs should always be prepared in conformity with the country's standards. Designs should also take into account the standards of neighboring countries, where roads lead to an international border.

Figure 8.7-3 Layout of Rail Corridor X between Salzburg and Thessaloniki



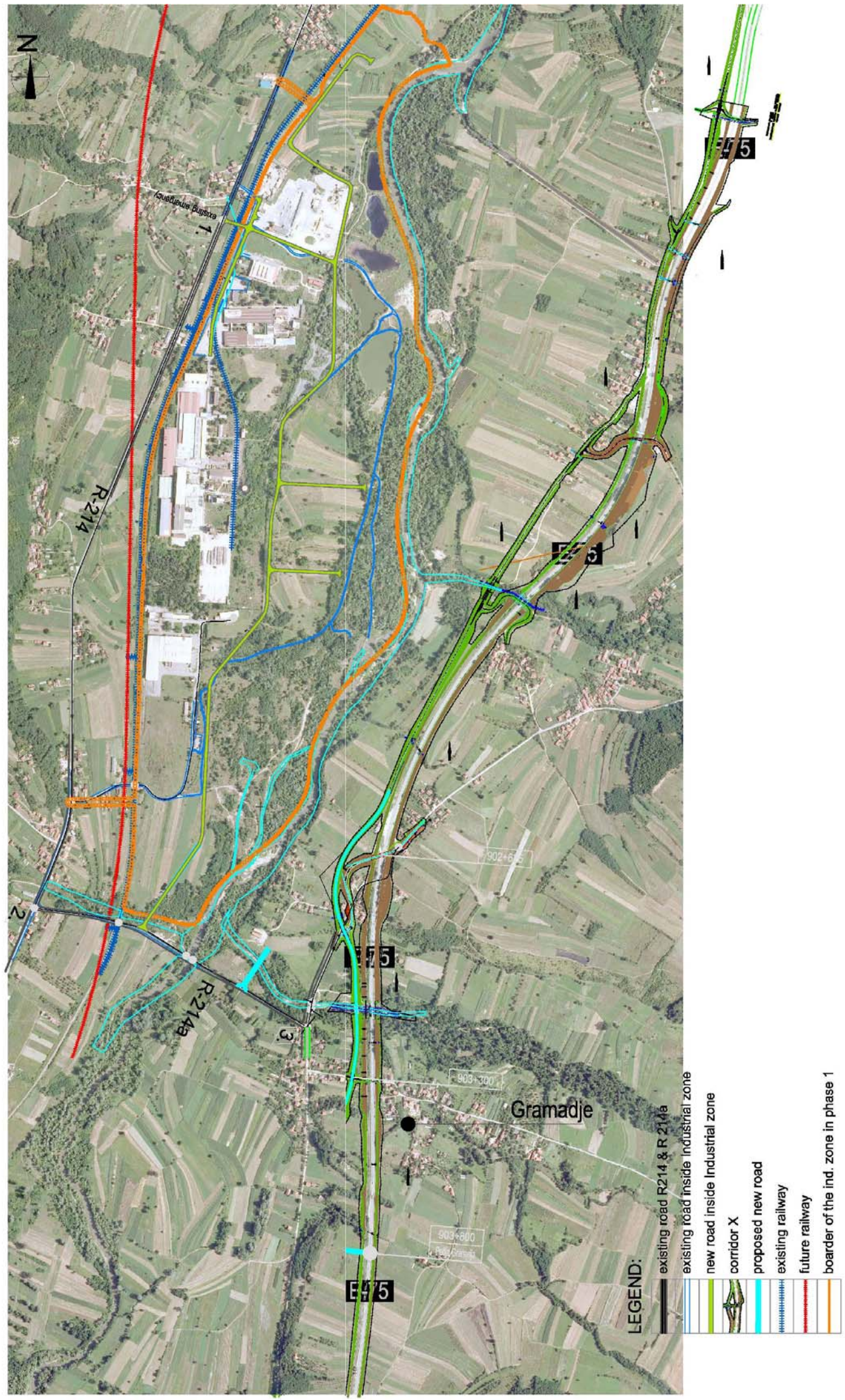
Another aspect of industrial road design is easy and fast access to plots and fast reaction time from trucks and cars that are servicing these plots. Certain industries require easy, fast and frequent access while others require sporadic and infrequent access. The planners for the site should allocate industries and their access roads based on these requirements. Logistics companies should preferably be located close to the entrance or exit and be adjacent to the high speed connectors, while heavy manufacturing firms can be located on minor roads and far from entrances. In the same manner, plots with heavy truck traffic require enough space and adequate programming for trucks to maneuver around one another. Most 6 Sigma logistics, manufacturing and lean production depend on fast truck response times and cannot afford trucks waiting for one another around docking stations or to reach an entrance or exit of a plot. In addition, it is generally good practice to design plots preferably with separate entry and exit points which follow single direction circular programming to avoid conflicts of direction from moving trucks.

When designing the roads and road hierarchy, site designers should also consider the fact that wide high speed roads are a large investment for an industrial park and that they should



Industrial zone "Jug" in Vladicin Han

Concept I, phase 1 - Traffic infrastructure





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never be overdone or over designed. In the same manner road hierarchy helps traffic flows and allows for a certain movement pattern that should not be overlooked. Wide high speed connector roads should only be placed in required locations and if necessary. Preference should be given to two lane un-separated carriage roads whenever possible. In addition, when considering road junctions the designers should try to avoid roundabouts if possible and if necessary the roundabouts should always be designed for truck peripheral vision and visibility. It is very hard for truck to maneuver a roundabout at high speeds thus; the roundabouts should be designed properly to allow for smooth traffic flows and merging.

Public Transport

The main bus station is located in the vicinity of the highway which is very favourable and it has properly built station building and entrances. It should also be mentioned that it is located in the vicinity of the town centre as well. The Kavim Jedinstvo is a name of the bus company which maintain bus services between Vladicin Han and Vranje along national road R-214 passing near to industrial zone "Jug". The bus line is very frequent and servicing commuters well.

As a result of the high price of petrol, the region's public transport system has experienced an increase in the use of public transport, which is well organised at the regional level and extensive in coverage. Region-wide bus services serving all of the region's main settlements ensure that commuters do not have problems reaching their workplace. Though infrequent, there are a number of trains between Vranje and Belgrade. Most bus operators have few new vehicles, but services are functional and allow for regional mobility. (REg.DEv. Str 2008 2012).

8.7.5 Internal Road Network

Design criteria for road network development

The industrial zone "Jug" road network provides for the movement of people and goods. It's relationships to land use is fundamental. Traffic is a function of land use and land use is a function of access. The industrial zone road network is an integral part of land use.

Traditionally, roads have had two basic functions. A typical road provides for both through traffic movement (Corridor X, national roads R-214 and R-214a) and the movements necessary to support the adjoining land use (access road to the industrial zone). The external approaching road from Corridor X to the industrial zone "Jug" need to be design adequately and satisfied traffic demand.

Effective traffic management requires an appropriate balance to be achieved between the movement along the national road R-214a and access functions for the road approaching to the industrial zone. In line with this appropriate traffic management plan need to be design.

Intersections are a fundamental part of road hierarchy. They are the nodes of the system, and determine how effectively the network operates. They govern how effectively each road can perform its allocated function in the hierarchy. Because of this, each intersection has a profound influence on land use and development options.

The intersections inside the industrial zone and along route to the Corridor X need to accommodate with comfort and safety a design peak traffic volume. The needs of commercial vehicles should be considered. Consideration should also be given to operating speeds and turning path requirements at the intersection, the type of traffic control, the needs of pedestrians, cyclists and on-road public transport and safety aspects. For this reason the proposed carriageway width is 7,0 meter while foot path is 1,5 meter wide.



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The intersections should be designed to accommodate the appropriate design vehicle. The design vehicle chosen will depend on the significant types of trucks which will enter to the industrial zone.

It is important that the operational characteristics of capacity and delay be satisfied. However, safety is the prime consideration in road and intersection design.

Safe intersection design needs to be based on the following principles:

- Adequate visibility of the intersection and adequate sight distance to other vehicles approaching or standing at the intersection
- Reduction in the number of conflicts points and separation of them
- Minimization of the conflict area
- Separation of conflict point
- Giving preference to major traffic movements
- Definition of paths to be followed

Vehicle turning paths must be accommodated by the intersection's geometry and layout and are a key consideration in the design process.

The pavements need to be design for heavy traffic.

Proposed road network development

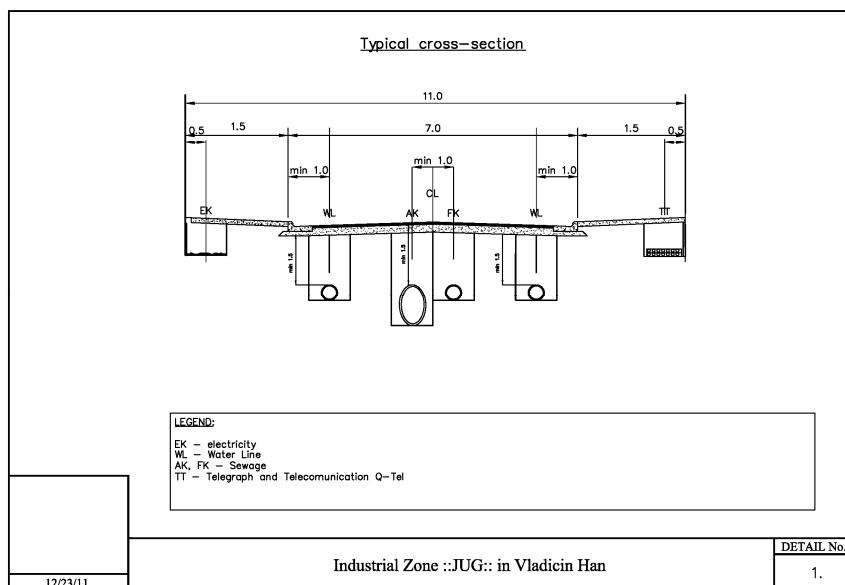
Internal circulation requirements define the parameters for the safe circulation of vehicles and pedestrians within the zone.

Road widths and geometry shall be suitable for the design vehicle (drawing-Typical road section).

Pedestrian access must be provided to all facilities and pedestrians should be separated from vehicular traffic except for bicycles without motor power.

Entrance to the industrial zone shall be controlled at a single entrance which in the long term will be permanently monitored either with CCTV or by security staff. This approach will ensure a higher degree of security for the site.

Emergency exit shall be provided to ensure that in case of accidents blocking the main entrance another exit is available. The existing access from national road R-214 to industrial zone will be maintained as emergency entrance/exit even the road access is at railway crossing at grade. Railway crossings are avoided.



Industrial zone "Jug" in Vladicin Han

Concept I, phase 1 - Traffic facilities



LEGEND:

- existing road
- new road
- corridor X
- main entrance to Industrial zone
- emergency exit
- existing railway
- future railway
- Gramadja junction
- greenfield
- boarder of the ind. zone in phase 1

greenfield phase 1	64.10 ha
Traffic	4.00 ha
location A	145.60 ha





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8.7.6 Water Supply

Water is another important factor in industrial processes being used for cleaning, cooling and sometimes mixed in the final products.

Design criteria

Reference area is located on the southern part of the town V.Han between South Morava and railway Belgrade - Skopje. General slope of the area is southwest - northeast, which enables easier drainage. Approximate ground levels are from 335 m.a.s.l. to 330 m.a.s.l. The main distribution pipeline should be constructed along the main internal road and secondary pipelines until individual plots with connection to the water main.

Requirements for design and construction of water supply:

- along new constructed roads, new distribution pipelines should be installed;
- new pipe diameters are minimum 150 mm;
- connections should be to the existing water main which is routed along the railway line Belgrade – Skopje;
- pipelines should be installed in sidewalks and possibly in a green area;
- connections should be made through the inspection manholes placed immediately to the inside of the regulation line, or inside of the external walls of the facilities;
- pipelines should be equipped with hydrants, valves and all other elements necessary for their smooth operation and easy maintenance;
- design and construction of waterworks should be performed in close cooperation and under supervision of the relevant utility company.

Water Demand

The volume of water required depends on the industry and the type of processing adopted. The industries which will set up within the industrial zone is not known beforehand and therefore a benchmark approach will be adopted in determining the water supply requirements. The following table provides typical design criteria for the water supply requirements in different types of facilities.

Table 8.7-2 Design Criteria for Water Requirements

Country	Reference	Sector	Design Capacity M ³ /d/ha
USA	AWWA 94-8	Municipal commercial	65
USA	AWWA 94-8	Light industry	7
USA	Metcalf & Eddy 4th Ed.	Light Industry	7 - 14
USA	Metcalf & Eddy 4th Ed.	Medium Industry	14 - 28
Canada	MOE, design of water treatment plant	Commercial	28
Canada	MOE, design of water treatment plant	Light industry	35
Canada	MOE, design of water treatment plant	Heavy industry	55
Thailand	Rojana Developer	Mixed electronic auto parts	62
Singapore	Jurong Design Criteria	Apparel	60
Singapore	Jurong Design Criteria	Logistics	16
Singapore	Jurong Design Criteria	Light industry	32
Singapore	Jurong Design Criteria	IT	16
		Average	38





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In order to confirm the design criteria an analysis of water availability at actual industrial zones has been completed and presented in the following table.

Table 8.7-3 Typical Availability of Water at Existing Industrial Zones

Country	Existing Industrial Zones	Industrial Sectors	Area ha	Water Availability m ³ /day/ha
Poland	Bukovice	light industry Plastic	114	3
Poland	Goleniow	light industry glass fibre, spinning, chemical	170	12
USA	Connersville	Light industry	232	62
USA	Mid america	Light industry	2000	95
Vietnam	Bien Hoa 1	Light industry, confectionery, gas appliances, packaging	335	75
Vietnam	Bien Hoa 2	Light industry, chemical,	365	41
Vietnam	Amata, Bien Hoa	IT, apparel	129	31
Vietnam	Ho Nai Trang Bom	Light industry, apparel, shoes, machinery, electronic	226	9
Vietnam	Song Mai Trang Bom	Light industry, apparel, shoes	227	22
Vietnam	Loteco Bien Hoa	Light industry, foodstuff, tanning, chemical, metal	100	60
Vietnam	Tam Phuoc Dong Nai	Light industry, metal, apparel, shoes	323	6
Vietnam	High tech park HCMC	High tech industry robotics, biotechnology, pharmaceutical	210	40
Vietnam	Vietnam Singapore, HCMC	High tech industry robotics, biotechnology, pharmaceutical	500	24
China	Jiangning Nanjing	Mixed residential beverage, metal	3000	100
Thailand	Navanakorn, Bangkok	Mixed	535	22
Thailand	Rojana Ayutthaya, Bangkok	Mixed electronic auto parts	1165	92
Thailand	Rojana Rayong, Bangkok	Mixed electronic auto parts	400	100
	Average			47

The industrial sectors expected within the industrial zone is likely to be light and medium industry and therefore it is proposed that a benchmark of 40 cubic metres per hectare per day is made available for the industrial zone.

The paper factory and the furniture factory have their own wells and can be excluded from any calculation of water needs. The rest of the area or about 90 hectares have to be provided with water and using the proposed benchmark the average water requirement is 42 l/s.

Peak flow

Peak flow (DWFp) is calculated using the following formula:

$$DWFp = PF * Q_{ind}$$

where PF is a industrial peak factor.

The peak factor, PF, is a ratio of the peak water demand and the annual average. The peak factor considers both seasonal and daily variations in the water flow. Two different peak factors have been used for the calculation of design flows:

PF = 1.4 correction factor max day;

PF = 2.5 correction factor max hour;

Calculation gives the rough estimation of maximum hourly water requirements of 104l/s. More detail requirements could be calculated only based on type of industry (not available at the moment) that is going to be developed in the area.





Impact of industrial zone development on the water source Suva Morava and water supply in Vladicin Han

As it is described in the chapter 5 Existing situation for resources and infrastructure, 5.7.5 Water Supply, Vladicin Han receives potable water from Vrla power plant 10 months per year. During maintenance period in the power plant, Vladicin Han receives the water from the wells in Suva Morava and pumping station Lepenica. Capacity of the 8 wells cannot meet the demand of the households and commercial customers connected to the water supply system. Maintenance period is longer year by year as well as dry periods in July and August.

In order to improve the future water supply in the municipality, General design and feasibility study is finished in 2010 (Generalni projekat sa prethodnom studijom opravdanosti za vodosnabdevanje opstine Vladicin Han, HUMING, Beograd, October 2010). Analysis were made for the additional water intakes from several directions.

Proposed activities to be undertaken for options analyzed, regarding solving water shortage are presented below (see also Figure xx):

Option 1. Connection to the Vranje Regional water supply system and Gravity raw water pipeline DN450 (from connection to the raw water pipeline from "Prvonek" impoundment in the zone of WTP Vranjska Banja until WTP "Polom"), to be used in the overhauling period of Vrla HE 4

- Construction of DN450 PE pipes NP 10 bar L = 18.000m,
- Construction of connection manhole in the area of WTP Vranjska Banja.

Option 2. Development of surface water source on the Jelašničnička River and Gravity raw water pipeline DN450 from Jelašničnička River (municipality of Surdulica) until WTP Polom, that would be used in the overhauling period of Vrla HE 4

- Development of hydrological studies for the Jelasnicka river basin,
- Construction of DN450 PE pipes NP 10 bar L = 8.000 m,
- Construction of water intake with elevation about 480 m.a.s.l located above the settlement Jelašnica,
- Implementation of protection measures in the Jelasnicka river basin.

Option 3. Development of the Gramade Groundwater source and Pumping of water from the new water source close to the Gramađe village until Suva Morava water source, with use of existing collection well and PS Lepenica

- Continuation of hydrogeological investigations at the site close to Gramađe village,
- Expropriation of appropriate areas that pass under the jurisdiction of the PUC,
- Sanitary protection of new water source,
- Construction of DN355 PE pipes NP 6 bar, L = 1.700m,
- Construction of wells, additional PS Gramadje with the suction basin, volume 100 m³, Q = 90 -100 l / s, H = 50 m, N = 70 kW at the site close to the Gramađe village with pressure main to existing PS Lepenica, power N = 90 kW.

Option 4. Development of the Gramade Groundwater source and Pumping of water from the new water source close to the Gramađe village until Suva Morava water source, using the existing collection well and PS Lepenica, together with some of the seven wells that may be provide adequate sanitary protection and will not be affected by future regulation work of the the South Morava river



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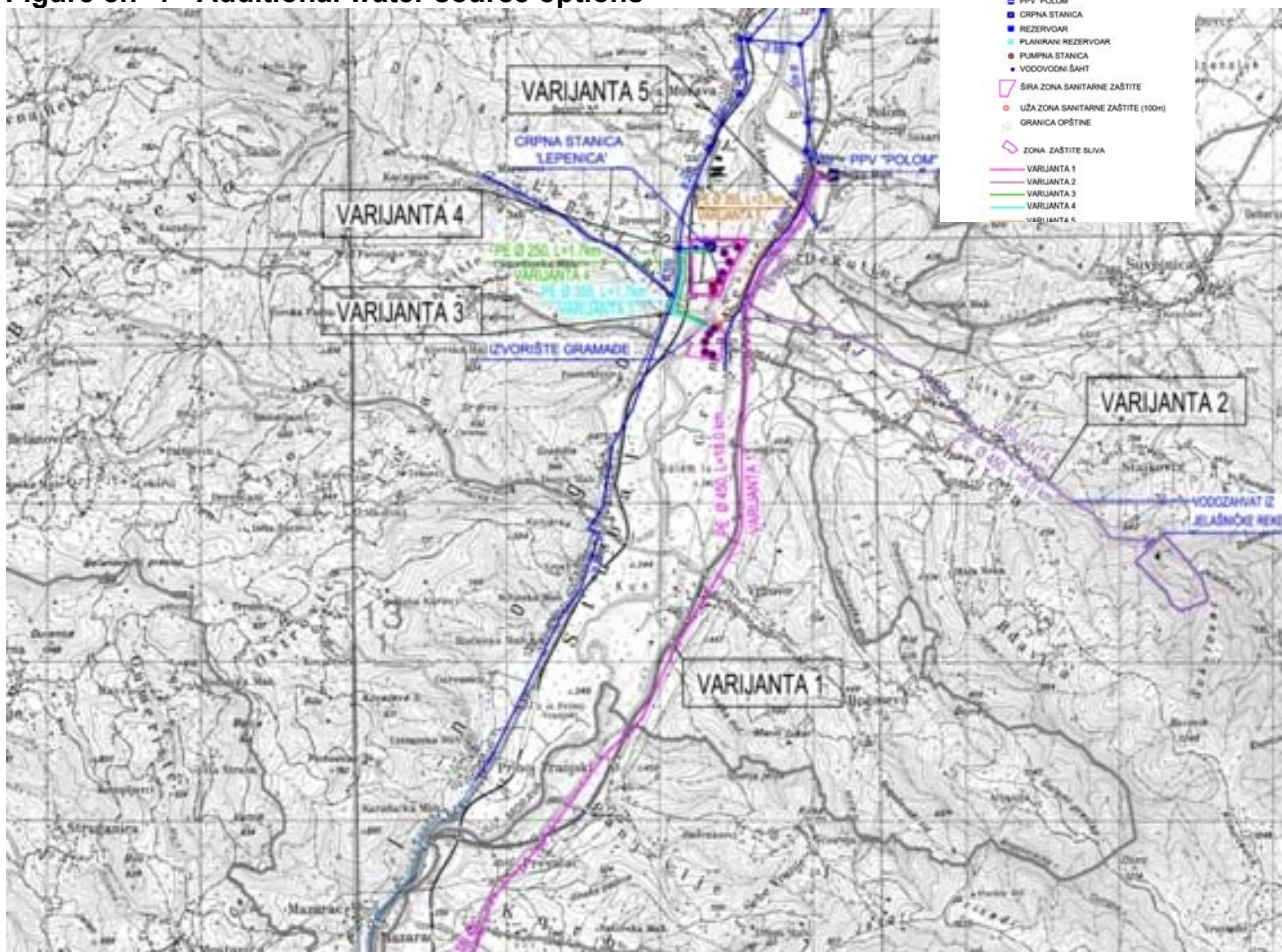
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- Continuation of hydrogeological investigations at the site close to Gramađe village,
- Expropriation of appropriate areas that pass under the jurisdiction of the PUC,
- Sanitary protection of new water source,
- Construction of the pipeline PEØ250 (DN280), NP 6 bar, L = 1.700 m,
- Construction of wells, additional PS Gramadje, Q = 40 -50 l / s, H = 50 m, N = 35kW with use of the existing PS Lepenica, N = 90 kW.

Option 5. Development of the Gramađe Groundwater source and Pumping of water from the new water source close to the Gramađe village until WTP “Polom”, with possibility of using existing capacity of WTP

- Continuation of hydrogeological investigations at the site close to Gramađe village
- Expropriation of appropriate areas that pass under the jurisdiction of the PUC
- Sanitary protection of new water source
- Construction of DN355 PE pipes NP 10, L = 2.700 m
- Construction of wells and PS Gramadje, Q = 90-100 l/s, H = 80 m, N = 130 kW at Gramađe village location.

Figure 8.7-4 Additional water source options





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General design gives slight advantage to Option 2, in spite the fact that it gives high costs of implementation. Since, hydrological potential of Jelasnica river is not investigated and due to lack of information for this area, this option will not be further analyzed in this study. Option with the lowest investment cost is Option 4. Option 4 is proposed to be further developed in order to cover the water shortage for the industrial zone in the overhauling period of Vrla HE 4.

After industrial zone is developed in total and population connection is increased, water demand will go up. Therefore, further effort regarding water supply for municipality in total should be undertaken in coming years, to find and develop final solution for water shortage in the in the overhauling period of Vrla HE 4.

Furthermore, past development of the industry endangered the protection zones for existing wells in Suva Morava. Importance of this water source is so high that this water source cannot be abandoned before new water source is connected to the water supply system. New water source has to be connected as soon as possible, because the new industrial developments in Suva Morava can decrease even more the water quality of existing wells.

Additional important aspect is construction of the roads inside the industrial zone. According to the Detailed regulation plan for industrial zone Jug (JUGINUS, Beograd, 2010), and road analysis in this study, road inside the industrial zone is planned near PS Lepenica, through the protection zone for the well B1. To avoid the risk of the water pollution and regular maintenance of the PS and the well, closure of the well B1 is recommended. In order to have enough water from Suva Morava (PS Lepenica), new wells on the right bank of Juzna Morava could be activated according to General design and connected to the PS Lepenica. In that sense, investment for Option 4, the new well and pipeline from the well to the PS Lepenica is included into investment plan in this study. This investment will therefore benefit the industrial zone as well as the town.

It is expected that the development of two wells in the Gramade wellfield in combination with the remaining wells in the Lepenica wellfield after abandonment of the wells which are impeding development of the industrial zone will provide sufficient water for the industrial zone as well as the town during the shut-down of the hydropower plant. It is therefore recommended that development of this alternative resource be funded under this project to liberate land presently occupied by two wells and also guarantee the water supply for the industrial zone as well as the town. Subject to completion of hydrological investigations and proving of the capacity of the Gramade wellfield, option 5 could be completed in order to liberate about 15 hectares of land presently occupied by the Lepenica wellfield for industrial development.

Water supply development

Technical solution for the system for potable water supply involves designing a functional network for water distribution in the site and the connection to the public water supply network. The entire solution should be designed in accordance with the requirements of the relevant utility enterprise JP Vodovod Vladicin.Han. These requirements describe in detail the manner and conditions for connecting to the public water supply network and the works required for this to be permitted. The requirements are standardized and developers, investors or tenants are obliged to adhere and comply with their contents in full. Investors satisfying these requirements in full, the public utility company will in turn guarantee a regular supply in terms of quality and the quantity of water supplied at an adequate pressure for use in the Industrial zone.

The projected flow is $Q_{aver,day}=42$ l/s (demand assessment made on available greenfield and brownfield area). This demand from the fully developed Industrial zone will exceed the available water resources for Vladicin .Han. It is therefore recommended that development





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of the water source Gramadje and its connection to the pumping station Lepenica with a Ø250 be started as soon as possible.

Water supply for the industrial zone will be provided through two interconnections to the existing system. A new water main Ø150 pipeline for the zone will be connected to the existing Ø300 mm water main pipeline which is routed in line with the railway toward town Vladicin.Han and a second connection will be at the PS Lepenica which is supplied from the wellfield, Suva Morava. (see section Impact of industrial zone development on the water source Suva Morava and water supply in Vladicin Han).

IN addition to the Ø250 (main pipeline from future „Gramadje“ water source) the distribution network within the zone will be mostly Ø150. The total length of water network covered by project is around 4.300 m.

In addition to providing a sanitary clean water supply to industrial consumers, the other function of an urban water supply system is firefighting. The design of the network must include the installation of a full fire fighting hydrant network according to regulations (Pravilnik o tehničkim normativima za hidrantsku mrežu za gašenje požara). This regulation prescribes standards for firefighting water requirements. This include the installation of DN 80 Fire hydrants at a distance of 80-150 m on all pipelines of the industrial zone water supply system. The water supply system will be located on one side of the street, 0.5 meters from the road edge and controlled by a suitable valve arrangement and metering devices. Service connections to the industrial plots will be provided at regular spacing along the roads.

Fire fighting system with low pressure is recommended. Water supply network needs to provide only the increased flow, required for fire fighting, within the required time. Pressure, for obtaining fire jets of water are created with mobile pumps brought by firefighters, which are supplied from the fire hydrants on the water network. For proper operation of these pumps inlet pressure at water hydrant should be 1 bar, or more, if the hydrant fire truck is filled with water (due to higher resistance in the suction pipe of the truck).

Reference drawing “water supply, sewerage, stormwater drainage and flood protection” contains the scheme of networks required to be implemented in the Industrial zone.

Regional industrial zone "Jug" in Vladicin Han

Concept I, phase 1 - Water supply, sewerage, stormwater drainage and flood protection





8.7.7 Wastewater collection and treatment

The biggest environmental issue, resolving of which most likely affects the development prospects of Vladicin Han is maximum contamination (class IV) of the South Morava water. Pollution is the result of a significant number of pollutants along the water courses through Kosovo Pomoravlje and southern regions of Juzno Pomoravlje up to Vladicin Han on one hand, and discharging of wastewater - industrial and communal in the Juzna Morava recipient without prior treatment on the other. Therefore, the construction of adequate treatment facility is the priority of Vladicin Han.

In addition to this, the location for another small WWTP is foreseen at the downstream boundary of the industrial zone at the Suva Morava site.

Design criteria

The design of future systems for collecting and disposal of sewage water following basic design criteria, consistent with the criteria that are used in the EU should be applied:

- A separate collection system shall be provided each for stormwater and for wastewater.
- Minimum diameter of the pipe is defined for the following reasons: possible occurrence of larger objects in the sewer, the occurrence of the settling and reduce of hydraulic cross-section, and especially for easy maintenance and cleaning. Adopted minimum diameter is 250 mm.
- Depth of flow in the pipe at maximum flow ($Q_{\max,h}$) is 75% ($H / D = 0.75$) for the secondary network, while the main collectors should be designed for maximum filling of around 50%. In this way pipe ventilation is provided, with sufficient reserve in case the estimated inflows into the system were underestimated.
- Pipe gradients are determined based on topography of the terrain and are in a range from minimum to maximum allowed. The minimum longitudinal gradient of the pipe is the velocity at average flow in the pipe is at least 0.75 m/s, while the maximum gradient at which the velocity of the flow does not exceed 3.0 m/s. In sections where the slope between the minimum and maximum, pipes follows the slope of the terrain, and construction works are reduced to a minimum. Backdrops shall be provided where the maximum allowable gradient is insufficient to overcome the high difference in elevations. Small lift stations will be provided where the depth of pipes exceed about 6 metres. The provision of lift and pumping stations shall be avoided as far as possible.
- Minimum trench depth: Since the collector route will run along the new roads, at this stage of design minimum trench depth of 1.8 m (from the ground level up to the invert level) should be provided. This means that the minimum protection layer height is about 1.5 m, which ensures the protection of the collector from traffic load and allows the connection to the sewer system.
- The maximum trench depth is about 5 m, which is acceptable to construct in standard conditions. The exact grade line of collectors will be defined in future stages of project documentation.
- The minimum velocity in collectors: Wherever possible, collectors should be designed as "self cleaning", which means that there are no content settling at the bottom of the collector. In this way maintenance of the sewerage network is significantly easier and cheaper. In this sense, adopting the minimum velocity rate during dry periods in the main collectors of $v_{\min} = 0.75$ m/s in a period from 1 min. to 1 hour.
- The maximum flow velocity in the collector should not be greater than $v_{\max} = 3.0$ m/s.



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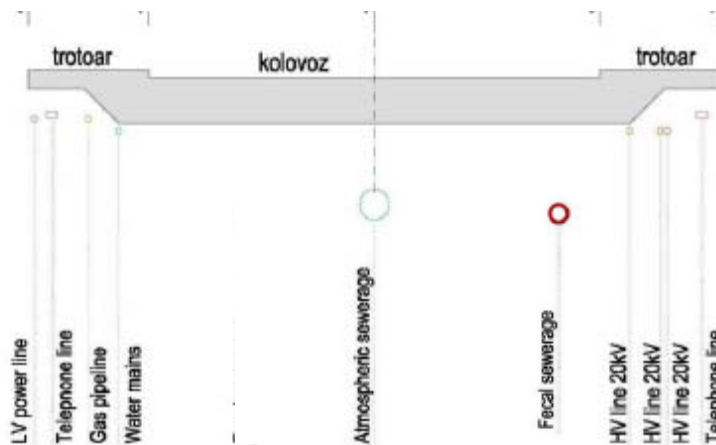


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Sewerage network development

The technical solution of the sewage system for collection and discharge of sewage involves designing the functional network and collector lines for each user (future tenants). The entire solution should be in line with the requirements of the relevant JP Vodovod Vladicin Han. This requirement describes in detail the manner and conditions for connecting to the public sewer network and the works required for this to be permitted.

Figure 8.7-5 Position of water supply, fecal and atmospheric sewerage relative to other infrastructure facilities – typical cross section



Approximately 4.200m of sewage gravity pipeline on the basis of appropriate capacity of the water supply, with pipe diameter of Ø250 and Ø300mm should be constructed. Inspection manholes are to be installed on all horizontal, straight when the distance between exceed 160D (diameter). Sewage routes will be installed 2 meters from the road axis at the minimal depth of 2.2 m. Manhole openings must be positioned precisely at the road level This network will be reduced to a single discharge only. All drains are piped to this main collector through the system of secondary sewage collector. Service connection manholes shall be provided for each plot.

Furthermore, a wastewater treatment plant (WWTP) with a final capacity of 6.000 PE (people equivalent) and a first phase capacity of 3.000 PE will be constructed at the end of main collector. Extention will be required after total industrial area is developed. WWTP will be conventional biological treatment with nutrient removal. Removal of nitrate shall be provided in the first phase and phosphorus removal can be added at a later stage if necessary. The design conditions to be provided during preliminary design will confirm the requirements. Treated wastewater will be discharge into lagoons and finally it will be further pumped into the J.Morava river. Sludge shall be thickened, stored and dewatered prior to disposal. Dewatered sludge shall be disposed at the existing landfill until a regional sludge disposal system is created.

A typical concept design for the wastewater treatment plant for 3,000 population equivalent is provided on the following table.





Table 8.7-4. Design and Cost estimate for wastewater treatment plant

Process	Number of units	Size of Unit	Cost Estimate M€
Inlet Pumping Station	3 pumps	4 kW	0.09
Oil separation, Screens	2 units		0.09
Primary Settlement	2 units	4m diameter	0.11
Bioreactor	2 units	10m x 8m racetrack	0.16
Return pump station	3 pumps	1 kW	0.03
Final settlement tanks	2 units	7m diameter	0.16
Sludge thickening and storage	2 units	3m diameter	0.04
Sludge dewatering	2 units		0.08
Buildings	Sum		0.06
Electrical Works	Sum		0.15
Siteworks	Sum		0.04
Total			1.01

Water discharged into the sanitary sewer should be in compliance with the Decision of Sanitary and technical requirements for wastewater discharging into the public sewers (Uredba o graničnim vrednostima emisije zagađujućih materija u vode i rokovima za njihovo dostizanje ("Sl. glasnik RS", br.67/11), which clearly defines permitted concentrations and other parameters as well as requirements for connecting to the sewer. Pretreatment shall be provided by the tenants to ensure that the wastewater discharged to the sewers comply with the above requirements. Used water is considered as municipal wastewaters because the requirements for the future WWTP indicate that the solution for eventual technical wastewaters would be the subject of special requirements for each industrial facility located in the zone. It will be clearly required from all industries in the zone to construct if necessary, their own pre-treatment facility and to ensure their waste water quality meets the standards. Reference drawing "water supply, sewerage, stormwater drainage and flood protection" contains the scheme of networks required to be implemented in the Industrial zone.

8.7.8 Stormwater Drainage

The Technical solution for the stormwater drainage system includes:

- Collection and discharge of storm water from all public surfaces (roads and streets);
- Connection for future tenants;
- Construction of a collector line for end recipient.

Technical solution of the system for collection and discharge of stormwater involves design of a functional network for collecting and discharge of storm water from all public surfaces (roads and streets) and connection for the future tenants and design of a collector line for end recipient (J.Morava).

The drainage system shall be designed to ensure that there is no increase in floodwaters downstream of the development area and no reduction in downstream water quality. Any detention basin or flood mitigation works shall be sited wholly within the industrial zoned land on the site and shall not be permitted to encroach on land zoned for environmental purposes. An on-site stormwater plan shall be prepared to minimize the stormwater emanating from each plot. Drainage within the plot shall be provided by the investor and the impermeable ratio shall be limited to 70% and the run off including roof drainage shall be directed to soakaways, soakage trenches or rain garden if the permeability of the ground so allows otherwise it shall be collected by the centralized stormwater drainage system. Car parks and large impermeable areas shall be as far as possible be provided with porous paving.



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Design criteria

The performance of a system for rain water is usually expressed as "average return period" (average recurrence Intervals - ARI), or "the probability of achieving/exceeding the given value in one year" (annual exceedance probability - AEP), relating to the rain, and the resulting runoff, which the system can accept.

As part of the design of drainage system for storm water would generally supposed to be a result of techno-economic analysis, which on the one hand take into account the necessary investments and operating costs of the system, and on the other side damages which could occur due to a possible system overload/flooding, for the rain of different recurrence interval. Taking into account the world experience and current designing and exploitation practice of such systems in Serbia different types of storm water collectors have been separated according to corresponding rain calculations for their sizing:

- for underground pipes that collect surface runoff along streets/roads of a lower order (hereinafter referred to as secondary network), rain-recurrence Interval of 2 years should be applied.
- for the main storm water collectors – rain recurrence interval of 5 years should be applied
- for the facilities for the protection of the main roads from the surface runoff - rain recurrence interval of 10 years

For the objects designed like this, especially the main collectors, it is desirable to be check for the case of lower rain exceedance probability, where the flooding in such extreme cases should be limited in extent and cause predictable and not catastrophic consequences.

Because of the possibility of larger objects in the pipes, as well as for easy maintenance of the networks, a minimum diameter for the secondary collection network of 300 mm is defined.

For the defined calculated precipitation, a 100% network filling is allowed, while the main collectors anticipates some reserve capacity, and special checks of their work at higher precipitation should be performed.

The minimum longitudinal pipe slopes are chosen so that the depth at average flow achieve average velocity of about 0.75 m/s, and thus prevent excessive settling of suspended matter along the pipelines and increased maintenance costs. Maximum longitudinal pipe slope is chosen so that the flow velocity at maximum flow does not exceed 5 m/s.

In further stages of designing it should be taken into account the requirements for the efficient collection of surface water, and solutions to avoid threatening that (for example, the rise of the level of roads in relation to the surrounding terrain). Furthermore, it is desirable to direct the drainage of surface runoff to their natural course.

Design stormwater flow

The Rational formula was used for the calculation of the stormwater flow:

$$Q_p = C \cdot I \cdot A$$

where Q_p is the peak stormwater flow, C is a runoff coefficient, I is an average rainfall intensity during a specified time interval called the time of concentration (in liters per second per hectare or mm in minute), and A is the contributing drainage area (ha or km²).

The runoff coefficient is explained in the following section. Rainfall intensity was adopted from available documentation. Duration of the rainfall is set equal to the time of concentration.



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Average runoff coefficients

The runoff coefficient, C, can be considered as a fraction of the rainfall that enters the rain water sewerage system. The runoff coefficient depends on physical and topographical characteristics of the catchment area, specifically the type of surface (e.g. asphalt pavements, roofs, lawns, etc.). The estimate of the runoff coefficients has been done for different types of catchments in terms of surface character.

Based on the analysis, typical runoff coefficients for the Municipality of V.Han are presented on Table 8.7-4.

Table 8.7-4 Runoff coefficients related to the type of area

Description of area	Runoff coefficient, Cj
Roof area, impermeable areas, slightly inclined	0.90
Green area, permeable areas	0.05
Roads and parking area, impermeable areas, mostly flat	0.85

Recurrence interval

In hydrology the recurrence interval (years) is the frequency with which one would expect, on average, a given precipitation event to occur. When considering the wastewater systems, recurrence interval is the reciprocal of probability (%) that a sewer will exceed its design capacity. Recurrence intervals for sewers vary from 1 year for rural combined sewers to 5 years for combined sewers in highly risky areas, e.g. business districts. These return periods refer to the design situation when no surcharge of the sewer is allowed.

Design practice in Serbia uses a recurrence interval of 2 years for design of separate sewers system, and 5 years for combine system, assuming that the sewer will not be surcharged. So return period of 2 year will be used in the Feasibility Study.

Storm Intensity

Storm intensities for the considered area have been assessed based on the available documentation⁹. Table 8.7-5 shows intensity of maximum daily rainfall for selected recurrence intervals in the area of Vladicin Han meteorological station.

Table 8.7-5 Rainfall – meteorological station Vladicin Han

Recurrence interval (year)	P percent chance of occurrence (%)	mm/day
1	99	15.5
2	50	37.31
5	20	49.37
10	10	57.58
20	5	65.64
50	2	76.39
100	1	84.73
1000	0.1	114.53

⁹ "Detail design for J.Morava river regulation works and unregulated tributaries on section from railway tunnel in V.Han until confluence with Lepenica river", M.P. Velika Morava, Beograd, nov.1998.





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Stormwater drainage network development

Purpose of the storm water network is to collect surplus storm waters from the entire area of the industrial zone and discharge it to the lagoons, located in the industrial area, and finally to the J.Morava.

The required network capacity has been defined to be $Q=300$ l/s. The stormwater drainage system in the zone is collected and drained completely independently from the industrial wastewaters. It will have a gravitational flow toward the lagoons. Flow from the lagoons in normal period shall be through a flap valve which will close in period of high water flows in the Juzna Morava river. Under such circumstances, the collected storm water is pumped into the J.Morava river.

Total length of stormwater network is around 5.600m, pipe diameter of $\varnothing 300$, $\varnothing 500$ and $\varnothing 600$ mm. In addition to the pipeline network required to satisfy functionality, additional facilities, like inspection manholes and storm drains will be constructed. These manholes will be located at all junctions, connections for collectors, horizontal and vertical deviations (where change of the decline – angle or diameter of pipes occurs, cascades, etc). Distance between manholes will be 160D (pipe diameter). Stormwater drainage will be constructed in parallel with construction of the roads. In addition to collectors, it has been planned to incorporate connection points for future structures that will be constructed in the zone.

The storm water drains from roofs, roads, flat areas and green areas and it is directly routed to a gravitational line which leads to the retention lagoon (retention basin) and after to the river J.Morava. The purpose of the retention basin is to hold storm water for a period of time prior to pumping to the river in order to decrease the peak level of rain water in the river during rainfall. Parameters for collectors are defined for normal operation under non pressurized operation at the lowest gradient to remain under pressure during the heaviest rain. Useful volume of the retention basin is around $V=37000$ m³. This volume could cover 2 days duration rainfall. In the case of 20 years recurrence interval rain event, road area could be flooded but not the facilities inside the plots. In order to avoid this event, facilities entrance should be constructed 50cm above main road level.

Reference drawing „water supply, sewerage, stormwater drainage and flood protection“ contains the scheme of networks required to be implemented in the Industrial zone.

8.7.9 Flood protection

Regulation works of the J.Morava river has been planned after the Detail design “Detail design for J.Morava river regulation works and unregulated tributaries on section from railway tunnel in V.Han until confluence with Lepenica river”, M.P. Velika Morava, Beograd, nov.1998. godine. Further analysis is based on the reference document.

Design criteria for flood protection development

General design criteria should be applied for the dikes design:

- Objects for flood protection should be in accordance with preliminary conditions issued by the relevant Ministry (based on opinion from JVP Morava and Srbijavode)
- Works should be performed with minimal costs, which means minimal earthworks, and minimum of land expropriation, but without endangering functionality and reliability of technical solution
- Work should be implemented with maximum use of existing flood protection objects, if they satisfy requirements



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In addition to general requirements, specific requirements for design of dikes should be applied:

- Control exceedance probability high flood flow of 1% (100 years recurrence interval)
- Reference exceedance probability high flood flow of 2% (50 years recurrence interval)
- Protected side slope of dike is 1:2
- Minimal freeboard above 100 years recurrence interval level: 0.2m
- Top width-crown:2.5m

Checking and verification of previous regulation work on the of river J.Morava and evaluation of the possibility of their integration into the new technical solution should be performed.

The Detail design should be prepared in accordance with all applicable regulations for this type of design with all appendices and details, following the terms of which are issued by the ministry.

Description of river section at location of industrial zone

Insufficient capacity of the natural river-bed of J.Morava for high water levels, on the relevant section is a consequence of torrential flow regime and sediment deposit of side tributaries.

The route of the natural bed of J.Morava is smoothly developed, with alternating curves. On this section, the average bottom slope of the natural river-bed is 1-3 ‰. The basic river-bed is mostly about 25-40m wide. Slopes of the river bank are usually about 1:2, at some point where the river bank is high the slope goes up to 1:1. The depth of the river-bed varies in the range of 2.5-4.0m

Considered section in the area of industrial zone is located on left river bank between km 5+300 do km 7+300, partially protected with existing dike at section 5+950 do 7+800. Upstream from existing dike there is well water source for V. Han, with 7 wells used for water supply of V.Han in the summer months in the period of overhauling of Vlasina HE. On the subject section of the river several tributaries are discharged into the river Juzna Morava.

Table 8.7-6 Tributaries of J.Morava in the area of industrial zone

No.	Name	Chainage	River bank
1	Dekutinska river	Km 6+780	Right
2	No name stream	Km 7+220	Right
3	Jelasnica river	Km 8+035	Right
4	Lepenicka river	Km 8+080	left

Based on the analysis of natural riverbed capacity, reference area is flooded during high water levels.

Hydrological background

In the reference document high water probabilities were analyzed, for the 50% percent chance of occurrence (2 year recurrence interval), 5% percent chance of occurrence (20year recurrence interval); 2% percent chance of occurrence (50year recurrence interval); 1% percent chance of occurrence (100year recurrence interval); 0.1% percent chance of occurrence (1000year recurrence interval). Statistical analysis of historical data gives very high flood levels for the area of V.Han.

Table 8.7-7 Very high flood flows

Synthetic very high flood (1% percent chance of occurrence)	674 m3/s
Synthetic very high flood (2% percent chance of occurrence)	577 m3/s
Medium high flood (average perennial high flood)	202 m3/s





Mean flow of J.Morava at V.Han station is estimated to be $Q=18.1\text{m}^3/\text{s}$, and low water flows is $Q=1.4\text{m}^3/\text{s}$. Estimated high water levels for tributaries are:

Table 8.7-8 Tributaries high flood flows

	Very high flood (2% percent chance of occurrence)	Very high flood (5% percent chance of occurrence)	Medium high flood (50% percent chance of occurrence)
Lepenicka river	104 m ³ /s	76.2 m ³ /s	24.6 m ³ /s
Jelasnica river	125m ³ /s	92.2 m ³ /s	30.2 m ³ /s
Dekutinska river	30 m ³ /s	21.8 m ³ /s	6.7 m ³ /s

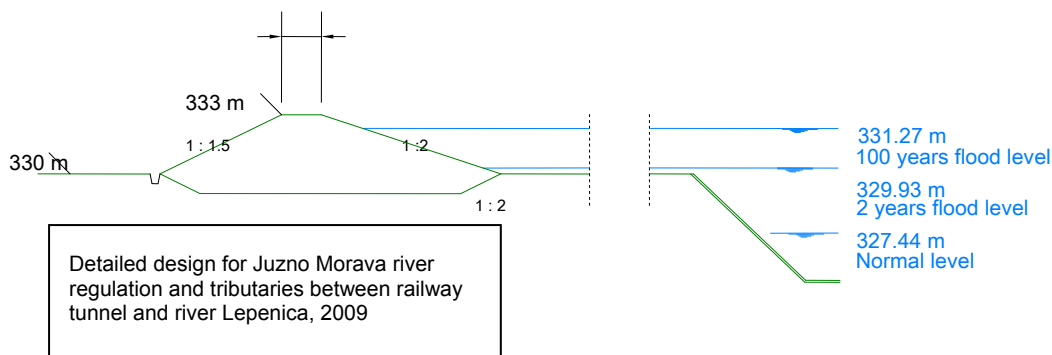
Flood protection development

Industrial zone is at present protected by a dike in a length of around 1000 m. Since larger area will be used for industrial zone, when J.Morava river water level rises to elevation higher than 330m, industrial zone will become the flood plain at that location.

The ground level in the industrial zone is approximately the same level as the flood level for the 2.5 years recurrence interval at the moment. It is therefore expected that there will be frequent occasions when the J.Morava river will overflow its normal banks and the flood plain of industrial zone. Calculations prepared for the detailed design for regulation of the Juzno Morava river and its tributaries between the railway tunnel and river Lepenica has confirmed that medium high flow (202 m³/s-it correspond to recurrence interval of 2.5 year) can be received in normal river-bed for the considered section (in the area of Industrial zone).

For this reason, proposed measure for flood protection for the considered section of the river J.Morava in the area of industrial zone would be construction of the dike, which will be extension of existing, going north and south covering the area of industrial zone and water source. If necessary a new appropriate tributary confluence into the J.Morava should be designed in order to maintain the stability of the bed and banks of tributaries, as well as stability of the dikes. Dike height shall be designed for a maximum water elevation of 100 years recurrence period plus a freeboard of between 0.5 and 1m. Final design of dike perimeter and cross section shall be performed during detail design preparation. However, for cost estimation and space requirement a typical section is shown in Figure 8.7-9.

Figure 8.7-5 Typical Cross-section of the Dike



Regulation works on the subject section is relatively urgent, given the importance of facilities that will be protected against high water.



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8.7.10 Electrical Power and Street Lighting

Design Criteria for electrical power supply development

The technical solution for power supply provision on Vladicin Han Industrial zone is conceptualized, based on power demand suggested in the PDR (1 to 3 KW per employee), as follows:

- the basic power supply unit is prefabricated concrete power substation 10/0.4kVA, 1000kVA capacity. Dimensions in the base are 5.5 x 4.5m.
- Standard transformer unit is chosen as 630kVA
- Number of transformer substations is 15 – 13 for technological consumers (IZ industries, i.e. future tenants) and 2 for communal purposes (waste water and back up supply water treatment. For the first phase it will be mounted 2 for communal purposes and 7 for IZ industries (one transformer substation in each block). For the purpose of complete 10kV network design those substations are chosen to be the most distanced ones.
- All substations 10/0.4kV will be supplied from 35/10kV transformer substation Vladicin Han with planned capacity of 2x8MVA (today 2x4MVA).
- Cabling is to be realized with underground cables 3x(1x150mm²), type XHE 49A.
- Distribution network 10kV will be realized in ring topology. Maximum number of transformer substations 10/0.4kV per one cable is limited on four per required cable.
- As an option, in order to clear land for construction it is suggested removal of the existing 110kV and 35kV aerial lines with underground re-cabling with 110kV and 35kV underground cables.
- Public lighting system consists of about 145 public lights luminaries, each mounted on the 8m high pole. Power demand for public light is 35kW and supply will be provided from low voltage side of the transformer substations.

Proposed electrical power supply development

Electricity is the most important source of energy for most industrial zones being required for powering all the machinery and equipment within the factories and offices. The electrical power requirement depends on the type of industries which will be allowed in the zone. Electrical requirements for primary transformation such as aluminium production or for timber processing can be quite high and has to be assessed on a case by case basis.

However, since general light industries are expected the approach adopted for estimating the energy requirement will be to use specific benchmark.

The power supply requirements for typical light to medium industrial zones are considered to be similar to those for military installations for which typical power supply are presented in the following table.

Table 8.7-9 Power Supply Requirements for Military Establishments

Service	Installation	Per capita		Per 1,000 square feet	
		Maximum demand kW	Usage per year kWh	Maximum demand kW	Usage per year kWh
Army Command	Development & Readiness	1.0-3.0	7,500-25,000	0.5-2	5,000-20,000
	Forces	0.5-1.2	3,000- 6,000	1-5	5,000-25,000
	Training & Doctrine	0.6-1.2	2,500- 7,500	1-3	5,000-20,000
Air Force Base	Logistics Command	1.5-2.5	7,000-10,000	2-4	10,000-20,000
	Military Airlift Command	1.0-2.5	5,000-10,000	2-3	5,000-15,000
	Tactical Air Command	0.5-2.0	3,000- 6,000	2-5	10,000-20,000
	Training	1.0-1.5	4,000- 6,000	2-5	10,000-20,000

Source: UFC 3-550-03FA, 1000square feet = 93m²





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Using the above benchmarks for employees on the site the following requirements can be estimated for the industrial zone:

Table 8.7-10 Electricity Requirements based on Employees

Based on 5,000 personnel	Maximum Demand MVA	Maximum Demand kWh/ year
Business Parks	3 - 8	15M – 30M
Light Industry	6 - 12	25M - 50M
Medium Industry	9 - 15	35M – 50M

On the other hand if the area based benchmark is used the power requirements will be as per the following table.

Table 8.7-11 Electricity Requirements based on Area

Based on 135ha	Maximum Demand MVA	Maximum Demand kWh/ year
Business Parks	9 - 36	25M – 100M
Light Industry	36 - 54	50M - 100M
Medium Industry	36 - 90	50M – 100M

The installed electrical equipment for a selection of industrial zones around the world has been examined to determine an average specific requirement and the result has been summarized in the following table.

Table 8.7-12 Specific Installed Electrical Capacity at Industrial Zones

Country	Existing Industrial Zones	Sectors	Area ha	Installed Capacity MVA	MVA/ha
Vietnam	Noi Bai, Hanoi	Metal, machinery	100	40	0.40
Vietnam	Nomura, Haiphong	High tech, apparel, machinery	153	50	0.33
Vietnam	Sai Dongi Ph.1 Hanoi	Machinery	97	50	0.52
Vietnam	Than Long Ph.1/2, Hanoi	Electrical, plastic, machinery	200	80	0.40
Vietnam	Amata	Food, machinery	361	80	0.22
Vietnam	Bien Hoa 1	Food, electrical, machinery	335	80	0.24
Vietnam	Bien Hoa II	Food, automotive, machinery	365	63	0.17
China	Yat Sen IZ, Tianjin	Agro industry	1000	140	0.14
Netherlands	De Kleef IZ, Arnhem	Chemicals	100	45	0.45
Germany	Oberbruch Industry Park, Heinsberg	Chemicals	110	45	0.41
USA		SCAQMD CEQA			0.13
		Average			0.31

The analysis shows that the installed capacity can be 0.3MVA per hectare. The installed capacity for the zone covered by the regulation plan area of 135ha will require an installed capacity of 40MVA.

Standby transformation capacity equivalent to the installed capacity must also be provided for 100% redundancy.

For this project the electrical designing project was not drafted. However, Plan of Detailed Regulation (PDR) contains the basic choice of the power supply concepts / facilities. Starting from the presumptions given in the Box 5.1, the PDR used standard urban values of power demands expressed per employ (1-3 kW per employ) and, after calculation, suggested the solution of the IZ site power supply with 15 medium voltage / low voltage (MV/LV) 10/0.4kV transformer substations capacity 1000kV and equipped with transformer's units 630kVA. The total installed power was calculated as on 7MVA. The result as calculated in PDR is shown in Table 8.7-13.





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Box 8.7-1 Assumptions for power supply demands as adopted in V.Han IZ Plan of Detailed Regulation

Parameters used for simultaneous power demand determination:

- Power demand for manufacturing facilities and industrial zones 1 to 3 KW per employee,
- Electricity losses 6%,
- Public electric lighting 3%,
- Reserve in substations 10 / 0,4 kV - 20%,
- Power factor 0.95,
- Consumer usage factor 0.8,
- Consumers with greater demand as needed

Table 8.7-13 Power Demand as estimated in IZ PDR

	Production Lines and Industrial Zone	Waste Water Treatment Facility	Back up Waterintake – pumping station	Public Ligthing	TOTAL
Maximum Peak Load	6.200kW	200kW	500kW	50kW	With usage factor 0.8 $P_{max.simul.}=5.560kW-$
Number and Capacity of the TS 10/0.4kV	13 TS capacity 1000kVA	1 TS capacity 630(1000)kVA	1 TS capacity 630(1000)kVA		15 TSs

Based on this calculation, Plan of Detailed Regulation (PDR) for IZ Vladican Han suggested the distribution of the new TS 10/0.4kV as follows:

Block 1 – max number of newly installed transformer substations 10/0.4kV – 2;

Block 2 – max number of newly installed transformer substations 10/0.4kV – 3;

Block 3 – max number of newly installed transformer substations 10/0.4kV – 2;

Block 4 – max number of newly installed transformer substations 10/0.4kV – 3;

Block 5 – max number of newly installed transformer substations 10/0.4kV – 1;

Block 6 – max number of newly installed transformer substations 10/0.4kV – 1;

Block 7 – max number of newly installed transformer substations 10/0.4kV – 1;

Spatial distribution of the transformer substations according PDR is shown on the Figure 8.7-6. All substations 10/0.4kV are planned to be supplied from the 10kV distribution bank in the new transformer substation 110/35/10kV, with standard 10kV cable type XHE 49 3x(1x150mm²), which consists of three single core cables laid down in the bundle.



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Figure 8.7-6

Spatial distribution of the transformer substations in the coverage of the PDR



Power demand estimation, elaborated previously in this chapter (which comes to the estimation on 0.31MVA/ha) and the one estimated in the Plan of detailed regulation (0.05 MVA/ha, calculated on the basis of estimated max. peak power as 6.2MW/(0.95*135)) differs significantly, but only if it comes to the capacity (i.e. number) of the transformer substations 10/0.4kVA). What is important, planned installed power in the feeding transformer substation 110/35/0.4 kV, which is 2x31.5MVA) is sufficient! So, it can be considered the planned number of the substations as suggested in PDR can be considered as the first phase. It is correct, as it is not realistic to expect the full capacity will be required immediately after IZ Vladicin Han infrastructure equipping (if ever, having in mind a bit high estimation in the power density (0.32MVA/ha). That's why the approach suggested in the PDR was accepted as the basis for system design. Again, it is not against values suggested in this paper, which is based on the similarity with some foreign IZs (average of the number of IZs power supply demand expressed per IZ unit area). If necessary, it will be easy to increase initially planned number of 10/0.4kV substations and adjust it to the real (increased) demand. This (phase) approach is even more flexible allowing direct connection to the MV grid, if some demanded industry will require to be connected the MV (35kV) supply.

The technical solution for power supply provision on Vladicin Han Industrial zone is conceptualized, for the purpose of this Study as follows:

- the basic power supply unit is prefabricated concrete power substation 10/0.4kVA, 1000kVA capacity. Dimensions in the base are 5.5 x 4.5m.
- Standard transformer unit is chosen to be 630kVA
- Number of transformer substations is 15 – 13 for technological consumers (IZ industries, i.e. future tenants) and 2 for communal purposes (waste water and back up supply water treatment)
- Power is to be provided for public lighting system evenly distributed to the transformer substations. Preliminary design shows it is necessary to build roughly 145 public lights luminaries, each mounted on the 8m height pole. Power demand for public light is 35kW.
- All substations 10/0.4kV will be supplied from 35/10kV transformer substation Vladicin Han with planned capacity of 2x8MVA, today 2x4MVA.



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- f. Cabling is to be realized with underground cables 3x(1x150mm²), type XHE 49A.
- g. Distribution network 10kV will be realized in ring topology. It will be realized in a way that each set of transformers supplied from one outgoing feeding compartment in the 10kV substation with 10kV cable which goes to the first transformer substation on the "entry / exit" principle and continues to the next substation. From the last substation exit cable will be run back to the transformer substation 35/10kV to the different feeder compartment. That return cable will be, even separately laid down in the cable row on the other side of the street, increasing the system resistance to the mechanical damaging. With this full redundancy will be achieved, even towards risks of the mechanical failures of the type of mechanical cuts in the same row.
- h. Maximum number of transformer substations 10/0.4kV per one cable is limited on four per required cable. The calculation is shown in the Box 7-2, and main reason for this conservative limitation is the intention to keep reserve capacities in the cable for new 10/0.4 kV substations
- i. For underground cabling it should be envisaged all necessary cable canalization, which consists of proper number of protective PVC or PHE pipes on the road crossing and other obstacles and necessary evenly distributed number of cable manholes, purposed for providing places for connection of the eventual additional substations. In addition, cable manholes should be planned on both end of the cable protection pipes

Box 8.7-1 Maximum number of TSS 10/0.4kV per one cable calculation

Conditions for Calculation:

- o Number of TSS 10/0.4kV per cable : 4;
- o Required reserve per cable 40%
- o Standard cable: XHE 49A 3x(1x150/25mm², 10kV

Cable load per cable per TSS (based on PDR data – refer to Table 7-10):

$$P_s(\text{TSS}) = P_s / 15 = (6200\text{kVA} \times 0.8) / 15 = 4960 / 15 = 381.5\text{kW}$$

Simultaneous current per TSS is:

$$I_s = P_s(\text{TSS}) / (\text{sgrt}(3) \times 10.000) = 22\text{A (per TSS)}$$

Current capacity of the cable XHE 49A 3x(1x150/25mm², 10kV is allowed = 340A

Reducing factor for cable loading can be calculated as

$K = K_1 \times K_2 \times K_3$, where is:

$K_1 = 0.9$, (Temperature factor for $T=30^\circ\text{C}$)

$K_2 = 1.0$ (Specific soil resistant)

$K_3 = 0.48$ (cable number: $N=10$; cable distance in trench: $\sigma = 0.07\text{m}$)

$$K = K_1 \times K_2 \times K_3 = 0.9 \times 1.0 \times 0.48 = 0.43$$

After initial costs calculation, it was decided to implement phase approach for power supply installation. The number of initially planned transformer substations was 15 (out of which 2 are purposed for communal services and must be constructed). On the remaining 13 TSS, phase approach will be implemented having in mind the following conditions:

- a. One transformer substation should be planned in each block;
- b. For the reason of power supply cabling full provision in this phase of infrastructure precision, the most distanced TSS will be positioned firstly, let laying down the longest cables per one outcome feeder in TS 35/10kV. Cable lengths reserve for



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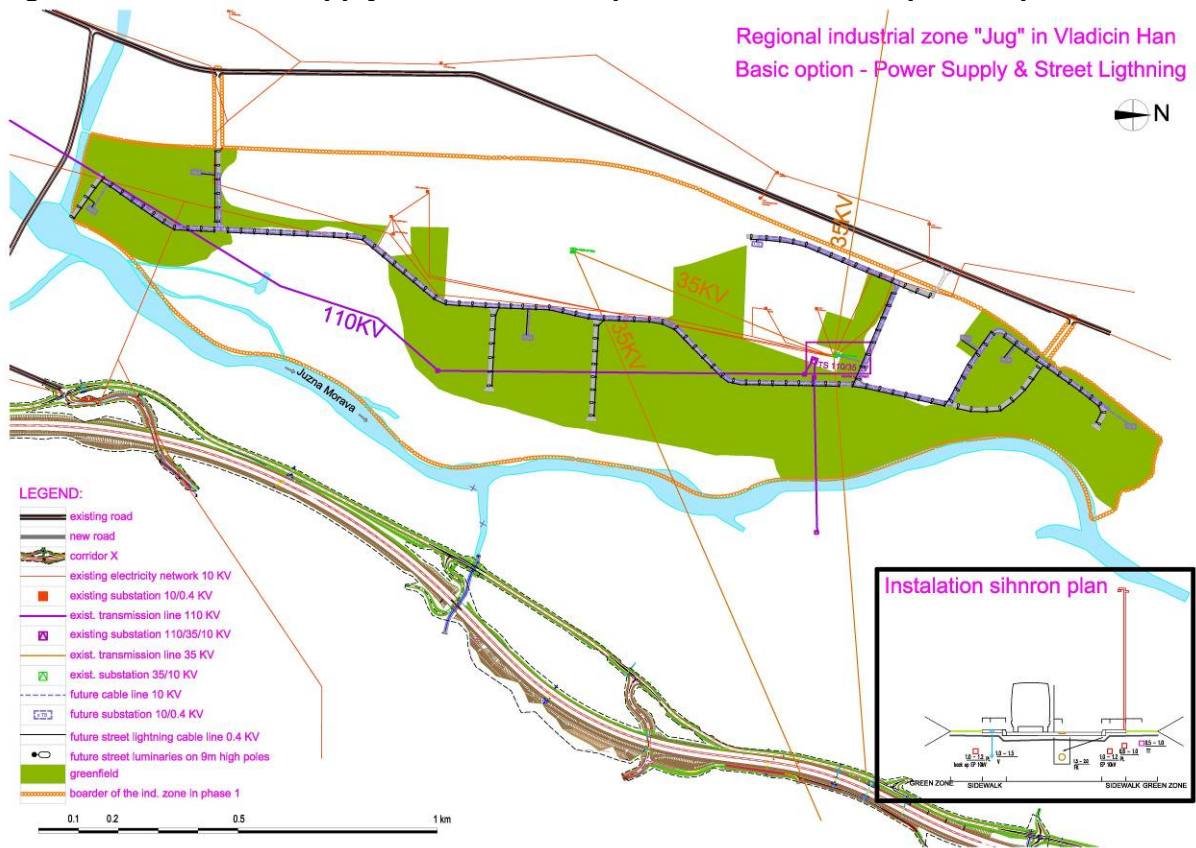


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- interconnection of the additional substations should be left on equal distances in cable manholes; connection will be provided by cutting the existing cable and mounting the cable joints to provide supply of the new TSS on "enter / exit" principle.
- c. Ring back up cable should be laid down in parallel to each cable on the other side of the road. The installation positions on specific road cross section is shown in the box presented in the figure 7.5
- d. Due to large number of the cables that should be laid down in the single trench and construction of the cable (3 single core conductors), tight distance between cables will be planned.

As a result of the given presumptions, the power supply system for the first phase will consist of 9 TSS 10/0.4kV, 630kVA(1000kVA), 7 for technological consumers and for communal systems. The I phase power supply and street lighting system is shown on the figure 8.7-7 while priced bill of quantities is given in the Chapter 8.8.

Figure 8.7-7 Power Supply Network Development Plan – Basic option 1st phase



In the basic option, the existing overhead lines 110kV and 35kV stay in their positions. It causes the significant lose of the useful land, as, in line with the legislation in charge, the clearance across the rights of the ways must be provided¹⁰. For the purpose to evaluate cost benefit analysis, the option 1 is introduced, which includes dismantling of the existing OVLs and build them as the underground cablings. The solution is shown on the figure 7- 6. It includes dismantling and removing of the existing overhead lines: 2400m of 110kV and 900m

¹⁰ As an example, the clearance of 30m must be provided for along the trace of 110kV. It gives the area of 7.2ha which will be used under restricted conditions (only for parking places, storages and greenhouses)





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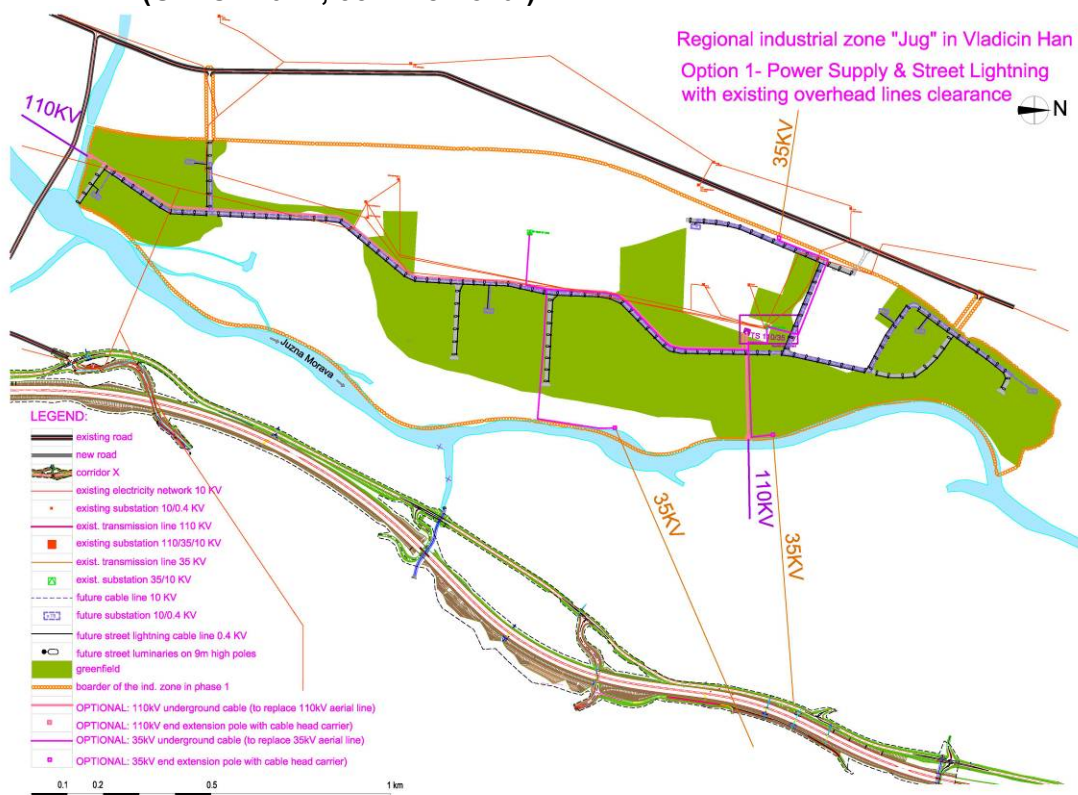
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of 35kV with disconnection and isolating from the power transmission system and removal of Al-Steel conductor ropes and existing steel and concrete poles. New cables are planned as the bundle of three single core cables 1x(XHE 49 A 1x240/25 mm², 110 kV and 35kV). Cable are to be laid down in the regulation lines, on the opposite side from the basic 10kV network (the same side where return 10kV cables are buried.). Safety distances between lines on different voltage levels, will be envisaged. The power supply and street lighting system under option I is shown on the figure 8.7-8, while priced bill of quantities is given in the Chapter 8.8

Figure 8.7-8 Power Supply Network Development Plan for concept (OVLs 110kV, 35kV removal)



8.7.11 Telecommunications

In the municipality, in addition to existing switching centers, the following ones are planned: Urvic, Krzince, Prekodolce, Kunovo, Brestovo, Polom, Repince, Suva Morava and Priboj, which will be connected to the existing network by optic cable. At the same time the older generation digital systems (DKTS) have been replaced with new systems (MSAN). It is particularly of interest to build a fiber optic cable network. The future optical networks will cover the route of the newly-designed highway, and at the same time it will reach all new switching nodes. With the Spatial Plan and the plans prepared at lower level, corridors will be provided for the construction of optical fiber and copper access network.

One of the major international routes Hungarian border - Subotica - Novi Sad - Belgrade - Nis - Macedonian border has been completed with building the planned fiber optic cable on the section of Nis - Leskovac - Vranje – Macedonian border.

In order to ensure the accessibility of telecommunications services to all interested users, connections with the main optical cable are made via the central automatic node and





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automatic telephone exchanges, on the road section Leskovac-Vranje where opportunities are created for connecting node automatic telephone exchange "Vlasotince", "Grdelica" "Predejane", "Crna Trava" and "Vladicin Han" and also for connecting the end automatic telephone exchange "Suva Morava", "Stubal", "Korbevac", "Vranjska Banja" and "Presnica". An optical cable spine is being laid along the length of Corridor X and will connect to the larger towns in each municipality, thereby improving the region's capacity for information and communications technology, and its use. A large number of Internet service providers already exist within the region. (from Regional development strategy Jablanica Pcinja 2008-2012. The project foresees the construction of a Telephone Telegraphic (TT) cable run ducting system. The new cable ducting system will be around 2700m long, with inspection manhole. Manholes are to be multipurpose of defined sizes and shape where termination, jointing, installation and routing of cables may be done. Additionally manholes may be utilized as cable and equipment store as appropriate. Distance between manholes are defined with these parameters in mind. Each manhole will be an integral unit with cable entry points and manhole access. Cable runs may be linear or offset to satisfy the dimension of the trench, location, number of runs, run section and other relevant factors. Surface overlay above pipes and runs beneath pavements should be a minimum of 80cm, with sub road to be minimum 100cm. The lowest width of the cable trench is to be 1 – 2 m but not less than 60cm below ground surface. Installation of pipes into trenches should be by means of protective bushing located in chamber walls and fastened according to manufacturer's instructions. Waterproofing is achieved by suitable rubber rings and glands. Cabling will be provided according to future user needs. The final solution for cabling system will be based on requirements of the public telephone company „Telekom Srbija“. Their decision describes in detail the manner and conditions for the network.

8.7.12 Gas

Inadequate investment in South Serbia's energy infrastructure during the last decade has resulted in a weak gas supply system. Nationally, natural gas is expected to be the primary substitute for electric-based heating either through district heating in densely populated areas or through individual boilers, however, gasification of South Serbia has barely begun, and gasification in the region is a priority. With access to gas being limited in the region, gasification is a significant goal for many of the region's municipalities. A gas pipeline is currently under construction to connect Belgrade with Niš, and an extension to the gas system to Leskovac is planned by 2009 as a part of a Corridor X project.

A 2007 feasibility study into regional gasification in Serbia identified that investments needed to advance gasification in the region will be considerable. An assessment of gasification for Leskovac suggested that gas would be supplied to the city from the proposed Energy Community Ring via a 30 kilometre spur line, which would transport gas to a City Gate Station located to the south east of the city. Estimated capital costs for developing the gas supply system in Leskovac are estimated to be USD \$57.4 million. (Reg.Dev. Strategy 2008-2012).

8.7.13 Solid Waste

As Municipality Vladicin Han has a decision on solid waste collection by PORR WERNER WEBER in place, further solid waste collection in the industrial zone has to be according to the decision published in Official Gazzete 127/07. Solid waste will be transported by PWW to the recycling center in Leskovac. Tariffs for waste collection by PWW is presented in VOL 3 : ANNEXES.





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8.8 Cost Estimates

This section provides an estimate of the costs for the different components of the project.

8.8.1 Land

Six different procedures have been identified for the purchase of land as follows:

1. Land already in ownership of Free Zone Vladicin Han
2. Land for roads and utilities which can be expropriated in the public interest
3. Land which has to be privately purchased as a minimum to proceed with the extension
4. Land which can be purchased from the bankrupt paper factory
5. Land which can be purchased at a later stage depending on takeup of serviced land
6. Land for water supply

The area of land which has to be acquired is about 65.5 hectares of land. Some of the land, about 5 hectares is already owned by the company Freezone Vladicin Han and does not have to be purchased.

Land for roads and public utilities can be acquired as land required for public interest following a procedure well defined in the Law on Expropriation. In some cases the owner may request that the whole plot be expropriated if the remaining land plot is of less value because of poor economic size, poor access etc.

However, the rest of the land, i.e. land which will be sold as plots to investors, has to be acquired by the Municipality only after negotiation with the owners. This approach can be very lengthy because so much depends on identification of the owners, backlog of, registration on and accuracy of the cadastre entries, the willingness of the owners. One potential issue can be that the owners may assume that they can get a better price from potential investors who may be interested in setting up in the industrial zone.

Recent expropriation in the region (i.e. Road Corridor X) has indicated that the compensation for expropriated land is between 2.5 to 3€/m². On the other hand, the scarce number of private sales of land in the region does not allow for full market pricing.

The price which would be acceptable for buying the rest of the land is therefore more difficult to estimate. For this cost estimate a premium of 33% of the determined expropriation price or 4€/m² should be reasonable. The maximum price which could be acceptable to the municipality is also 4€/m² on the assumption that the selling price for serviced land is about 5€/m² as provided by market research. The conservative price of 3€/m² will be used for land purchase.

Given that the Municipality has limited budget the absolute minimum area of land which is required immediately for extension of the industrial zone has been determined. About 25 hectares have to be purchased immediately including about 4 hectares for roads and services. The actual area of land purchased will depend on the budget available and the buying price and can only be determined at the time of the purchase.

The land to be purchased from the bankrupt paper factory can be through a contract with the receiver and for which later payment or exchange against liabilities can be arranged.

The land which can be purchased later is located at the extremity of the industrial zone and its purchase at a later date does not impact on the development.

The land acquisition requirements and cost are presented on the following table.



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Table 8.8-1 Land Acquisition Requirements and Cost Estimate

Description	Surface Area ha	Unit Rate €/ha	Cost €
Land in ownership of Freezone Vladicin Han	5.31	-	-
Land of public interest (roads, utilities etc)	4.0	3.0	120,000
Minimum private purchase (plots for resale)	21.0	3.0	630,000
Land to be purchased from bankrupt paper factory	17.7	3.0	531,000
Later land purchase	17.44	3.0	523,200
Land for Water Supply	1	3.0	30,000
Total to be Acquired	65.45		1,834,200

8.8.2 Capital Works

Preliminary estimates of the quantities for the different components of the project have been prepared and cost for each has been estimated.

Although the demand for electricity and water for the whole development has been estimated and the infrastructure designed for the anticipated demand, the actual growth in demand will depend on the rate at which land will be taken up by industries and also on the type of industries which will set up in the zone. For these investments it is recommended that only some of the infrastructure is implemented in the earlier phase. The implementation of the remaining works in Phase 1a may not have to be implemented if the actual demand is less than the anticipated demand.

The cost estimate excluding taxes for the main capital works are presented in the following table.

Table 8.8-2 Quantities and Cost Estimates for the Components of the Project

Main Works	Description	Unit	Quantities	Unit Price €/unit	Phase 1 Cost €	Phase 1a Cost €
Site Preparation		ha	65.45	1000	65,450	
Subtotal					65,450	
Road network	Construction of new roads inside industrial zone 7m width, with carriage drive, sidewalk 1.5, green stripe	m ²	31,500	45	1,417,500	
	Bridge 35m'	m ²	245	1,000	245,000	
	Construction of new second access road from industrial zone to the R-214a, with bridge 40m	m ²	7000	45		315,000
	Reconstruction of national regional road R-214a + intersection towards Corridor X	m'	550	250	137,500	
	Reconstruction Local road in length of 400 meter+intersection for connection to the Corridor X	m'	400	250	100,000	
Subtotal					1,900,000	315,000
Electrodistribution network	Underground 10kV cable network	m'	16,200	45	729,000	
	Transformer substation 10/0,4kV	piece	7	50,000	350,000	
Subtotal					1,079,000	
Electrodistribution network (optional)	Underground 110kV cable for feeding of Substation 110/35kV	m'	2,500	400	1,000,000	
	Underground 35kV cable network of input/output substation 35/10kV	m'	2,500	60	150,000	
	Underground 10kV cable	m'	14,000	45		630,000





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	network for replacement of overhead 10kV lines					
	Dismantling of the existing overhead lines	LS	1	220,000	220,000	
Subtotal					1,370,000	630,000
Street lightning	Cable network	m'	5,600	25	140,000	
	Post	piece	143	500	71,500	
Subtotal					211,500	
Telecommunication network	Ducts	m'	2,674	10	26,740	
	Drawpit	piece	45	700	31,197	
Subtotal					57,937	
Water resources	wells	piece	2	50,000	100,000	
	PS Gramadje with suction basin 80m ³ , Q=50l/s, H=50m	piece	1	180,000	180,000	
	Pressure main from PS Gramadje till PS Lepenica with river crossing Ø250	m'	1,000	130	130,000	
Subtotal					410,000	
Water supply	Water Supply Ø150	m'	3675	100	367,500	
	Water Supply Ø250	m'	700	130	91,000	
Subtotal					458,500	
Wastewater network	Wastewater Ø300	m'	1400	200	280,000	
	Wastewater Ø250	m'	2800	150	420,000	
	Wastewater PS	piece	1	12,000	12,000	
	WWTP	PE	2x3000	250	1,000,000	500,000
Subtotal					1,712,000	500,000
Rainwater network	Rain water Ø300	m'	2128	180	383,040	
	Rain water Ø500	m'	1350	230	310,500	
	Rain water Ø600	m'	2128	320	680,960	
Subtotal					1,374,500	
Flood protection	Dike and embankment	m'	2100	200	420,000	
Subtotal					420,000	
Total Main Works					9,058,887	1,445,000

A second phase of development has been planned as recommended previously in the period 2023 to 2025 and since the Phase 2 development is similar in area to the present extension, the costs adopted for Phase 2 will be the same as for Phase 1.

8.8.3 Technical Assistance and Project Preparation

In addition to the capital works there is need for preparation of the project documentation and for technical assistance to the municipality in the implementation of the project. The following table provides an indication of the needs and the estimated cost.

Description	% of Main Works	Amount €
Planning and Design	3%	0.27
Reviews and permits	1%	0.09
Technical Assistance and Training	5%	0.44
Site Supervision	7%	0.62
Public Relations and Marketing	0.5%	0.04
Total		1.46

8.8.4 Contingencies

Although the study has carefully examined all possible issues and estimated the costs for the different components of the works it is not possible without further investigations and studies to be absolutely certain that all possible expenditures have been identified and therefore it is always prudent at all stages of the study to allow for contingencies in any cost estimate.





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In this case a contingency of 10% of the cost of the main works and of the technical assistance has been added to the cost estimate. The amount allowed for contingencies is estimated at 1.06M€.

8.8.5 Summary of Cost Estimates

A summary of the cost estimates on a nominal basis for year 2011 is provided hereafter and exclude all taxes and duties.

Table 8.8-3 Summary of Cost Estimates

		Total per Phase	2012	2013	2014	2023	2024	2025
		M EUR	M EUR	M EUR	M EUR	M EUR	M EUR	M EUR
	Total Investment Costs		Phase 1	Phase 1	Phase 1	Phase 2	Phase 2	Phase 2
1	Land	1.66	0.83	0.83		0.83	0.83	
2	Planning / design (4% of main works)	0.36	0.18	0.18		0.18	0.18	
3	Capital Works	9.07		4.57	4.50		4.57	4.50
4	TA & Training (5% of main works)	0.44		0.22	0.22		0.22	0.22
5	Supervision (7% of main works)	0.62		0.31	0.31		0.31	0.31
6	Public Relation	0.04		0.02	0.02		0.02	0.02
7	Contingencies (10% on 2 to 6)	1.06	0.02	0.53	0.51	0.02	0.53	0.51
	Total Investment Costs	13.25	1.03	6.66	5.56	1.03	6.66	5.56
		Per phase						

Note: All costs are constant Euro 2011 excluding duties and taxes

8.8.6 Operating Costs

Most of the services for the industrial zone are already by Law the responsibilities of municipal or regional public utility companies.

The cost for maintenance of the roads including street lighting is the responsibility of the Municipal utility company which is also responsible for water supply and wastewater. Payment for these services are paid directly to the municipality either based on usage or an annual fee.

For electricity each investor has a contract with the electricity distribution company. The same system applies for garbage collection and telecommunication (voice or data) services. The current tariffs for each of the different utilities have been provided previously.

However, it is expected that some direct operational costs are inevitable but be limited to staff providing one stop services as well as marketing. For this purpose an annual allowance for 1% of the cost of the capital works shared equally between staff and marketing be reserved. This amount is equal to 90,000€ per year.



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8.9 Main Findings

The current economic downturn is likely to subdue the short term demand for industrial land, however the outlook for the region is quite positive with some companies in the region planning to increase production although the recent events may delay their plan. The financial and fiscal incentives offered by the government for companies locating in the less developed regions will continue to be attractive. The market price for land is low in the region compared to the price near the metropolis of Belgrade, as municipalities compete to offer the best deals to investors. On the negative side the administrative hindrances of doing business in Serbia will continue to discourage investors.

The Strategy and Policy Development for Industry in Serbia projects an increase of 500,000 jobs across the country by 2020. In the proposed industrial zone in Vladicin Han the expected number of jobs to be created is about 4,000 in a mixed sectors such as manufacturing, construction, retail and transport.

The area of land required for the expected employment sectors is about 45 hectares with an average 110 jobs created per hectare. The industry mix in the existing zone is medium to heavy but as explained earlier the Strategy for industry in Serbia suggests a move away from the heavy primary processing industry. It is expected that the mix of industry will be light to medium and without the primary processing industries.

Although 50 hectares of serviced land will be required by 2020, the Municipality should set aside an additional 50 hectares for industrial development adjacent of the proposed extension. The extension as described in Concept 1 is considered to be the most appropriate.

In to-day's competitive environment it is not sufficient to provide serviced land but essential that investors are also provided with attractive packages which may include marketing as well as the services of a one stop shop. It is also necessary to encourage SMEs and upstart companies through creation of business incubators. Special funds are available for such initiatives. The municipality should also consider reviving the existing freezone company as further incentives for investors.

The serviced plots vary in size from about one hectare to about 10 hectares. Security will be ensured through a single road access which can be easily controlled. All the plots will have road access as well as the utilities as described hereafter.

The existing electrical supply will be upgraded and will become secured once the 400kV transmission system is completed in about 2 years' time. Each plot will be supplied with 3 phase 0.4Mv supply. The capacity of the electrical system in the first instance is expected to be about 20 MVA and will be extended as demand increases.

The water supply will be improved through the development of a new Gramadje wellfield on the right bank of the South Morava River. The existing Lepenica wellfield is on the edge of the proposed extension and the existing wells will be gradually replaced by new wells in the Gramadje wellfield. Two wells will be constructed in the first instance to replace two wells which will have to be abandoned to make way for the new access road. Development of the wells will also provide a more secure water supply for the town.

Excess surfacewater will be drained to existing ponds to reduce the peak flow to the South Morava river. Wastewater will be centrally collected towards a central wastewater treatment plant with an initial capacity of 3,000 population equivalent.

The total cost estimates for the implementation phase of the project is about 13.3M€ of which 9M€ is for capital works. The remainder is for land acquisition and project management.



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9 ENVIRONMENT ASSESSMENT

9.1 Introduction

This document is a non-technical summary (NTS) of the Environmental and Social Impact Assessment (ESIA) Report, undertaken as a part of this Feasibility Study (FS). The project incorporates the redevelopment of the existing industrial zone “Suva Morava” in Vladicin Han in order to improve the existing economic conditions in the region. This ESIA covers the environmental and social issues related to the project elements.

The ESIA Report was prepared in the period July 2010 – December 2011. Environmental team that worked on this Study included international and local environmental experts supported by other project team members (technologists, construction engineers, institutional experts, etc).

9.2 Environmental Settings of the Project Area

The project area is located about 330 km south of Belgrade, in the town of Vladicin Han, situated in the south-eastern Serbia, in the district of Pcinja. The project site presents the existing industrial zone in the outskirts of the town of Vladicin Han, about 4 km south of the town.

Vladicin Han is located in the river valley of South Morava, between the Grdelica gorge (on the north) and the Vranje valley (on the south). The town is situated at approx. 340 m a.s.l, in a flat terrain on the both river banks.

The climate of the area is a semi-continental with minor variations depending on the altitude. The area is morphologically “protected” by the gorge of Grdelica which reduces the impact of cold air streams in the winter and results in a relatively mild winters. Summers are warm, the autumn is colder than the spring.

The project site of “Suva Morava” industrial zone is located on the left bank of the South Morava. In terms of geology, the site is located on the alluvial deposits of the river. Alluvial complex is approx. 5-10 m thick consisting mostly of gravel and sand. Groundwater aquifer is formed within the alluvial complex. It is in a hydraulic connection with the South Morava. Groundwater level (GWL) is fluctuating following the river flow regime about 2-3 m below the ground level.

Groundwater vulnerability can be assessed as high due to presence of the highly permeable alluvial deposits, shallow groundwater level and a relatively short pathway between the potential contamination sources and the receptor (South Morava River). Groundwater sensitivity can be assessed as high, especially in the southern part of the industrial zone in the surrounding of the “Lepenica” groundwater well field.

Rivers in the area are characterized by their torrent flow with significant variations depending on the season. Vladicin Han town lies in a valley formed by rivers: the South Morava, the Vrla and the Kalimanka. The South Morava is the largest and is the main recipient of surface waters in the area. The river runs in south-north direction, bending and forming meanders. The South Morava tributaries are mountain rivers with torrential flow causing the significant load of sediment in the river and erosion of the banks.

Surface water quality in the project area is in a rather poor condition and not in compliance with regulation. The main source of surface water pollution is discharge of untreated sanitary and industrial wastewaters into the recipients. Another source of pollution are domestic waste dump sites situated along the streams. The South Morava river is the final recipient of wastewater discharged from the municipal area, receiving polluted water from its tributaries, as well (particularly the Vrla River). The river pollution issue is particularly significant during the dry season when the river flow rate is low.





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No areas designated as protected natural heritage or sites of international importance (Natura 2000, Ramsar sites, IBA) are identified in the wider area of the industrial zone “Suva Morava”.

9.3 Socio-Economic Settings of the Project Area

The total surface of the municipal area of Vladicin Han is 366 km² with total population of 21.000. The town itself has population of 8.000.

The municipality of Vladicin Han, is among the poorest municipalities in the country, belonging to the group of devastated municipalities (having the level of development more than 50% lower of the country average).

Historically, the industry in Vladicin Han started to develop during the 1950s and was operational until the 1990s when it was heavily impacted by the economic crisis in the country. After the 1990s, the companies have been heavily struggling from the effect of low effectiveness due to the obsolete technology, surplus of employees and lack of customers. The existing industrial zone comprised 12 facilities whose operation have been reduced over the years and currently only few of them are still operational. The number of employees has reduced from 6,000 (before 1990) to today's 400. Following the reduction of industrial activity, the socio-economic conditions in the municipality have worsen, resulting in impoverishing effects of the unemployment increase.

In the wider area of the industrial zone no cultural heritage has been identified or designated.

9.4 Major Environmental Concerns

Redevelopment of the existing industrial zone is regarded as an important prerequisite for economic recovery of the municipality by creating the favourable conditions for increase of industrial activity. On one hand, the redevelopment is expected to provide positive economic conditions for the municipal development. On the other hand, the location of the proposed development is related to certain environmental concerns, necessary to be identified and assessed. The main purpose of the ESIA has been to identify those concerns and to propose measures to prevent their potential further degradation as a result of the future industrial zone operation.

9.4.1 Water Supplying Source “Lepenica”

The major environmental concern is related to the water supplying source “Lepenica”, comprising 6 groundwater wells for water supplying of the Vladicin Han town, usually operated for 35-40 days in the summer season. “Lepenica” is located inside the boundaries of the proposed industrial zone, in the northern part. The water supplying source has already been under a significant negative impact of the activities in the industrial zone and has not been protected according to the regulation related to sanitary protection of the water sources. As a result of an inadequate protection, the groundwater quality monitoring results have shown periodical non-compliance with Serbian drinking water standards. It is clear that the current management of the “Lepenica” water supplying source is not sustainable, not in compliance with regulation and that has to be improved.

9.4.2 The South Morava River Quality

The second important issue is the water quality of the South Morava River running in the vicinity of the proposed industrial zone's eastern boundary. The River has already been heavily impacted by a variety of sources, upstream of Vladicin Han, discharging untreated





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wastewater into the South Morava and its tributaries. Besides the diversity of pollution sources, the river's seasonal flow rate is highly fluctuating, resulting the water quality of the South Morava to be heavily degraded and non-suitable for any purpose ("out of class"). It is necessary that development of the industrial zone involves the measures to prevent the further river pollution by the future occupants.

9.4.3 Potential Historical Contamination

The third significant environmental issue is related to the fact that the redevelopment is focused on enlargement of the existing industrial zone and acquisition of vacant greenfield areas to the existing brownfields. Given that "Suva Morava" industrial zone has incorporated several industrial facilities that have operated for decades and have been involved in metal processing and paper and wood production, the potential presence of historical contamination of soil and groundwater in the area cannot be fully excluded. Long term storage and usage of hazardous substances in the facilities (e.g. oil for heating, solvents) and discharge of wastewater into the nearby lagoons presents a reasonable concern for the risk of soil and groundwater contamination.

9.5 Recommended Mitigation and Monitoring Measures

The ESIA Study provides the list of mitigation (protective) measures as necessary actions that should be undertaken in the further stages of the project development and that should be clearly presented to all the project stakeholders (future and the existing occupants of the industrial zone, the municipality of Vladicin Han, PUC of Vladicin Han, etc) as their obligation. In order to prevent the negative impacts and further degradation of the two most sensitive identified environmental receptors potentially impacted by the project, the set of mitigation measures has been defined. Their focus is particularly on the following: (1) sanitary protection of the groundwater supplying source of "Lepenica", (2) management of industrial and sanitary wastewater, (3) provision of necessary infrastructure for adequate waste management and hazardous substances management.

It is recommended to perform the soil and groundwater investigation in the brownfield area of the industrial zone as a part of the baseline information collection for the Environmental Impact Assessment Study (at the preliminary design stage). In case that investigation results indicate contamination of soil and groundwater, it will be necessary to carry out the remedial action at the site.

9.6 Environmental and Social Benefits of the Project

It is certain that redevelopment of the industrial zone is primarily oriented towards the economic aspect of the Vladicin Han development. It is likely, as well, that once the economic activity in the industrial zone is started, diverse positive social changes may be expected, such as increase of employment, increase of local incomes, development of commercial facilities, increased value of properties, development of retail properties, etc. But equally important benefit of the redevelopment project is that it will result in improvement of environmental conditions in the area. In order to develop a competitive industrial zone which might attract the potential investors, the existing infrastructure will have to be improved. This will result in improvement of the sanitation of the area: (1) water supply source will be protected, (2) uncontrolled discharge of untreated domestic and industrial wastewater into the South Morava will be ceased, (3) waste management will be improved, (4) hazardous substances management will be improved, (5) potential historical contamination in the "Suva Morava" area will be identified and removed.





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10 COST BENEFIT ANALYSIS

10.1 Introduction

The cost benefit analysis (CBA) is the central chapter of the feasibility study for the Regional Industrial Zone Jug in Industrial zone "Jug" in Vladicin Han when it comes to securing funding for the implementation of the proposed industrial zone infrastructure.

The CBA developed for the project was carried out in full compliance with the principles and rules set out in the most current EC guidelines and specifically by the guidance document published by the Directorate General Regional Policy (DG Regio) called "Guide to Cost-Benefit analysis of investment project under Structural Funds, Cohesion Fund and Instrument for Pre-Accession" dated June 16, 2008.

In addition the CBA fully takes into account the Serbian provisions for setting up an industrial zone and the constraints imposed to the sponsor regarding the sale or lease of land in the zone to industrialists.

The chapter presents essentially 4 groups of financial information related to the project.

The chapter 10.1 presents municipal budget analysis and creditworthiness assessment.

The chapter 10.2 provides insight about the past and current financial situation and the borrowing capacity and creditworthiness of the municipality of Vladicin Han. This is particularly important in this project, considering the need for the municipality to buy the land for the establishment of the industrial zone mostly from private land owners. EU grant funding can be used to develop the infrastructure needed in the industrial zone, but is prohibited to be used to buy landed properties. Some data coming out of this analysis have been integrated in the CBA analysis

The chapter 10.3 presents the analysis of the project in financial terms considering the three investment scenarios/ options considered in the technical study. That means the hard numbers of investment and OM&Adm costs of the project, the estimated direct revenues benefiting the public hand (essentially the sale or lease of land to industrial companies), the investment plan and financial sources proposed to be used to implement the project. These hard numbers allow the calculation of the Financial Net Present Value (FNPV) as important comparative indicator of the financial status of the project to be applied to the three jobs creation scenario options considered.

The chapter 10.4 presents then the economic feasibility. The purpose of the economic analysis is to document to which extend the proposed investment is the best allocation of scarce financial resources from the country and the EC as co-sponsor of the investment. The starting point is the financial analysis to which three types of correction have been made: (i) fiscal corrections, (ii) corrections for externalities and estimation of the economic impacts of the project and (iii) accounting (shadow) pricing correction. Fiscal corrections include indirect taxes (e.g., VAT), subsidies and pure transfer payments (e.g., social security payments to workers working on the project) which must be deducted to reflect internationally comparable market prices. Corrections for externalities quantify and value the main externalities and the positive economic impacts expected from the project (essentially the direct and indirect new jobs created by the establishment of the industrial zone and the productive capital investment expected from the industrial companies settling in the industrial zone. Finally under the accounting pricing correction, observed market (i.e. financial) prices are further adjusted with the help of conversion factors to take into account inputs' opportunity costs, especially the shadow (internationally comparable) wage for labour and the consumers' willingness to pay for outputs.



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The estimation of the positive economic impact of the project considers 3 successive levels of economic impacts:

- 1) Direct Jobs Effects: These are documented essentially in terms of income from new jobs to be created by companies establishing a production facility in the planned industrial zone.
- 2) Indirect Jobs Effects: these are new jobs expected to be created in and around Industrial zone "Jug" in Vladicin Han but outside the industrial zone. These indirect jobs are expected to be either in the production of goods (light equipment or raw material and goods used by companies inside the industrial zone) or in services industries to support the productive activities of the industrial zone (restaurants, hotels, supporting services etc.).
- 3) Private capital mobilized and invested by industrialists and shareholders of the companies which will settle in the industrial zone to establish production facilities and equipments to be used by workers and professionals to produce new industrial goods. These fixed assets will become based in the Vladicin Han industrial zone and represent tangible assets for the township and its surroundings. This capital is commonly expressed as "capital employed" per direct job created. Value may vary widely per industrial sector concerned. IT production for example may require higher and more sophisticated equipments than light industry or agro-processing and wood processing.

The chapter 10.5 focuses on the sensitivity and risk analysis of the project considered successively in financial and economic terms. It summarizes the probability that the project will achieve a satisfying economic performance (in terms of EIRR or ENPV), as well as the variability of these results compared to the "base" scenario assumed as the most probable outcome of job creation in the newly developed industrial zone.

Finally the chapter 10.6 provides for information an overview of the financial situation (P&L statement, cash flow situation, balance sheet) of the Company "Slobodna Zona Vladicin Han" which is expected to take over the development and management of the Industrial zone developed under the project.



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10.2 Municipal Budget Analysis and Creditworthiness Assessment

10.2.1 Introduction

The current situation in Serbia is that most investments made in communal infrastructure and Serbian PUCs are financed from the municipal budget. Municipal budgets are the source of direct investments and/or provider of guarantees to the banks for commercial loans. After completion of the investment, the acquired assets are transferred to the PUCs and become part of their balance sheet. The PUCs usually do not have any financial obligation against municipal budgets for these assets. To the contrary, if a PUCs can not service their debts, the local government is legally obliged to assume all liabilities and cover the financial obligations.

Therefore when considering investment in the communal infrastructure, it is thus important to identify the financial position and development of the municipal budget, as well as the financial position of the Public companies involved in the project. The analysis of the budget of Vladicin Han municipality presented below is based on data from official reports submitted by municipal budget offices to the Ministry of Finance at the end of every budget year, in accordance with the current budget law.

10.2.2 National and Local Regulatory Context

The current legal basis for local budget revenues is governed by the Law on Local Self-Government from 2002. Since then, the financing of local governments went through some changes:

- In 2004, the local governments' share of revenues, based on salary fund tax, was discontinued. In order to compensate this decrease in revenues to local budgets, the share of local governments in income taxes was increased from 5% to 30%. In addition to that, the share in sales tax was increased in favour of a number of selected poorer Municipalities.
- From January 2005 and onwards, sales tax has been replaced with Value Added Tax (VAT). This change affects the way in which local government budgets acquire their revenues. Instead of sharing the sales tax with the National government, the VAT goes directly to the central fund, from which local governments get their share.
- In 2006, a new Law on local government finance has been adopted. The Law became effective on June 23rd, 2007. The main change is the decentralization of property tax. Property tax used to be collected by local offices of the National Government and then distributed to local governments. Now, property tax is directly collected by local governments, enabling them to broaden their own tax base. Consequently, a unit for collecting property tax is established at the local level and the related expenditure is to be established by the local government.

According to the new Law, the local government budgets obtain revenues from three main sources:

- Original revenues: the local government can set taxes and collect revenues at local level;
- Shared revenues: allocating or sharing the revenues with the National government; and
- Transfers from National government. This source is defined separately, but since it is coming from central funds it might be considered as a specific type of shared revenues.





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Original revenues

The original revenues of local government budgets comprise:

- Local fees – administrative, communal and tourist fees;
- Charges on construction land – charges for utilization and development of the city construction land;
- Other revenues – different revenues (e.g. charges for natural resources, charges on sales of assets, interest on deposited budget funds). Generally, these revenues are small comparing to the above two sources, although in particular cases these can provide substantial revenues;
- Self-contribution – this revenue can be introduced through local referendum. By definition, it is used for development of local capital infrastructure;
- Donations – donations can come from different sources such as central level, international organizations and other. In this case, they are going directly to the local government;
- Property taxes – according to the new Law on local government financing, taxes on property of the private and legal entities are becoming original revenues. However, during the initial phase, the Republic will, for a certain period, control the money spending from property taxes;
- Tax on passing the absolute rights – from (June 23rd, 2007) reduced from 5% to 2.5%.

Shared (allocated) revenues

The second large group of local budget revenues consists of revenues that are allocated by national level to the local level. According to the legal terminology, these are called allocated revenues. These revenues consist of:

- Income taxes – a number of taxes on different personal incomes generated from different sources (agriculture and forestry, private business activities, immovable property, leased movable property), prices in games of chance, personal insurance, part of the salary tax etc. This tax was decreased from 18% to 12% by the income tax law in 2006;
- Property related taxes – taxes on inheritance and gift tax, taxes on transfer of absolute rights and on goods and services;
- Different charges on assets of public interest – charges for the utilization of different assets of public interest like mineral raw materials, river material, forest land, agricultural land, public roads, environmental protection and environment, and investments;
- Privatization revenues – part of the funds (5%) collected through the capital sale in the privatization process that is taking place within the municipal territory;
- Transfers – transfers from National government. The new Law on local government finance introduces a wide array of transfers: categorical and non-categorical transfers (which include equalization transfers), compensation, transitional, general and block transfers.

Revenues for funding capital expenditure

The investment capacity and creditworthiness of local budgets depends on the efficiency of the overall local financial management, which includes the capacity for generating revenues as well as the way in which these revenues are spent. Certain revenues are especially important for funding capital expenditure. These are:

- Land use development charge – revenue directly related to local investments, paid by investors who are planning to invest in land construction within municipal boundaries. The investor is obliged to pay for this when he becomes the owner of the specific





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construction site, but also when he has the right for using it or the right to build objects on it. The charge is set in accordance with the costs of developing the site, the purpose of the object and the city zone. Setting the base and rate of this charge is under the jurisdiction of local government;

- Land use charge – used to cover the costs of maintenance of local infrastructure and set in accordance with the costs of maintenance. This charge is also under the jurisdiction of local government;
- Revenue from renting the city assets – revenues from renting immobile and mobile assets of the local governments are original revenues. They are supposed to be used exclusively for capital investments, but since this is not strictly by the law, in certain cases they are used to covering the costs of current operations;
- Self-contribution – a traditional revenue source of local government that is to be used for capital investment of special local communities needs, such as water supply, roads etc. The contribution is raised and set by the local referendum;
- Municipal borrowing- According to the current Budget System Law, municipalities can borrow up to 50% of current revenues from the previous' year realized budget revenues. Furthermore, the sum of the repayment and interest rate for all unsettled long term debits shall not exceed, on an annual basis, 15% of revenues in the previous year. The Ministry of Finance is regularly publishing these limits and they are applied very strictly.
- Privatization revenues – according to the Law on Privatization, 5% of the proceeds received from selling state or socially owned companies on the territory of the Municipality is going to the local government budget;
- National Investment Plan (NIP) funds – by end of the year 2006 the Government of Serbia has adopted the NIP for the Serbian economy for the first time, covering the period 2006 – 2011. The NIP covers all vital economic sectors, employing and allocating on a national level the surplus of the funds from the process of privatization. In the initial phase, due to the increase in citizens' savings and the implementation of a number of economic reforms, the budget of the State of Serbia showed a significant surplus, thus making favourable conditions for development of a concise plan on financing public investments. Municipalities were invited to apply for investment funding. However, the majority of the largest Serbian companies have already been privatised, and the sources from these funds are very limited
- Fund for capital investments - As of 2009, funding of the projects in Vojvodina was established through the Fund for Capital investments, the funds from the NIP being directly transferred to this Fund.
- Ministry of Environment and Spatial Planning - Environmental Protection Fund (established by the Ministry) The revenues of the Fund include: part of the revenues from nature and resource use, pollution charges, a portion of funds resulting from privatization, funds from multilateral and bilateral international cooperation such as programmes, projects and other activities in the field of environmental protection and energy efficiency, reinvested income and revenues of the Fund, contributions, donations, grants and assistance, and other sources.
- Donations – From the year 2000 donations, especially from international funds, became an important source of funding capital investments at local government level. In the near future, local government is still planning certain financial inflow from this source, but in mid, and especially in longer period, it is expected that this will decrease. It is expected that accession towards the EU will enable further funding through the EU's pre-accession programmes (IPA). Donations were in the past years received from the USAID, UNDP, GTZ, and other foreign governments and organizations.



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In the perspective of reinforcing cooperation with countries bordering the European Union, the European Neighbourhood and Partnership Instrument (ENPI) includes a component specifically targeted at cross-border cooperation (CBC).

International Financial Institutions - such as EBRD, the World Bank, EIB, KfW, were in the past interested in financial arrangements with Serbia, granting favourable loans for crucial national projects. It is expected that these institutions will be still active in financing projects in Serbia.

- Transfers – Budget transfers are a relatively new type of revenues for Serbian local government. Until 2005 these transfers were relatively small. It was originally is expected that after the introduction of the new Law on local government finance there will be a considerable increase in transfers, and that this source of financing will become very important for local governments. However, it was only for the years 2006-2008, that the budget transfers to the municipalities increased. Due to devastating situation in the national and global economy, the original idea of supporting municipalities with increased budget transfers will have to be put on hold;
- Property tax – from June 23rd, 2007, local government has taken over the control of property tax from the Republican level. Effective from the same date, the taxation rate for tax on passing the absolute rights is reduced from 5% to 2.5%. However, lowering the tax rate on passing the absolute rights does not mean that the local government will be less motivated to collect this revenue. Establishment of the local tax administration is considered to be a big change as such and it is expected that this might generally increase fiscal capacity of local government in Serbia.

10.2.3 Vladicin Han Municipal Financial Operations

10.2.4 Municipal Budget Revenues

The revenues of the Serbian Municipalities consist of two main groups of revenues: own or so called original revenues (the revenues that local governments control, both in defining its level as well as in collecting it) and the allocated or so called shared revenues that are collected and then distributed by central level. The new local government finance law introduces new types of revenues like transfers, which in general could be treated as allocated revenues. Transfers for capital investments are apportioned through the National Investment Plan. This means that the Municipality has to present a well thought-out plan to the relevant Ministry, for the investment they wish to be financed.

Municipalities in Serbia did not have legal possibilities to make use of capital markets as a funding source for capital investments, until the new law on budget system was introduced in 2002. Reforms of public finance, especially at the local level, are developed to increase general autonomy of local government, including financing and ability to borrow funds for investments.

The budget of Municipalities is prepared on the basis of a unified budget classification system, which is a functional, economic and organizational classification in accordance with the Budget System Law. All the revenues are planned, based on the budget realization from previous years and the plan for current year, which is in accordance with the Memorandum on the budget for that year (2011).

At the time being, the Municipality Vladicin Han have submitted Budget analysis for 2008, 2009, 2010 and revision of plan for 2011, since the annual budget reports are to be submitted for approval to the Ministry of Finance on March 31st. Therefore actual findings for the year 2011 will be somewhat different than presented in this study after budget approval.



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The data in the table below shows the limited improvement of the financial autonomy of the Municipality of Vladicin Han, which is the result of the Ministry of Finance policy during the last 5-6 years, as it was explained above and now presented in Table 10.2-1. The same trend can be seen in other Serbian local governments too.

Table 10.2-1 Budget Revenues of Vladicin Han Municipality

Type of revenues	2008		2009		2010		2011 plan	
	RSDm	%	RSDm	%	RSDm	%	RSDm	%
Original revenues	37	15%	29	13%	50	15%	50	16%
Fees (administrative, communal, residence fee (tourist tax))	22	9%	14	6%	26	8%	29	9%
Land development charge	5	2%	7	3%	12	4%	10	3%
Property tax	7	3%	3	1%	5	1%	4	1%
Other	3	1%	5	2%	7	2%	7	2%
Allocated revenues	207	82%	201	87%	268	79%	254	82%
Sales tax		0%		0%		0%		0%
Income tax	70	28%	66	28%	66	19%	81	26%
Property tax	-	0%	-	0%	-	0%	-	0%
Property tax & tax on passing the absolute rights	4	2%	3	1%	5	1%	3	1%
Transfers	132	53%	130	56%	188	55%	170	55%
Other	1	0%	2	1%	9	3%	-	0%
Privatization revenues	-	0%	-	0%	-	0%	-	0%
Credits	-	0%	-	0%	20	6%	-	0%
Revenue from previous year	7	3%	2	1%	2	1%	-	0%
International donations	-	0%	-	0%	1	0%	5	2%
TOTAL REVENUES	251	100%	232	100%	341	100%	309	100%

*Source: The Municipality Vladicin Han budgets

- Original revenues

The most important source of original revenues is the **different fees** that local governments are entitled to introduce and collect. **Land development charge** increased from RSD 5 million or 2% share of total revenues to RSD 12 million or 4% share of total revenues as a result of construction investment activity on the territory of municipality Vladicin han. The plan for 2011 is to continue on same level or 3% share of total revenues.

The table 10.2-2 shows the fees collected for the period 2008 to 2011 plan with special accent on fees paid by entrepreneurs companies and legal entities operating on the territory of municipality Vladicin Han.



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Table 10.2-2 Original Revenues of Vladicin Han Municipality

Type of revenues	2008		2009		2010		2011 plan	
	RSD (000)	%	RSD (000)	%	RSD (000)	%	RSD (000)	%
Original revenues	37,000	100%	29,000	100%	50,000	100%	50,000	100%
Concession fee and Residence fee	184	0.5%	146	1%	175	0,4%	200	0.4%
Special fee for environment promotion and protection	111	0.3%	655	2%	2,489	5,0%	2,500	5.0%
Utility tariff for exhibiting a firm logo in a corporate premises	17,581	48%	9,162	32%	18,804	38%	21,000	42%

*Source: The Municipality Vladicin Han budgets

Concessional fee and Residence fee were in a range from **RSD 146,000 to 184,000** in a period **2008 to 2010**. The plan for 2011 is to keep Concessional fee to RSD 200,000 same like in 2010. **Special fee for environment promotion and protection** records insignificant share of original revenues in 2008 and 2009. The significant increase of 280% share of original revenues was reached in 2010 of RSD 2,5 million or (€ 25,000) and same amount is planned for 2011. **Utility tariff for exhibiting a company logo** decreased from 48% share in 2008 to 32% in 2009. The plan for 2011 records a increase of 12% comparing with previous year and share of 42% of original revenues or RSD 21 million or (€ 210,000) and represent the important part of original revenues based on the share.

The share of the Municipality's own (original) revenues in total revenues of the budget, ranged from 13% to 15% in the period 2008-2010. The plan for 2011 shows a symbolic increase in the share of original revenues to 16%, which will be mainly caused by the increase in the different fees. The share of the other original revenues like: revenues from renting real estate owned by the state for the usage of municipal bodies, revenues from municipality management bodies, etc is 2% share in observing years.

In addition to that, due to the change in Law on local government finance in 2007, the local government has taken over the **property tax control**, at the Republican level. This was 1% of the total original revenues in 2010 and is likely to be on the same level in 2011.

- Allocated revenues

For allocated revenues the most significant source is the income tax and transfers. The income tax ranged from 19% to 28% in observing years of total revenues, and plan for 2011 is to keep up with this practice. However, lowering this tax from 18% to 12% by the income tax law will not have a positive effect on this revenue in future, although this might be compensated by an increase in income.

The share of allocated revenues decreased from 87% in 2009 to 79% in 2010. The plan for 2011 shows an further increase in share of allocated revenues to 82%, which is mainly caused by increase in income tax.

Replacing the sales tax by VAT and introducing transfers from the Republican level had an influence on the budgets, although this change came into place before 2005. However, the share of transfers was not as high as the revenue collected through the sales tax. It was only at the beginning of 2007, as a result of the new public financing law that changed this situation. The transfers apportioned in 2010 were set at RSD 188 million (€ 1,880,000), a 45% increase compared to 2009. In 2011 according to the plan transfers will decrease, likely by 10%. This does not necessarily represent the final amount; due to the fact that additional revenues can also be approved in the Budget revision.

- Privatization revenues





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In observing years municipal budget does not have record of privatization revenues. Many companies in the Municipality have already been privatized.

- Credits

In respect to loans, the Municipality of Vladicin Han in a period 2008 to 2011 plan have a record of RSD 20 million or (€ 187,434) borrowed funds from commercial bank for capital investments in local infrastructure.

- Revenues from previous years

The surplus of budget revenues in relation to expenditures in the previous year is advanced to the next budget year as budget revenue. In observing years municipality has a record of budget revenues from previous years in a range from 1% to 3% share.

- International donations

In the observed years Vladicin Han Municipality received several international donations, total value of RSD 1 million (€ 10 thousand) in 2010. In the municipal budget plan for 2011, there is a data about additional international donations of RSD 5 million (€ 50 thousand) or 2% share of total revenues.

10.2.5 Municipal Budget Expenditures

All Serbian Municipalities spend their budget predominantly within the following three areas:

- Financing local government administration and governmental bodies, i.e. the Municipal Council and Mayor Office.
- Financing social functions that are on the level of local government, like education, sport and culture. Means of financing these institutions are transfers or funds. Investments are mostly directed to local infrastructure.

According to Serbian budget laws, there are no legal restrictions to use allocated revenues, as these revenues have a general nature. However, Serbian Municipalities are obliged to fund certain social functions, like communal services, material cost of educational institutions, provision of cultural and sport activities, etc. The funding level of these services and functions is to be decided by the Municipality. Formally, local budget expenditures are discretionary, i.e. local governments can independently decide on funding level for each function.

Having this in mind, it is understandable that the relative share of certain expenditures vary between different Serbian Municipalities. However, general standard for Municipalities is to spend around 1/3 of the total budget for each of the three groups of expenditures (above listed). The observed Municipality of Pcinja region also follow this 1/3 budget spending pattern.

Budget expenditure-Municipality of Vladicin Han

The following table presents the budget expenditure for the Municipality of Vladicin Han.



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Table 10.2-3 Budget expenditure-Vladicin Han Municipality

Type of expenditure	2008		2009		2010		2011 plan	
	RSD m	%	RSD m	%	RSD m	%	RSD m	%
Municipal bodies and administration	89	36%	88	38%	96	31%	89	29%
Social functions (education, sport, culture, welfare)	82	33%	66	29%	78	25%	77	25%
Reserves	2	1%	0	0%	1	0%	7	2%
Funds-residential & others	38	15%	36	16%	56	18%	102	33%
Subsidies	24	10%	23	10%	43	14%	27	9%
Current subsidies	17	7%	17	8%	41	13%	24	8%
Capital subsidies	7	3%	6	3%	2	1%	3	1%
Other budget expenditure	1	0%	0	0%	29	9%	7	2%
Total Repayment of Principal	14	6%	16	7%	8	2%	1	0%
TOTAL EXPENDITURE	249	100%	230	100%	311	100%	309	100%

*Source: The Municipality Vladicin Han budgets

In the Municipality Vladicin Han, the expenses of the municipal bodies came to an average of 35% in the observed period 2008 – 2010. The expenses of social functions came to an average of 29% in the period 2008 - 2010. Lastly, the funds for capital investments are allocated through the directorate for construction or directly to the budget beneficiaries. Comparing to 2010, the plans for 2011 show a decrease of amount allocated through subsidies for 38%. In the analyzed period 2008 to 2011 plan the municipal budget records insignificant amount of capital subsidies. In the observing years the Municipality of Vladicin Han has the contractual obligation to start repayment of the principal of the long term loans. The share of repayments of Principal decreased from 7% in 2009 to 2% in 2010.

10.2.6 Municipal Investment Expenditures

The above presented data specify budget revenues and expenditures in relation to different purposes and/or budget beneficiaries at a rather general level. This paragraph provides more detail about the capital investment expenditure budget for the Municipality of Vladicin Han. In Serbian municipalities, four main mechanisms of financing investments can be distinguished:

1. Capital subventions to the municipal entity: Specifically established to deal with municipal investments and development. Most Serbian municipalities have this type of entity, usually called the Reconstruction and Development Agency. This entity used to be a separate public company, but after the local public finance reform in 2002, quite a few were transformed into a budget beneficiary. The scope of work in these departments usually includes: spatial planning and development, designing and implementation or monitoring of different municipal investment projects.
2. Capital transfers to budget beneficiaries/institutions: In accordance to the Local Self – Government Law, local governments are legally obliged to provide certain services to their citizens, like children welfare, culture, sport, cover the material costs of primary and secondary education institutions, etc. Local government is financing the entities that are providing these services. Both operational as well as capital costs are financed.



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3. Capital subventions to the public companies: These include direct transfers of operational and/or capital funds to public companies.
4. Direct investments: Municipalities are investing directly in certain projects, so officially the investor is the municipal administration, and usually the investor is some of the specific municipal administration departments.

The first two mechanisms are the same: the transfers are made to entities or institutions founded by the local government and they have the status of budget beneficiaries, since their legal framework is defined by the Budget System Law. Practically, consequence of this is that from the financial point of view all of these institutions are part of the local public finance system, meaning that they are financially operating within the local treasury system. The only difference is that, in the first case municipalities are transferring capital funds to one specialized entity, which is then dealing with different investments. In the second case, each of the entities is supposed to carry out its own investments.

The third mechanism, subventions to public utility companies, is basically different because the transfers are made to public companies that do not have a status of budget beneficiaries, although they are users of budget funds. Their legal framework is defined by the Companies/Enterprises Law, which means that they are not operating within the system of public financing. After the subventions transfer, the further financial flow to and from the public utility companies is out of the local treasury-their actual expenditure is not reflected in the local government accounts.

The municipality of Vladicin Han disburse funds from the local budget to financing capital investments through different channels and institutions. The following tables present this disbursement for the Municipality of Vladicin Han.

Capital expenditures-Municipality of Vladicin Han

Table 10.2-4 Budget capital expenditure for Vladicin Han Municipality

No	Type of investments	2008		2009		2010		2011 plan	
		RSD m	%	RSD m	%	RSD m	%	RSD m	%
I	Capital subventions	11	85%	6	80%	23	80%	29	70%
1	PUC VODOVOD Vladicin Han	7	52%	1	17%	2	7%	3	7%
2	AGRICULTURE	-	0%	-	0%	-	0%	5	12%
3	ECONOMY - STRATEGIC DEVELOPMENT PLAN	4	33%	5	62%	21	73%	10	25%
4	FUND FOR LOCAL ECONOMIC DEVELOPMENT	0	0%	0		0	0%	10	25%
5	OTHER CAPITAL EXPENDITURES	0	0%	0		0	0%	1	1%
II	Capital Transfer to other levels	1	8%	1	17%	3	12%	6	15%
1	PRIMARY EDUCATION	0	1%	0	5%	1	3%	3	7%
2	SECONDARY EDUCATION	1	7%	1	13%	2	9%	4	9%
III	Capital expenditures of budget beneficiaries	1	7%	0	3%	2	8%	6	14%
1	PUBLIC ADMINISTRATION	0	3%	0	1%	1	2%	1	2%
2	Directorate for construction	0	0%	0	0%	0,41	1%	3	8%
3	PRIMARY EDUCATION	0	0%	0	0%	0	0%	0	0%
	Total I+II+III	13	100%	7	100%	28	100%	40	100%

*Source: The Municipality Vladicin Han budgets

The Municipality of Vladicin Han established the Directorate for construction, which has a status of a budget beneficiary. In observing years municipality did not transfer significant funds for capital investments to the Directorate. In the period 2008-2010, the funds for capital investments from the local budget were transferred through the capital subventions to PUC Vodovod Vladicin Han for investments in local water and sewerage network. In 2008





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52% share of total capital investments or RSD 7 million was transferred to the PUC Vodovod. **In a period 2008 to 2010 municipality was actively involved in a Strategic planning development activities. RSD 21 million or 73% was invested. According to the plan for 2011 RSD 10 million or 25% share of total capital investments will be transferred to for the purposes of strategic development and in fund for local economic development which is mainly cover the support and development activities related to the revitalisation of industrial zone Vladicin Han.** These expenditures have been financed from budget revenues. In 2011 the Municipality, according to the budget plan, planning to increase capital expenditures to RSD 40 million and it's presented in a table above.

In the structure of budgetary beneficiaries, the plan for 2011 was to support agriculture with RSD 5 million or (12%), public administration with RSD 1 million or (2%) share; PUC Vodovod with RSD 3 million or (7%) share; secondary education with RSD 4 million (9%) share; primary education with RSD 3 million (7%) share of total capital expenditures.

Based on information received from Municipal representatives Municipal plan for 2012 which is not presented in a moment of writing a report and was in a process of drafting and have to be adapted on the Municipal assembly first, **projected budget revenues would reach the sum of RSD 500 million; from which RSD 100 million representing the current revenues of the Municipality. Municipality plans to finance expropriation of land for the development of Industrial zone.**

Another source of financing is the National Investment Plan. The Municipality of Vladicin Han for 2011 has applied for funding from the NIP and total of RSD 1.7 million (€ 17 thousand) was apportioned to finance a sewerage network construction.

It should be taken in consideration that these funds are directly paid by the organisation managing the fund, at the national level, and are not included in Vladicin Han municipal budget.

10.2.7 Municipal balance sheets analysis

The balance sheets of Serbian Municipalities have a high number of limitations and deficiencies. One of the biggest deficiencies is the fact that during the nineties, the Republic government took over the most of the local government property. This has made a tremendous impact on Local Government balance sheets. Some of the Local governments continued to keep record of the assets in their balance sheets. Others stopped doing that, only in order to restart recording these assets again around the year 2000. Yet another group transferred the bookkeeping of their assets to some of their entities, like the Development Agency. Because of this, balance sheets of Serbian local governments cannot be compared in a meaningful way. Therefore, the analysis of local governments' balance sheets and the possible conclusions should be taken into account more as an illustration of the present situation than as a solid fact.

The Municipality Vladicin Han did not continue to keep their balance sheets, but recorded all their operations through the municipal budgets, which is a common practice among the Serbian Municipalities. However, the Municipalities are not legally obliged to keep their records in the typical financial reports as required by the International Financial Reporting Standards. They submit their Budget plans, Revaluations and Budget Realization to the Municipal Approval Assembly.

Concerning the main assets of the Municipalities in Serbia, it should be taken into consideration that they are the property of the State of Serbia. Consequently, also the main assets of the PUCs are also owned by the State not even by the Municipality. This is an important issue when Municipality enter the loan agreements with commercial banks, since this property cannot be placed under mortgage.





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Summary & Conclusion

The table below presents a summary of capital expenditures for the Municipality Vladicin Han:

Table 10.2-5 Summary capital expenditures for the Municipality Vladicin Han

No	Municipality	2008 RSD m	2009 RSD m	2010 RSD m	2011 plan RSD m
	VLADICIN HAN	13	7	28	40

During 2008, the Municipality of Vladicin Han, incurred capital expenditures amounting to RSD 13 million, equivalent to € 130 thousands. The municipal budget recorded a significant decrease of capital expenditures from RSD 13 million in 2008 to RSD 7 million in 2009 and significant increase to RSD 28 million in 2010. The planned capital expenditure budget for the year 2011 is to increase capital expenditures to **RSD 40 million or € 400 thousands** (Table). It can be concluded that the observed Municipality have limited investment capacities. The total investment capacity for the Municipality of Vladicin Han, could be increased by attracting external finances from international donors and international banks through loans.

Although municipal accounts do separate between capital and current accounts, little attention is paid to a strict separation of the two types of expenditure. Frequently, current and investment expenditures are mixed up. Actual expenditures of subventions given to public utility companies are not reflected in the municipal accounts. The accounts of Vladicin Han municipality are a clear example of this: subventions for the capital projects are accounted for as current expenditure, although the bulk of the funds provided are spent on capital projects. This all makes it difficult to track planned investment versus actual expenditure.

As elaborated upon above, according to the current Budget System Law, Municipalities could borrow up to 50% of current revenues from the budget revenues realized in previous years. The Ministry of Finance regularly publishes these limits and they are applied very strictly. According to the last official release from the Ministry of Finance, valid for the year 2011, the Municipalities can borrow up to the following limits:

Table 10.2-6 Borrowing limits for the Municipality Vladicin Han (2011 /€ 1 = RSD 100)

Municipality	Realized revenues 2010 RSD million	Borrowing limit 2011 RSD million	Borrowing limit 2011 (€ 000) based on revenue 2010	Realized revenues 2010 (€ 000)	Outstanding principal amount of current debts (€ 000) 2010	Max borrowing capacity 2011 50% (€ 000)
1	2	3	4	5	6	7 (4-6)
VLADICIN HAN	303	151	1,514	3,028	200	1,314

Source: Ministry of Finance Serbia

Because of the loans already taken during previous years, the remaining total borrowing limit of the Municipality Vladicin Han as of 2011 is limited to **RSD 131 million or € 1,314,274**.

Table 10.2-7 Borrowing limits Vladicin Han municipality, (2011 /€ 1 = RSD 100)

No	Municipality	Realized revenues 2010		Borrowing limit 2011	
		RSD m	€ 000	RSD m	€ 000
1	VLADICIN HAN	303	3,028	131	1,314
	Total	303	3,028	131	1,314

Source: Ministry of Finance Serbia





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10.2.8 Credit history and financial management capacity

Serbian Municipalities do not have a long credit history since the legal framework enabling Municipalities to borrow funds for investments purposes. Major changes were initiated starting from 2002 with the new Budget System Law, which introduced the possibility for Serbian Municipalities to make use of the capital markets, draw loans and issue municipal bonds. However, the practice of taking long term credits to finance large investment projects did not become significant until 2003.

Municipalities in Serbia are now changing the practice of applying conservative financial policies in avoiding loans and keeping a relatively high surplus of cash in order to avoid liquidity problems. They are more interested in improving the functioning of their regions, and are assisted in this by a number of international grants being awarded to improve communal services.

Being given legal rights to borrow money from commercial banks, Municipalities are entering these agreements respecting various conditions under which banks are ready to lend money to local communities. Municipalities have equal borrowing rights as any other company in the trade market. The difference is in providing collaterals. Each Municipality has an account with the State Treasury, through which all the transfers from the State budget are directed to the Municipality. In case of borrowing, the bank usually requires signing a letter of authorisation with the Municipality to debit their account with the Treasury for any outstanding loan repayment. This proves to be rather firm collateral since the Municipalities have regular transfers from the State and loans practically bear very little risk of being repaid.

Long term loans of municipality Vladicin Han

In December 2010, the Municipality of Vladicin Han signed a loan contract with Banka Intesa A.D, Beograd for investing in infrastructural projects equipping of industrial zones along the corridor 10; equipping the tourist facilities in Sport Centre "KUNJAK" Vladicin Han, under the following conditions:

Loan amount approved (**€ 373,483.77**).

Loan amount withdraw **RSD 20 million (€ 187,434.39)**.

Loan is Euro denominated, repayable in RSD.

5 years tenor, including 12 months grace period

Monthly repayment.

Interest rate nominal 3M EURIBOR +5.75%.

Interest rate effective 6.78%.

Front-end fee 0.5% (€ 937.17).

Annuity (€ 232,893.38)

Total Interest for a period: (€ 45,458.99)

Promissory notes as collateral.

When taking loans from commercial banks, the Municipalities are also obliged to sign Agreements on Authorisation by which the Bank can claim any outstanding debt with the local Treasury department (where the Municipality has its business account). Under the provisions of this contract the beneficiary is obliged to enable the Bank insight into allocation of the borrowed money. (The bank shall decide on the time and monitoring method).

All Municipalities in the Serbia are eager to build well organized communities, and as many other Municipalities in Serbia they are striving to introduce relatively efficiently all of the reforms introduced by the Serbian public finance at local level, such as a new accounting system (in accordance with international standards), local treasury system and new budget procedures.





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10.2.9 Creditworthiness assessment of Municipality

Creditworthiness during the period 2008 – 2011

The tables below and the creditworthiness analysis summarize the trends regarding the financial position of the Municipality of Vladicin Han:

Table 10.2-8 The Municipality of Vladicin Han

No	Item	2008 RSD m	2009 RSD m	2010 RSD m	2011 plan RSD m
I	Current Revenues (1+2+3+4)	239	223	307	299
1	Own Current Revenues	32	22	38	40
2	Share of State Taxes	75	71	80	84
3	Other State Transfers	132	130	188	170
4	Donations	-	-	1	5
II	Current Expenditures	218	205	275	259
A	Current Surplus/Deficit (I-II)	21	18	32	40
5	Capital Revenues	5	7	12	10
6	Capital Expenditures	13	7	28	40
B	Capital Surplus/Deficit (5-6)	(8)	(0)	(16)	(30)
C	Net Surplus/Deficit Before Financing (A+B)	13	17	16	10
7	Borrowing	-	-	20	-
8	Cash brought from previous year	7	2	2	-
9	Debt Service	18	17	8	3
10	Reserves	-	-	-	7
D	Net Debt Increase/Decrease (7+8-9-10)	(11)	(15)	14	(10)
E	Net Surplus/Deficit (C+D)	2	2	30	(0)

The Municipal **current revenues** have increased during the period 2008 to 2010 by 28% to RSD 307 million. In 2011 the Municipality of Vladicin Han plans to decrease current revenues by 3%. In the same period, **current expenditures** in 2010 grew 26% compared to 2008. In 2011 the Municipality plans to decrease current expenditures to RSD 259 million or by 6%. According to the plan for 2011 Municipality record decrease of transfers from central level for 10%. **Capital expenditures** decreased in 2009 for 44% and significantly increased to RSD 28 million in 2010. In 2011 according to plan the capital expenditures have to increase to RSD 40 million or for 43%. **Capital revenues** for the period 2008 to 2010 increased from RSD 5 million to RSD 12 million respectively and according to the plan for 2011 decrease of capital revenues of 17% is recorded.

Current surplus, for the Municipality of Vladicin Han decreased by 15% in 2009 and increasing trend is presented in a following period. The current surplus was considerable only in 2010 and according to the plans for 2011 the Municipality planned to have a **current surplus** of RSD 40 million or (€ 400,000). Over the 2008 to 2010 current surplus was sufficient to cover the capital deficit and according to the plan for 2011 municipality planned to cover capital deficit with current surplus too.

On the other hand, the **capital cash flow** (capital revenues minus capital expenditures) during these years was constantly negative. **Capital revenues** can finance a small part of the investment expenditures in observing years. The reason for this is the intensive investment program that has been initiated from the year 2000, but also the characteristic of





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the local public finance system in Serbia, which does not differentiate strictly between current/operational and capital revenues. However, although not legally prescribed, some taxes and fees are levied with the purpose to improve infrastructure in a Municipality. For example, the land development charge is usually defined as revenue of the local development agency, which in turns uses it to upgrade or fund new infrastructure. Revenues from renting municipal assets are used as a general source to fund the Municipalities' capital investment program.

The results of the budget analysis for the Municipality of Vladicin Han, show that the **Net surplus/deficit before financing** was constantly positive and sufficient to fund the **capital deficit in observing years**. In order to finance its ambitious investment program, cover the existing debt service this Municipality has to reach for additional funds, borrowing from commercial banks, cash brought from previous years or other financing means.

The Table below provides some selected financial indicators which confirm the above trend:

The indicators given in the table refer to the Municipality of Vladicin Han.

Table 10.2-9 Municipal financial indicators – Municipality of Vladicin Han

	Benchmark	2008	2009	2010	2011 plan
Indicators of revenues					
Current revenues / Total revenues		98%	97%	96%	97%
Shared revenues / Total revenues		31%	31%	25%	27%
Original (local) revenues / Total revenues		15%	13%	16%	16%
Revenues from sale of property / Total revenues	2 - 5%	0%	0%	0%	0%
Capital revenues / Total revenues		2%	3%	4%	3%
Operating result / Current revenues		9%	8%	11%	13%
Indicators of expenditures					
Current expenditures / Total expenditures		94%	97%	91%	86%
Operating result / Current expenditures		10%	9%	12%	16%
Capital revenues / Capital expenditures		39%	96%	43%	25%
Capital investments / Total expenditures		5%	3%	9%	13%
Indicators of financial state					
Total expenditures / Total revenues	95% - 100%	95%	92%	95%	97%
Total expenditures / Current revenues		97%	95%	99%	100%
Indicators of indebtedness					
Debt / Total revenues from previous year		0%	1%	0%	1%
Debt service / Total revenues from previous year		0%	7%	4%	1%

• Revenue indicators

- The share of current to total revenues is stable throughout the years on 97%. The plan for the year 2011 is to keep this share of current revenues at 97%.
- The share of allocated revenues (shared revenues) to total revenues decreased from 31% in 2009 to 25% in 2010. According to the 2011 plan, revenues will be at the level of 27%.
- Original revenues were increased from 13% to 16% in 2010 comparing with 2009. The plan for 2011 is to keep these revenues on 16%, being the result of reclassified property tax collection and increase in administrative and communal fees.





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- The ratio between operating result and current revenues decreased from 9% to 8% in 2009 and increased to 11% in 2010. According to plan for the year 2011 increasing to 13% is planned.
- Expenditure indicators
 - The share of current to total expenditures during the period 2008 to 2010 oscillating between 91% and 97%. The plan for the year 2011 is to decrease current spending to 86% share.
 - Capital revenues coverage of capital expenditures increased significantly from 39% in 2008 to 96% in 2009 and decreased again to 43% in 2010. The plan for 2011 is to decrease capital revenues coverage to 25%.
 - Capital investments as percentage of total expenditures increased from 3% in 2009 to 9% in 2010. However, in 2011, according to the plan capital investments to total expenditures would be on 13%.
- Indicators of financial state
 - Total expenditures were lower than total revenues in observing years from 5% to 8%. The plan for 2011 shows that the expenditures will be 3% below than the revenues.
- Indicators of Indebtedness
 - In the observing years The Municipality took one commercial loan in 2010. Debt to Total revenues from previous years indicator is 1% according to the plan.

Conclusions

With the planned borrowing in 2011, the Municipalities of Vladicin Han, can fund their capital investment in 2010 & 2011. In 2010, the Municipality Vladicin Han have not used their entire legally prescribed borrowing limit, which enables it to take more loans. For Municipality Vladicin Han this amounts to **€ 1.3 million for 2011**. The Ministry finance regularly publish data about municipal maximum borrowing capacities limits.

Municipalities in Serbia are generally pro forma owners of their property, which is given to them by the Republic of Serbia. This means that the Municipalities are legally limited as to the issue of disposing of their property. They can only use them as “tenants” (occupying their premises indefinitely without paying any “rents”), whereas the State of Serbia decides upon changes in property ownership. Therefore, the Municipalities cannot use “their property” as collaterals if commercial banks granting loans require them to do so. However, there are other, equally firm, means that the Municipalities can use as collaterals.

Funding of municipal investment plans by issuance of municipal bonds could be an appealing alternative compared to commercial bank loans. However, so far this practice is initiated in Serbia in 2011 only in city of Novi Sad like test series and some other cities and municipalities are in preparation period. The neighbouring countries, including former Yugoslavian republics, are preparing (Republic of Srpska), or started (Croatia) projects on municipal bonds issuance. However, many organizational changes will have to be made in Serbia, prior to addressing the bond issuance, such as instituting a body that will be in charge of controlling the municipal bond market, and the issue of ownership of assets.

In order to pool more funds, the Municipalities could improve collection of land development and use charge for financing their capital investments. Municipal budgets will grow with the new revenue collected from property tax charges, which became efficient as of June 2007. The Municipalities have a discretionary right to set the property tax charge within the legally prescribed limits. Another source of funding is the Government that apportions funds to the Municipalities through the budget transfers. The share apportioned for capital investments is to be planned carefully by every Municipality.



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The Municipalities are legally obliged to present the annual budget plan following their approved budgets from the previous year to the municipal assembly. There are no obstacles for the Municipalities to introduce multiyear planning, using economic forecasts, at least in those sections controlled by them (within the original revenues).

Creditworthiness forecast during the period 2012 – 2018

The projection of the Vladicin Han municipal creditworthiness is based on data submitted by the budget department of the municipality. In order to assess the sensitivity of the projections to changes in the macro-economic environment, three different scenarios are presented: a base case, an optimistic and a pessimistic macro-economic scenario.

The projections are based on the municipal plan for 2011, with corrections for changes related to the new local government financing law.

The projection of budget revenues is based on the following assumptions:

- Current division of local budget revenues in accordance with the new local government finance law;
- According to the same law, as from 2007, the tax on property changed its status from allocated to own revenues. The administration of this tax is decentralized, and the local government is directly in charge of collecting this tax. For this reason it is assumed that this tax will have an autonomous increase in the future

The specific revenue growth parameters used for the projection are presented in the table below:

Table 10.2-10 Municipal projection – revenue growth assumptions

I	Own revenues	
1.1.	Fees (administrative, communal, tourist)	- RSD Inflation - Real GDP growth
1.2.	Charge for land use and development	- RSD Inflation - Real GDP growth - Autonomous growth of revenues 1.5% (base), 3% (optimistic), 0% pessimistic
1.3.	Property tax	- RSD Inflation - Real GDP growth - Autonomous growth of this revenues from 0 (1-5 year), 3%/5%/0% (5-10 year), 6%/10%/0% (11-15 year)
4.	Other	- RSD Inflation
II	Allocated revenues	
2.1.	Income tax	- RSD Inflation - Real Wage Increase
2.2.	Heredity tax and tax on passing the absolute rights	- RSD Inflation - Real GDP growth
2.3.	Transfers	- RSD Inflation - Real GDP growth
2.4.	Other	- RSD Inflation

The projection of Vladicin Han municipality budget expenditures is based on different growth patterns for the following three main groups of expenditure:

- Expenditure related to the administration and governmental bodies;
- Expenditures related to social functions; and
- Expenditures related to operational expenditures of local development and utility operational subsidies.

The projection of budget expenditures is based on the following assumptions:





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Table 10.2-11 Municipal projection – expenditure growth assumptions

No	Type of expenditures	Parameters of the projections
1.	Administration and municipal bodies	- RSD Inflation
2.	Social functions	- RSD Inflation - Real GDP growth
3.	Current subsidies	- RSD Inflation - Real GDP growth
4.	Other current expenses	- RSD Inflation

After projecting revenues and expenditures, the net surplus before financing and before capital expenditure is estimated for each of the three macro economic scenarios. Next, debt service commitments arising from the existing loans are deducted from this amount. The remaining balance is available for the funding of capital projects.

Vladicin Han has taken one loan in 2010. No other loans are planned to be taken during the years 2011 & 2012. The 2010 loan conditions were explained in relevant chapter.

Based on this, the model will assess the capability of Vladicin Han municipality during the period 2012 to 2013 to assume any further debt and/or capital financing directly from the municipal budget.

However, this does not mean that this study proposes the Municipality of Vladicin Han to finance 100% of the investment. The projection just assesses the possibility for the municipality to assume the *maximum* amount of the liabilities. In the end it is up to the municipality to decide on an appropriate key or mechanism to finance the municipal part of the project, or to attract funding from other sources to close the financing plan.

The final result of the projection is presented in the tables below. The results are presented both in RSD as well as in Euro.

Table 10.2-12 Vladicin Han Municipality budget forecast – base case

	Unit	Rate	2012	2013	2014	2015	2016	2017	2018
Vladicin Han - base case									
Total budget revenues	RSD m		328	355	385	419	455	495	538
Total current expenditures	RSD m		210	224	239	256	274	293	314
Tipping fees landfill	RSD m		-	-	-	-	-	-	-
Operating result	RSD m		118	131	146	163	181	202	224
<i>Budget capital financing</i>									
<i>Debt service</i>									
Loan 1: Banka Intesa	RSD m		5	5	5	4	4	-	-
Available for capital spending	RSD m		113	126	141	159	177	202	224
Outstanding principal amount	RSD m		16	12	8	4	-	-	-
<hr/>									
Total budget revenues	€ th		3 029	3 272	3 564	3 918	4 307	4 738	5 153
Total current expenditures	€ th		1 939	2 062	2 212	2 393	2 591	2 807	3 008
Operating result	€ th		1 090	1 210	1 353	1 525	1 716	1 931	2 145
<i>Budget capital financing</i>									
<i>Debt service</i>									
Loan 1: Banka Intesa	€ th		49	47	44	41	39	-	-
Available for capital spending	€ th	2 204	1 041	1 163	1 309	1 484	1 678	1 931	2 145
Outstanding principal amount	€ th		160	112	75	37	-	-	-
Max borrowing capacity	€ th		1 420	1 515	1 636	1 782	1 959	2 154	2 369
Max additional borrowing capacity (50%)	€ th		1 270	1 402	1 561	1 745	1 959	2 154	2 369



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Table 10.2-13 Vladicin Han Municipality budget forecast – optimistic case

	Unit	Rate	2012	2013	2014	2015	2016	2017	2018
Vladicin Han - optimistic case									
Total budget revenues	RSD m		328	357	388	423	461	503	549
Total current expenditures	RSD m		210	224	238	255	273	292	313
Tipping fees landfill	RSD m		-	-	-	-	-	-	-
Operating result	RSD m		119	133	149	168	188	211	236
<i>Budget capital financing</i>									
<i>Debt service</i>									
Loan 1: Banka Intesa	RSD m		5	5	5	4	4	-	-
Available for capital spending	RSD m		113	128	145	163	184	211	236
Outstanding principal amount	RSD m		16	12	8	4	-	-	-
Total budget revenues	€ th		3 063	3 365	3 731	4 173	4 669	5 230	5 711
Total current expenditures	€ th		1 956	2 109	2 294	2 517	2 763	3 036	3 254
Tipping fees landfill	€ th		-	-	-	-	-	-	-
Operating result	€ th		1 107	1 256	1 436	1 656	1 905	2 193	2 457
<i>Budget capital financing</i>									
<i>Debt service</i>									
Loan 1: Banka Intesa	€ th		49	47	44	41	39	-	-
Available for capital spending	€ th	2 266	1 057	1 209	1 392	1 614	1 867	2 193	2 457
Outstanding principal amount	€ th		150	112	75	37	-	-	-
Max borrowing capacity	€ th		1 423	1 531	1 683	1 865	2 086	2 334	2 615
Max additional borrowing capacity (50%)	€ th		1 273	1 419	1 608	1 828	2 086	2 334	2 615

Table 10.2-14 Vladicin Han Municipality budget forecast – pessimistic case

	Unit	Rate	2012	2013	2014	2015	2016	2017	2018
Vladicin Han - pessimistic case									
Total budget revenues	RSD m		329	359	394	434	478	526	580
Total current expenditures	RSD m		211	227	246	267	291	316	344
Tipping fees landfill	RSD m		-	-	-	-	-	-	-
Operating result	RSD m		118	132	148	167	187	210	236
<i>Budget capital financing</i>									
<i>Debt service</i>									
Loan 1: Banka Intesa	RSD m		5	5	5	5	5	-	-
Available for capital spending	RSD m		113	127	143	162	182	210	236
Outstanding principal amount	RSD m		16	13	9	5	-	-	-
Total budget revenues	€ th		2 996	3 179	3 376	3 586	3 810	4 047	4 458
Total current expenditures	€ th		1 920	2 011	2 107	2 209	2 317	2 430	2 644
Tipping fees landfill	€ th		-	-	-	-	-	-	-
Operating result	€ th		1 076	1 169	1 269	1 377	1 493	1 617	1 814
<i>Budget capital financing</i>									
<i>Debt service</i>									
Loan 1: Banka Intesa	€ th		49	47	44	41	39	-	-
Available for capital spending	€ th	2 148	1 026	1 122	1 225	1 336	1 454	1 617	1 814
Outstanding principal amount	€ th		150	112	75	37	-	-	-
Max borrowing capacity	€ th		1 417	1 498	1 590	1 688	1 793	1 905	2 024
Max additional borrowing capacity (50%)	€ th		1 267	1 385	1 515	1 650	1 793	1 905	2 024

The main results of the above projections are:

- The current loan obligations restrict the municipalities' ability to fund significant capital expenditures directly from the budget: more than 5% of the operational surplus needs to be spent on debt service in 2012;
- Cumulative *total* available budget for capital projects during the period 2012 to 2013 under macro-economic base case scenario amounts to € 2.2 million, with a pessimistic scenario resulting in € 2.1 million and an optimistic scenario totalling € 2.3 million;
- Assuming that around 50% of this balance is allocated to basic infrastructure, the municipality could commit an additional € 1.1 million during the period 2012 to 2013, assuming a base case scenario.
- There is some scope for additional borrowing during the period 2012 to 2013, as a result of growing municipal revenues and principal repayment of existing loans. This is estimated to € 1.3 million in 2012 (base case scenario);
- If 50% of this would be used to fund the basic infrastructure related activities, the total municipal financing of the project could amount to approximately € 1.7 million;
- Therefore, based on this analysis, the municipality has limited financial sources to co-fund the project in the following years.





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Finally, the table below summarizes some key indicators for Vladicin Han. These indicators confirm that the municipality can sustain the financial burden under all macro-economic scenarios. Obviously, this is also a result of the strict borrowing constraints imposed by the Ministry of Finance.

Table 10.2-15 Vladicin Han Municipality - budget forecast indicators

	Unit	Rate	2012	2013	2014	2015	2016	2017	2018	
Indicators - base case										
Vladicin Han										
Operating result / total revenues	%	MIN=	35%	36%	37%	38%	39%	40%	41%	42%
Operating result / Total debt service	multiple	MIN=	22,1	22,1	25,9	30,7	36,8	44,1	-	-
Outstanding Debt / operating result	multiple	MAX=	0,2	0,1	0,1	0,06	0,0	-	-	-
Outstanding Debt / revenues previous yr	%	MAX=	5%	5%	4%	2%	1%	0%	0%	0%
Debt service / revenues previous yr	%	MAX=	2%	2%	2%	1%	1%	1%	0%	0%
Indicators - optimistic case										
Vladicin Han										
Operating result / total revenues	%	MIN=	35%	36%	37%	38%	40%	41%	42%	43%
Operating result / Total debt service	multiple	MIN=	22,4	22,4	26,9	32,6	40,0	49,0	-	-
Outstanding Debt / operating result	multiple	MAX=	0,2	0,1	0,1	0,1	0,0	-	-	-
Outstanding Debt / revenues previous yr	%	MAX=	5%	5%	4%	2%	1%	0%	0%	0%
Debt service / revenues previous yr	%	MAX=	2%	2%	2%	1%	1%	1%	0%	0%
Indicators - pessimistic case										
Vladicin Han										
Operating result / total revenues	%	MIN=	35%	36%	37%	38%	38%	39%	40%	41%
Operating result / Total debt service	multiple	MIN=	21,8	21,8	25,1	28,8	33,2	38,4	-	-
Outstanding Debt / operating result	multiple	MAX=	0,2	0,1	0,1	0,06	0,0	-	-	-
Outstanding Debt / revenues previous yr	%	MAX=	5%	5%	4%	2%	1%	0%	0%	0%
Debt service / revenues previous yr	%	MAX=	2%	2%	2%	1%	1%	1%	0%	0%

10.2.10 Risks & Weaknesses

The risk of default on credits and other financial obligations of municipalities in Serbia is generally not very high, due to strict application of the law on public finance by the Central Government/Ministry of Finance. This law regulates the municipal debt market by setting the limit to accumulated municipal debt to maximum 50% of the previous year's realized budget revenues. Additionally, debt service is not to exceed 15% of the previous years' realized budget revenues. Municipalities have to apply for a permit to the Ministry of Finance for any debt they wish to take. The Ministry of Finance controls whether the municipalities adhere to the stipulations of the law on public finance and especially these debt limits, before issuing the permit.

The other factor that is decreasing risk in servicing debts of local governments is the still relatively slow procedure in creating debts. According to the new law on public procurement and the new treasury procedures, the process of initiating project implementation is very slow. It could be said that Serbian municipalities still did not develop management capacity to efficiently spend funds available on viable projects.

This is one of the reasons for not having spent funds as planned during the budget year.

The Municipality of Vladicin Han have in the recent past actively used the instrument of borrowing from commercial banks. Although municipality will be exposed to debt service liabilities, its' financial position is not considered to be very risky.

Certain risks could be related to the coming reform of the local governmental system which includes considerable changes in the financial operational system:

- The new law on local governments financing envisages the establishment of a tax administration at the local level and take over much bigger responsibility for collecting larger original (own) revenues;
- Introduction of the new elaborated treasury system that will integrate the system of public finance in Serbia;
- Introduction of public procurement law;





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- Starting with the accounts of the 2006 financial year, municipalities and public companies are obliged to have their accounts audited and certified by an external auditor.

The risk is related to the reforms not being implemented successfully or creating excessive bureaucracy. On the other hand, a successful implementation will enhance the local government financial management system and increase the creditworthiness of the municipalities.

There is a political risk. Change of either the mayor or the constitution of the assembly can change political priorities. Frequently, (senior) managers in both the city administration as well as related public companies are changed as a result of a newly elected mayor from a different political party or a change of the assembly.

Although municipal accounts do separate between capital and current accounts, little attention is paid to a strict separation of the two types of expenditure. Frequently, current and investment expenditures are mixed up. Actual expenditures of subventions given to public utility companies are not reflected in the municipal accounts. The accounts of Vladicin Han municipality are a clear example of this: subventions for the capital projects are accounted for as current expenditure, although the bulk of the funds provided are spent on capital projects. This all makes it difficult to track planned investment versus actual expenditure.

Conclusion is that many local government reforms are recently introduced which, if implemented successfully, will contribute to enhance the creditworthiness of municipalities. A potential item for a creditworthiness enhancement program could be strengthening the municipalities' capacity to plan and track long term capital investment.

10.3 Financial Analysis

10.3.1 Methodological Approach for the CBA

As pointed out in the Guide to CBA, 2008, the **incremental method** is the standard method recommended for carrying out the CBA, including the economic and financial analyses to ensure that the grant support provided by the EC services strictly support an investment project but do not contribute to shore up the cash-flow of weak local government, utilities or else..

The industrial zone will be established in new clean currently agriculturally used land track South of the municipality of Vladicin Han. As such the project is a "green field" initiative and not a "brown field" project revitalizing an old polluted industrial site. There is no need to take into account in the financial and economic assessment old pollution loads which may carry financial and economic costs to the project.

The "without project scenario" has no cost nor revenues of any kind. The incremental values coincide in this project with the "with project scenario"

On the other hand, the creation of jobs through the establishment of the industrial zone is an uncertain outcome of the project. To take into account this uncertainty, three scenarios of jobs creation were contemplated in the analysis. An optimist job creation scenario, a conservative pessimistic job creation scenario and what is assumed to be a realistic and reasonable jobs creation scenario corresponding to what the expert team think will be the most probable outcome of the planned investment in the infrastructure of the industrial zone.

The proposed project needs also to respect Serbian laws and regulation regarding the establishment of industrial zone.

Three decrees are of particular importance and may impact on the financial and economic viability of the project. They are briefly summarized below:



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1. **The Decree on terms and conditions for attracting direct investment (“Official Gazette of Republic of Serbia”, no. 42/11).** This decree stipulates the financial assistance to be offered to investors bringing industrial direct investment in the country. This assistance is provided by the national budget and may be used for financing industrial investment projects in the manufacturing sector and the internationally marketable services sector. These are sectors targeted in the Vladicin Han industrial zone. The financial support is determined based on the number of employees hired in a three-year period following the agreement between the sponsoring Serbian Ministry and the industry. For the Vladicin Han industrial zone, the following financial incentives may apply: (i) between EUR 4,000 and EUR 10,000 per each new job created because of the “devastated” nature of the municipality and region, (ii) between EUR 5,000 and EUR 10,000 per every new job created in the automotive, electronics, information technology or telecommunications sector because the region is an area of “special state interest”; (iii) between EUR 2,000 and EUR 5,000 per each new job created in the service sector linked to international trade; (iv) between EUR 2,000 and EUR 10,000 up to 20 % of the investment made for every new job created in industrial sites with an investment value higher than 50 million Euros creating more than 300 new jobs; (v) 17 % of the total investment value for industrial investment greater than 200 million Euros creating at least 1000 new jobs.

These incentives are offered to the companies establishing themselves in the industrial zone. The municipality is not a direct beneficiary of those funds and therefore these funds cannot be reflected in the financial analysis of the project as seen from the municipal administration perspective.

In economic terms these funds play a role for the municipality of Vladicin Han. They are used to offset part of the capital invested by industrialists to build the productive equipment to be used by the jobs to be created. As such they are considered to be part of the private capital mobilized and invested by industrialists and shareholders mentioned earlier which is taken into account in the economic benefits of the project.

2. **Decree on the conditions under which Local Government may sell or lease industrial land to industrialists at below market rates (Official Gazette of the Republic of Serbia, no. 13/2010).** This Decree sets the criteria based on which the cities and municipalities may building land at a preferential price or free of charge. The rule applies for economic development project which increases employment in the local economy by at least 1% which is expected to be the case in Vladicin Han. The reduction of the market price cannot be higher than the planned increase in public revenue for a period of 5 years following the investment. This rule being respected the land may in principle also be given for free considering the “devastated” nature of the municipality of Vladicin Han.

The approval of the sale price of land below the market rate, is to be approved by the GoS based on a cost/ benefit analysis to be prepared by the city or municipality. The benchmark land “market value” based on which a sale price reduction can be proposed is supposed to be provided by the tax administration.

In the study various sell price level were considered to estimate the viability of the project in financial and economic terms.

3. **Municipal ordinance on construction land, on land development charge and land use charge and on communal fees.** According to this ordinance a local government may decide to exempt a company from payment of local taxes fees, charges for municipal land use, fees for city planning conditions and agreements, fees for water supply and sewage system connection, local communal charges and the like.





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These exempted charges are expected to essentially affect the cash flow of the companies settling in the industrial zones. They may also impact on the public revenue of the municipality. Considering though that a diminution of the municipal revenues can impact on the capacity of the municipality to sell the land at a discounted price (see decree 13/2010 above) the municipality will have to decide which incentive forms it want to use to attract industrialists. It is recommended in this respect that the municipality may consider waiving one-off fees and charges due in connection with the planning and construction of the industrial sites, but refrain from waiving recurring charges for utilities like water, electricity or else which have definitive costs for the municipality and may hamper the municipality to run and maintain these services sustainably.

10.3.2 “With” Project Scenarios

The Table 10.3-1 summarizes the assumptions used in the three industrial Development Scenarios considered in the project.

Table 10.3-1 Industrial Development Characteristics of Scenarios

Item	Optimistic Scenario	Realistic Scenario	Pessimistic Scenario
General Definition and Investment Scenario Boundaries	The with-project scenarios encompasses investments spread into following components: (i) land acquisition, (ii) road works, (iii) power supply, (iv) Street lighting, (v) telecommunication network, (vi) water supply, (vii) wastewater management, (viii) storm water drainage and flood protection. The same infrastructure are expected to be developed in the three scenarios		
Population	The resident population in the Vladicin Han area has been assumed to develop similarly whatever the scenario according to the population forecasts presented in the chapter 6.		
Activated Sectors and Direct Jobs Creation	Direct Jobs: 143 per ha in average	Direct Jobs: 110 per ha in average	Direct Jobs: 77 per ha in average
Indirect Jobs Creation	Multiplier factor 0,30 Indirect jobs 43 per ha	Multiplier factor 0,30 Indirect jobs 33 per ha	Multiplier factor 0,20 Indirect jobs 15 per ha
Industrial Capital Invested by Companies	Investment per job 2.159 € per job	Investment per job 1.017 € per job	Investment per job 700 € per job
Investment Costs	Investment costs of the project depending of the concept have been spread into 8 main components as indicated above. For each type of investment the following breakdown were considered: (i) Land, (ii) Planning / design (4% of works and machineries), (iii) Site preparation (5% of works and machineries), (iv) Main works, (v) Plant machineries and commissioning, (vi) TA and Training, (vii) Supervision (5 % of works and machineries), (viii) visibility and PR, (ix) Physical contingencies (10 % of (ii) to (viii))		
Market price of industrial zone land	Estimated 2011 land market price is 5 € per m ²		
OM & Adm Costs	OM&Adm costs where estimated taking into account fixed and variable costs spread into the following elements: (i) personnel, (ii) maintenance, (iii) depreciation and (iv) administration and others, (v) variable cost		

10.3.3 Project Financial Objectives

The project financial objective is to ensure that enough financial sources can be mobilized to implement the investment while ensuring that the municipality can repay the loan it may need to take to buy the land.

The project doesn't fall into the category of project that are considered to generate sustainable recurring revenues based on charges systematically applied to all the users of the facilities.

The Ministry of Economy and Regional Development (MoERD) in charge of the project, intends to encourage the sale or lease of the land at a discounted price against current market price as an additional incentive for the industrialists to settle into the zone.





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From the point of view of this feasibility study only the sale/ lease of the land in the industrial zone is taken into account on the revenue side of the project. Charges for water and wastewater utilities are expected to be essentially selected to offset the cost of providing the services by the municipality itself. They have been discarded as contributing insignificant additional revenues to the municipality.

For the purpose of this feasibility study, the project is considered to be therefore essentially a sunk investment essentially made to stimulate economic activities and jobs creation in a poor region of Serbia.

10.3.4 Investment Costs

The following investment related costs are considered in the financial analysis.

10.3.4.1 The investment costs

These costs are spread into the following categories defined and explicated in the technical chapter of the feasibility study report: (i) land acquisition, (ii) road works, (iii) power supply, (iv) street lighting, (v) telecommunication network, (vi) water supply, (vii) wastewater management, (viii) storm water drainage and flood protection. The infrastructure expected to be developed in the project 1st phase (the project sponsored by the EU) is considered the same in the three scenarios. It represents the basic minimal requirement infrastructure needed to open up the industrial zone whatever its attractiveness of the area for industrialists and companies.

The table 10.3-2 presents expressed in real costs the three different investment concepts each spread into different categories of physical components.

Table 10.3-2 : Investment of the Industrial Zone South in Vladicin Han (Real Cost M EUR)

Investment Components	Optimistic Scenario	Realistic Scenario	Pessimistic Scenario
Land Acquisition	1,964	1,964	1,964
Road Works	1,900	1,900	1,900
Power Supply	2,449	2,449	2,449
Street Lighting	0,211	0,211	0,211
Telecommunication	0,058	0,058	0,058
Water Supply	0,868	0,868	0,868
Wastewater management	1,712	1,712	1,712
Storm Drainage & Flood Protection	1,795	1,795	1,795
Planning/Design	0,360	0,360	0,360
Site preparation	0,065	0,065	0,065
TA & Training	0,450	0,450	0,450
Supervision	0,630	0,630	0,630
Visibility and PR	0,045	0,045	0,045
Physical contingencies	1,054	1,054	1,054
Total	13,651	13,651	13,651

The tables 10.3-3 provide an overview of the same three concepts split in various cost elements customary in EC sponsored public infrastructure as per guidelines for EC grants.





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Table 10.3-3 Investment cost element of the Industrial Zone South Vladicin Han (Real Cost M EUR)

Costs Elements	Optimistic Scenario	Realistic Scenario	Pessimistic Scenario
Land	1,964	1,964	1,964
Planning/Design	0,360	0,360	0,360
Site Preparation	0,065	0,065	0,065
Main Works	8,347	8,347	8,347
Machineries	0,646	0,646	0,646
TA & Training	0,450	0,450	0,450
Supervision	0,630	0,630	0,630
Visibility and PR	0,045	0,045	0,045
Physical contingencies	1,054	1,054	1,054
Total	13,651	13,651	13,651

10.3.4.2 The OM&Adm Costs

The table 10.3-4 summarizes also in real terms the yearly Operation, Maintenance and Administration (OM&Adm) costs of the planned aggregated investments in each scenario. It is spread into fixed and variable costs on a cost basis 2011 and is presented for the year 2015, the 1st year following the completion of the investment. Depreciation is also included in the table, because of the importance to sustain the quality of the infrastructure over the years.

For the depreciation estimation the following economic life of investment elements were considered as shown in table 10.4-14.

The OM&Adm cost aggregates the related cost of each investment main groups reflected in table 10.3-2. The Annex 4 in VOL 3 : ANNEXES provides the disaggregated OM&Adm costs for each component.

Table 10.3-4 : Aggregated Yearly OM&Adm Cost (2015) of Maintaining the Industrial Zone in Vladicin Han in Real Cost (cost basis 2011)

OM&Adm Costs Elements	Optimistic Scenario	Realistic Scenario	Pessimistic Scenario
Fixed cost	330.054	330.054	330.054
Personnel cost	30.000	30.000	30.000
Maintenance cost	22.484	22.484	22.484
Depreciation	277.571	277.571	277.571
Other fixed cost (administration, fees)	0	0	0
Variable cost	0	0	0
Material costs	0	0	0
Electricity and Petrol cost	0	0	0
Other non-material costs	0	0	0
Total	330.054	330.054	330.054

In this assessment the variable utilities cost (water, wastewater, waste, etc.) for services delivered by the municipality to the industrial companies in the industrial zone have been purposed ignored. The payment of these services are expected in first approximation to essentially offset the O&M cost to be incurred to the municipality to deliver these services.

At a later stage, if the zone is very successful, there may be room for the municipality to increase the utilities tariff to be paid by the industries and cross subsidize the tariff paid by residents especially the vulnerable poorer income groups. Considering the uncertainty of such development and the absence of robust data on which to base such assumption of success, add-on surplus revenue from utilities has been in first approximation ignored in this financial analysis.





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10.3.4.3 Revenues

From the perspective of the municipal public hand responsible for the project, three types of revenues can be considered in this study:

- ✓ Sale/long term lease extracted by the public hand for the use of the plot of land passed to the industries settling themselves in the industrial zone.
- ✓ Industrial and commercial local taxes captured by the local government from the operation of the industrial companies.
- ✓ Local taxes paid out of the income of the new direct and indirect jobs created in connection with the establishment of the industrial zone.

From a financial perspective of the strict EU sponsored investment project, only the revenues from the sale or lease of the plots of land to industries was considered in the financial analysis; this because it is the only revenue which has a direct causality and is immediately connected to the investment to be made by the public hand in the development of the industrial zone. The other revenue streams are only indirectly connected to the construction of the industrial zone. They mostly depend on the industrialists capacity to create jobs and generate profits. They were consequently considered only in the economic analysis.

10.3.5 Project CBA Model

The Project CBA Model developed provides a structured framework for the financial and economic assessment of the project. The model consider successively in different worksheets: (i) the financial input criteria (like depreciation etc.), (ii) the socio-economic parameters, (iii) the investment by category, (iv) the O&M costs, (v) the expected revenues, and (vi) financial performance indicators.

For the economic analysis, the model includes a worksheet on economic elements and economic assessment.

The Model is designed to be consistent with accrual based accounting in which revenues and expenses are recognized when they are earned or incurred. This is also coherent with the accounting practices in Serbia. It also take into account the “Incremental Approach” required by the EC guidelines for project financing with EU grant.

Performance indicator of the project for the comparison of the options in financial terms is the Financial Net Present Value (FNPV) of the project investment up to the year 2035 discounted at 5 % per year (financial discount rate).

Performance indicators of the project for the comparison of the options in economic terms is the Economic Internal Rate of Return (EIRR) and the Economic Net Present Value (ENPV) of the project investment up to the year 2035 discounted at 3,5 % per year (social discount rate).

The Model consists of a series of linked worksheets. It develops year on year projections of investment costs, operating costs and revenues in real and nominal terms. It is followed by financial statements incorporating project capital costs, funding sources and investment plan. The worksheets in the Model are summarized below in table 10.3-7. While the spreadsheets are listed below in a particular order, this may not necessarily represent the sequence in which calculation is done.



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Table 10.3-7 Description of CBA Model Worksheets

Number	Worksheet Title	Description
1.	Inputs	Contains the major input variables and assumptions of the model
2.	Macro	Contains projections of the major macroeconomic variables
3.	Total Costs	Projections of total costs
4.	Investment	Contains projections of total investment costs in real and nominal terms and breakdown in foreign and local currency
5.	Revenues	Contains projections of municipality revenues in real and nominal terms and calculation of possible discount for land selling
6.	Loan	Loan calculation in real and nominal terms
7.	FNPV	Contains output report financial analysis for all components together
8.	Economic elements	Contains calculations of economic elements (conversion factors)
9.	Economic analysis	Contains economic analysis
10.	Sensitivity	Contains sensitivity analysis of main financial and economic output variables
11.	Risk analysis	Contains risk analysis of main financial and economic output variables
12.	Graphs	Contains graphs and charts of main project output variables

The model use a forecast period of 20 years with 2015 the 1st year after the completion of the investment.

The model expresses prices either in constant (real) terms as well as in current (nominal) terms. Current prices include allowance for projected annual inflation over the forecast period. Current prices are, therefore, the actual monetary amounts expected to be paid or received in each year. Current prices are also used to estimate the funding to be mobilized from the government and donors and the disbursement cash-flow during the investment period.

The model contains estimates of projected future inflation rates in the EU countries as well as in Serbia based on data available from the Serbia government and the World Bank.

For the financial calculation, the model relies on the financial assumptions and parameters highlighted in Table 10.3-8.

Table 10.3-8: Financial Assumptions and Parameters for the Development of the Industrial Zone Vladicin Han

Financial Parameter With Description	Unit	“With Project” Scenario	“Without Project” Scenario
Discount rate			
Financial discount rate	%	5,0	5,0
Social discount rate	%	3,5	3,5
Depreciation			
Existing assets	%	2,5	2,5
Pipe work economic life	years	40	40
Civil works economic life	years	50	50
E&M economic life	years	15	15
Road economic life	years	100	100
Tax			
VAT	%	18	18
Income tax (corporate tax)	% of EBT	10	10

The main results of the calculation of the model worksheets are attached in Annex 5.



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10.3.6 Investment Plan of Recommended Project

Investment cost has been foreseen only in the “with-project scenario”. No investment are considered in the “without-project scenario” which basically assumes a continuation of the status quo, without land acquisition, zone development or system or facility development.

For the presentation of the investment plan and the financial analysis the realistic scenario was retained as most probable project development trajectory.

Investment costs include all project infrastructure development measures foreseen for the period 2011 – 2014, divided into components and categories as shown in the Tables 10.3-2 and 3. This include civil works and machineries with estimated residual values and depreciation depending on different useful economic lifetimes. Additional elements are land purchase, design and works supervision services and other technical assistance services provided to the proposed Project Implementation Unit to manage the development and implementation of the industrial zone. The PIU is expected to be hosted by the Company Slobodna Zona Vladicin Han who will manage the industrial zone and market and sell the industrial plots to interested companies. Investments have been phased according to the procurement plan developed in the framework of the technical feasibility study of the chapter 8 and broken down by types of investments (components). The analysis also distinguishes between local currency (RSD) and foreign currency (EUR) cost elements. The purpose of this differentiation is threefold: firstly to determine price adjustments in the financial analysis as the inflation rates of the two currencies are assumed to be different; Secondly to allow for the application of shadow prices especially for local labor cost in the economic analysis; and thirdly to provide guidance in which currency investment costs will have to be disbursed.

10.3.6.1 Long Term Investment Plan

The long-term investment plan for the Project in the period 2012 – is presented in Table 10.3-9 in constant prices (2011 basis). Depending on the success of the industrial zone area to be developed under the project in terms of uptake by companies, the municipality may consider extending the surface of the industrial zone, to cover adjacent plots not considered part of the immediate EU assisted project part of this analysis. These extensions may reach out to “brown fields” areas adjacent to the planned initial plots for which land remediation and rehabilitation may be necessary before the sell/lease of the land. In the current project part of this assessment, only “green field” areas are considered to be developed and sold/ leased to industry. The long term investments are divided into the following phases: the Phase 1 (“the project”): 2012 – 2014 and a possible Phase 2: 2023 – 2024. It reflects land acquisition as well as physical investment only. Costs do not include design, technical assistance or contingencies.

Table 10.3-9 Long Term Investment Plan 2012-2035 (Constant Price, 2011) (mio EUR)

Type of Investment	Total	Phase 1				...	Phase 2		
		2012	2013	2014	2023		2024	2025	
Land Acquisition	3,928	0,982	0,982	0,000	...	0,982	0,982	0,000	
Road Works	3,800		0,950	0,950	...		0,950	0,950	
Power Supply	4,900		1,225	1,225	...		1,225	1,225	
Street Lighting	0,424		0,106	0,106	...		0,106	0,106	
Telecommunication	0,116		0,029	0,029	...		0,029	0,029	
Water Supply	1,736		0,434	0,434	...		0,434	0,434	
Wastewater management	3,424		0,856	0,856	...		0,856	0,856	
Storm Drainage & Flood Protection	3,592		0,898	0,898	...		0,898	0,898	
Total	21,920	0,982	5,479	4,497	...	0,982	5,479	4,497	





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The amounts shown in the long term investment plan are net of technical assistance services (i.e. final design and supervision cost) and contingencies (“net investment”). They include only the planned physical investment as indication of funding sources to be mobilized in the shorter and longer term and as guide to assess the appropriateness of the proposed investment per unit beneficiary (population of the Vladicin Han Municipality).

The specific per capita long-term investment cost in constant 2011 prices amounts to around 424 EUR/current population of the Vladicin Han municipality in the year 2015 or 3.984 EUR/expected job created within 5 years of the completion of the ultimate development phase of the industrial zone.

10.3.6.2 “The Project” Investment Plan

The table 10.3-10 provides the spread of the investment of the project first phase which corresponds to “the project” for which EC support is now being sought, in constant prices and in million EUR.

Table 10.3-10: Project Investment Costs (million EUR, Constant Prices, 2011)

Project Investment Cost	eligible	life-time	Total 2012-2014	2012	2013	2014
Main works	yes	50	8,413	0,000	4,239	4,174
Equipment & machinery & commissioning	yes	15	0,646	0,000	0,323	0,323
Sub-total 1 (w/out land)			9,059	0	4,562	4,497
thereof Administration Buildings	no		0,000	0,000	0,000	0,000
Land acquisition	no	-	1,964	0,982	0,982	0,000
Sub-total 2 (including land)			11,023	0,982	5,544	4,497
TA: Support for Project Mgmt., Design & Publicity	yes		0,854	0,180	0,427	0,247
TA: Supervision of Construction	yes		0,630	0,000	0,315	0,315
Sub-total 3 (w/out contingencies)			12,507	1,162	6,286	5,059
Technical Contingencies (10% of Sub-total 1)	yes		1,054	0,018	0,530	0,506
Sub-total 4 (with contingencies)			13,561	1,180	6,816	5,565
Total eligible cost including contingencies			11,597	0,198	5,834	5,565
% of contingencies contained in eligible project cost			9,09%	9,10%	9,08%	9,09%
ineligible cost including contingencies			1,964	0,982	0,982	0,000

The total eligible project investment cost (including contingencies) in constant 2011 prices amounts to 11,597 million EUR. Ineligible cost for support from the EU is the land acquisition which will have to be acquired from own resources or a bank loan to be contracted by the Municipality of Vladicin Han within the legal boundary for such loan.

The specific per capita project investment cost amounts to around 464 EUR/ municipal population or 4.217 EUR/ Expected job created within a 5 years period in the realistic scenario.

For the calculation of the design and supervision services, local taxes, fees and permits and contingencies, the following assumptions have been made:

- Final design: 4% calculated on net investment cost of FIDIC Red Book components. Final design for FIDIC Yellow Book components of around 2 % to 3 % of the cost of the works are already included in the net investment cost, as these are integral services to be provided by the contractors.
- Supervision: in average 5 % of net investment;





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- Local Taxes, Fees and Permits as follows (all of them eligible for co-financing): (i) Payments for Approvals and Permits, Feasibility Studies: 0,3% of net investment, (ii) Verification of the designs in accordance with Serbian Law: 0,2% of net investment and (iii) Physical Contingencies: 10% of net investment.

The table 10.3-11 shows the eligible and ineligible cost breakdown in current prices (including price adjustments), according to the structure required by the EC Service for IPA funding.

Table 10.3-11: Project Investment Costs (Current Price, million EUR)

Item	Total Project Costs (A)	Ineligible Costs* (B)	Eligible Costs (C)=(A)-(B)
1. Planning/design fees	0,379	0,000	0,379
2. Land purchase	2,076	2,076	0,000
3. Building and construction	9,206	0,000	9,206
4. Plant and machinery	0,692	0,000	0,692
5. Contingencies	1,339	0,000	1,339
6. Price adjustment (if applicable)	0,000	0,000	0,000
7. Technical assistance	0,488	0,000	0,488
8. Support to PIU and publicity	0,049	0,000	0,049
9. Supervision during construction implementation	0,677	0,000	0,677
10. Sub-TOTAL	14,906	2,076	12,830
11. VAT (here: eligible local taxes, permits, fees)**	0,000	0,000	0,000
12. TOTAL	14,906	2,076	12,830

* Ineligible costs comprise (i) expenditure outside the eligibility period, (ii) expenditure ineligible under national rules (Article 56 (4) of Council Regulation 1083/2006), (iii) other expenditure not presented for co-financing. ** VAT is not included under this item; item consists only of eligible local legal taxes, fees and permits (for more details see explanation on previous page)

Ineligible cost under EU rules would be land acquisition and the rehabilitation or development of a management buildings and workshops for the management of developed industrial zone by the Company "Slobodna Zona Vladicin Han".

All cost are expressed in current prices, i.e. price adjustments are already included (therefore, item 6 is shown as "0" in the table 10.3-11). The price adjustments applied to the investment cost were calculated by applying Euro inflation to the cost in foreign currency (EUR) and local inflation to the cost in local currency (RSD). As the investment cost was estimated in constant Euro, the portion of cost in local currency had to be translated in constant RSD by applying the RSD/EUR exchange rate for the base year 2011. After application of the local inflation rate, the investment cost in current RSD was translated to current EUR by applying the RSD/EUR exchange rate for the respective year.

The cost breakdown of eligible cost **by currency** results in 73,22% of total cost in local currency (RSD) and 12,89 % in foreign currency (EUR), as shown in the table 10.3-12.

Table 10.3-12: Eligible Cost Breakdown in Local & Foreign Currency, Current Prices

Cost Item	Unit	Total	2012	2013	2014
Eligible Cost	mill EUR	14,906	1,323	7,405	6,178
Local Currency	mill EUR	11,327	1,272	5,630	4,425
Local Currency	% of Total	75,99%	96,15%	76,03%	71,63%
Local Currency	mill RSD	1.155,383	129,772	574,268	451,344
Foreign Currency	mill EUR	3,578	0,051	1,775	1,753





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The cost in local currency represents the cost for final goods and services acquired in the domestic market, while the cost in foreign currency represents the cost for imported final goods and services. A detailed product-path analysis would go far beyond the scope of the study. Therefore, the term "import" is equivalent to payment in foreign currency (predominantly EUR) and domestic inputs will be paid in local currency (RSD).

10.3.7 Technical Assistance and Support

The Technical Assistance Support proposed to be deployed for the implementation of the project is spread into two packages, for which separate Consultants will be contracted:

- Support for Project Management, Design & Publicity
- Construction Supervision

The Support for Project Management, Design & Publicity will aim at strengthening the institutional capacities of the Company "Slobodna Zona Vladicin Han" in the design, marketing and development of the industrial zone to become a model modern industrial zone in the region.

The Construction Supervision will be responsible for managing and supervising the works and supply contracts and in general will fulfill all duties of the Engineer as defined in the FIDIC Yellow and/or Red Book Conditions of Contract for Construction.

The cost breakdown and phasing of the Technical Assistance Services are as reflected in the table 10.3-13.

Table 10.3-13 Cost Breakdown of Technical Assistance Services (Current Prices, mio EUR)

Technical Assistance	Total 2012-14	2012	2013	2014
Support for Project Management, Design & Publicity	0,916	0,186	0,457	0,273
Supervision of Construction	0,677	0,000	0,334	0,343
Total	1,593	0,186	0,791	0,616

10.3.8 Investment Cost in the „Without-Project“ Scenario

No investment what so ever are foreseen in the no project scenario in the project area.

10.3.9 Replacement Cost

In the financial and economic analyses, reinvestment have been considered for the replacement of the assets in line with their estimated economic life-time. The table 10.3-17 summarizes the asset life and depreciation factor applied in the CBA analysis.

Table 10.3-14: Summary of Asset Lives and Average Depreciation Charges

Asset category	Economic Life (Years)	Depreciation Charge %
Civil Work	50	2,00%
Mechanical & Electrical	15	6,67%
Road work	100	1,00%





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In the “with-project” scenario, reinvestments have been foreseen for the replacement of the assets built in the framework of the project taking into account the economic life highlighted on table 10.3-14. In the case of the project investments, the reinvestment cost in constant prices has been assumed to be the same as the original investment cost of the assets.

10.3.10 Financing Sources

The Table 10.3-15 summarizes the financial sources assumed to be needed in first approximation for the capital investment of the project as a basis for discussion with the ministries and the international donor community. The municipality will need to mobilize own resources for the acquisition of the land. According to the assessment of the finance of the municipality of Vladicin Han presented in Chapter 10.2, its current financing capacity includes 1.314.000 Euro for a loan (legal borrowing limit) and 970.000 Euro from the local budget. These figures need final refinement and confirmation after a dialogue with the respective potential sponsors (Municipality, Ministries, Lending institutions and EC services). The feasibility report in its final version will then reflect the outcome of these discussions.

Table 10.3-15: Project Tentative Financial Sources

Financing Source	Investment Values (current price, x1000EUR)	Percentage %
Grant (potential EU IPA)	11,551	77%
Central / Regional Government grant	1,071	7%
Loan for land acquisition	1,314	9%
Local Budget for land acquisition	970	7%
Others	0	0%
Total	14,906	100%

Considering the current financial situation of the municipality Vladicin Han (see Chapter 8.2), the necessary local budget contribution may be relatively high and will need to be discussed with the Municipality.

These figures will be refined and confirmed after dialogue with the respective potential sponsors (Municipality, Ministries and EC services) and the feasibility report in its final version will then reflect the outcome of these discussions. Funding sources will be adapted in the feasibility report and all financial tables of the report will be then adapted accordingly to reflect agreed funding from various parties.

For the loan component, conditions corresponding to lending conditions applied by EBRD for other infrastructural investment in Serbia were retained. They are summarized below.

Loan interest	%, EUR real	5
Loan duration	years	12
Grace period	years	3
Upfront fee	%	1
Commitment fee	%	0,5

The table 10.3-16 provides an overview of the resulting loan repayment schedule for the municipality.



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Table 10.3-16 Loan Repayment Schedule (M EUR)

	Total	2012	2013	2014	2015	...	2020	2021	2022	2023
Interest	0,468	0,049	0,057	0,066	0,062	...	0,026	0,018	0,011	0,004
Principal Repayment	1,314	0,000	0,000	0,000	0,146	...	0,146	0,146	0,146	0,146
Total	1,782	0,049	0,057	0,066	0,208	...	0,172	0,164	0,157	0,150

10.3.11 Revenues from the sell/long term lease of industrial plots

The plot of land developed in the industrial zone will be sold/ or leased long term to industrial companies. To attract industrialists the municipality is interested to sell/ lease at the lowest possible price to provide some incentive to companies considering settling into the industrial zone.

According to the decree under which Local Government may sell or lease industrial land to industrialists at below market rates (Official Gazette of the Republic of Serbia, no. 13/2010), the municipality may offer building land at a preferential price or free of charge. The rule applies for economic development project which increases employment in the local economy by at least 1% which is expected to be the case in Vladicin Han. According to the decree 13/2010 the market price cannot be higher than the planned increase in public revenue for a period of 5 years following the investment.

To estimate the maximum discount price at which the municipality of Vladicin Han may be able to offer land to industrialists, the following approach was applied to estimate the expected additional revenues from jobs created benefiting the Vladicin Han municipality.

Based on the current country legal fiscal framework and flows of funds the following assumptions were made regarding the income taxes that can be expected to flow back to the municipality:

- 1) Income tax is 12% of gross earning of jobs created in average
- 2) 80% of income taxes is expected to be transferred back to the Municipality
- 3) Approximately 30% of jobs created will be for workers living in Vladicin Han. The other workers are expected to come from neighbouring municipalities and therefore their tax are expected to benefit those municipalities not Vladicin Han.

In addition it was assumed that the municipality would get additional revenues from the project out of the following sources: (i) fees for using urban construction sites, (ii) fees for building sites arrangement, (iii) charge for displaying a firm logo.

The table 8.17 below summarizes the resulting possible discount that the municipality can offer on the land market price and which are compatible with the decree 13/2010, based on the expected jobs created for the different 3 scenarios. The data indicated in the table 8.17 aggregate expected public income of new jobs generated for the period 2015-2019, i.e. a period of 5 years after expected industrial investment completion.

In this assumption it is assumed that companies are starting constructing industrial facilities in the year 2015, just after the completion of the industrial zone infrastructure and that created jobs are expected to arrive 2 years later in 2017. This is due to the fact that companies need to construct their industrial facilities and install their productive equipments before creating sustainable employment opportunities benefiting the municipality.



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Table 10.3-17: Calculation of Discount of Sale/lease Price of land Depending on Scenarios

Item	Optimistic Scenario (cumulated public revenues 2015-2019)	Realistic Scenario (cumulated public revenues 2015-2019)	Pessimistic Scenario (cumulated public revenues 2015-2019)
Jobs created (#)	2.145	1.650	693
Tax Income transferred back to Municipality (Mill Euro)	0,578	0,445	0,187
Fees from industrial construction sites ⁽¹⁾ (Mill Euro)	0,000	0,000	0,000
Fees from building sites arrangement ⁽¹⁾ (Mill Euro)	0,000	0,000	0,000
Advertising charges ⁽¹⁾ (Mill Euro)	0,000	0,000	0,000
Total Revenues over 5 years (Mill Euro)	0,578	0,445	0,187
Surfaces of plot sold/leased (m ²)	250.000	250.000	150.000
Revenues/m ² of land sold/leased (EUR/m ²)	2,31	1,78	1,25
Market price of land (EUR/m ²)	5	5	6
Sale/Lease price after Discount/m ² (EUR/m ²)	2,69	3,22	4,75
Discount factor (%) against market price	46,2%	35,6%	20,8%

⁽¹⁾ These fees and charges are estimated to be 0 for first 5 years because the municipality has expressed the intention to waive those fees and charges for the first 5 years of operation for all companies joining the industrial zone.

10.4 Economic Analysis

The economic CBA addresses the question to which extend the project is the best allocation of scarce financial resources from the country perspective as well as from the EC which is sponsoring the investment as a grant to Serbia. For the EC, a project is worth investing in, if the economic benefits for the concerned area is superior to benefits expected from other alternative projects (if it is not the case it would be better to invest in those alternative projects that have higher economic return). According to the EC services, a project worth investing in economic terms is a project that has a positive socio-economic Net Present Value (ENPV). This appears when the Economic Rate of Return (ERR) of the project is above the Social Discount Rate (SDR) in the project area. According to the EC guidelines the social discount rate (SDR) reflects the social view on how future benefits and costs should be valued against present ones. It differs from the financial discount rate because capital market are not perfectly efficient. For the 2007-2013 period, the EC guidelines suggest using a SDR value of 3,5 % for countries outside the Cohesion countries. (For cohesion countries the SDR is proposed to be 5,5 %). Accordingly the economic analysis was developed using a SDR of 3,5 %.

10.4.1 Framework for Economic CBA

The economic CBA describes the impact of the project in the regional economy as a whole. The emphasis is then on the effects of the project with regards to major objectives of economic policy such as economic growth, reduction of structural imbalances, social and regional income distribution). In order to determine the economic cost and benefits of the





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project, three types of corrections need to be taken into account compared to the financial flows. These include:

- 1) Fiscal corrections for cost streams that do really use up economic resources (subsidies, indirect taxes, social security payments and other transfer payments).
- 2) Correction for externalities (external benefits and costs): External economic impacts are spill over benefits from the project which accrue to other economic agents without any compensation. These effects are essentially positive (increased economic activities in the project areas) but can also be negative (a new road can increase pollution levels). As by definition, externalities occur without monetary compensation, these are not included in the financial analysis. They need to be estimated, valued and added to the financial flows of the project to document the economic value addition of the project. As highlighted in the introductory paragraph to this chapter, the estimation of the positive economic impact of the project considers 3 successive levels of economic impacts: (i) direct jobs effects (income from new jobs to be created by companies establishing a production facility in the planned industrial zone); (ii) Indirect Jobs Effects (new jobs expected to be created in and around Industrial zone "Jug" in Vladicin Han but outside the industrial zone); and (iii) private capital mobilized and invested by industrialists and shareholders of the companies which will settle in the industrial zone to establish production facilities.
- 3) Conversion from market to accounting prices (consideration of social costs and benefits): besides fiscal distortions and externalities, other factors can drive prices away from a competitive market (i.e. efficient) equilibrium: monopoly regimes, trade barriers, labor regulation, incomplete information, etc. In all such cases, observed market (i.e. financial) prices are misleading; accounting (shadow) prices need to be used instead, reflecting inputs' opportunity costs and consumers' willingness to pay for outputs. Accounting prices are computed by applying *conversion factors* to the financial prices.

10.4.2 Economic Costs

Key cost components of the project from an economic perspective include the following:

- Investment costs
- Replacement costs
- OM&Adm costs

These costs are issued from the financial analysis but need to be corrected to reflect accounting prices which allow international comparison. Three types of correction are provided in the model.

- 1) Fiscal corrections are essentially applied to the labor cost elements of these costs in order to account for market distorting social security payments (see shadow wage, below).
- 2) Regarding the cost side of externalities, it has been considered in first approximation that there are no external costs for the investment measures proposed in the investment of the project.
- 3) Two main conversion factors were considered to correct market price into cross border neutral accounting prices.

- Standard Conversion Factor (SCF) were applied to help revalue local non traded goods at their world market price value (Shadow Price) to account for distorting indirect taxes and subsidies with SCF defined as SCF Border Price /Domestic Price. The following formula recommended by the EC CBA guidelines applies:

$$SCF = (M+X) / ((M+TM)+(X-TX))$$

with SCF = Standard Conversion Factor; M= value of imports; X= value of exports; TM = taxes on imports; TX = taxes on exports .





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SCFs were applied to local and foreign materials used in the investment and operation of the project.

- Standard Wage Conversion Factor (SWCF) were used to take into account distorted labor prices due to unemployment and underemployment.

The following formula recommended by the EC CBA guidelines applies:

$$SWCF = SW/FW = (1-u) \times (1-t)$$

with SW the shadow wage; FW the financial (market) wage, u is the regional unemployment rate and t the rate of social security payments and relevant taxes

In the model the conversion factors as shown in the table 10.4-1 were applied.

Table 10.4-1 Conversion factors for the economic model

Item	CF Value	Conversion Factor Rationale
Skilled Labor	1,0	The labor market is assumed to be competitive
Unskilled Labor	0,28	Shadow wage for not-competitive labor market
Land	1,0	The land market is assumed to be competitive
Material for Civil Works	0,97	55% machinery and manufactured goods, 45% building materials
Project studies, works management, trials and other general expenses	1,0	100% skilled labor
Civil works	0,74	10% skilled labor, 30% unskilled labor, 40% machinery, 20% materials
Equipment, machinery, manufactured goods	0,99	40% local production (SCF), 60% imported goods (CF = 1), 10% profits (CF=0)
Piping	0,88	80% local production (SCF), 15% unskilled labor, 5% skilled labor
Building materials	0,88	75 % local materials (SCF), 15% imported goods (CF = 1), 10% profits (CF = 0)
Electricity, fuels, other energy prices	0,97	SCF
Maintenance	0,58	15% skilled personnel, 65% unskilled personnel, 20% materials
Administrative, financial and economic services	1,0	100% skilled personnel
Resulting value of investment costs	0,97	Weighted by the types of project costs
Replacement costs	1,0	100% equipment, machinery, manufactured goods, carpentry, etc.

10.4.3 Economic Benefits

The most significant positive economic impacts considered in the study are additional income for the region These income can be conceptualized as coming from three different sources:

- Direct Jobs Effect: These are documented essentially in terms of income from new jobs to be created by companies establishing a production facility in the planned industrial zone;
- Indirect Jobs Effect: these are new jobs expected to be created in and around Industrial zone "Jug" in Vladicin Han but outside the industrial zone. These indirect jobs are expected to be either in the production of goods (light equipment or raw material and goods used by companies inside the industrial zone) or in services industries to support the productive activities of the industrial zone (restaurants, hotels, supporting services etc.);





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(iii) Private Capital mobilized and invested by industrialists and shareholders of the companies which will settle in the industrial zone to establish production facilities and equipments to be used by workers and professionals to produce new industrial goods. These fixed assets will become based in the Vladicin Han industrial zone and represent tangible assets for the township and its surroundings. This capital is commonly expressed as “capital employed” per direct job created. Value may vary widely per industrial sector concerned. IT production for example may require higher and more sophisticated equipments than light industry or agro-processing and wood processing.

The total effects to the target area are then the sum of income from the three components indicated above.

The table 10.4-2 provide the estimated capital employed in various productive industrial sectors in Serbia.

Table 10.4-2 Capital employed per worker in Serbia

Sector	Total Capital Employed (RSD)	Number of employees	Capital Employed / per Worker (RSD)	Capital Employed / per Worker (EUR)
Manufacture of food products	26.848.122	61.010	440.061	4.314
Manufacture of beverages	3.310.644	11.356	291.533	2.858
Manufacture of tobacco	1.475.801	1.564	943.607	9.251
Manufacture of textiles	523.155	6.809	76.833	753
Manufacture of wearing apparel	8.529.019	22.271	382.965	3.755
Manufacture of leather and related products	359.409	8.744	41.103	403
Manufacture of wood and of products of wood and cork, except furniture	1.143.996	9.015	126.899	1.244
Manufacture of paper and paper products	2.851.394	6.470	440.710	4.321
Printing and reproduction of recorded media	2.628.227	6.623	396.833	3.891
Manufacture of coke and refined petroleum products	1.429.308	3.265	437.767	4.292
Manufacture of chemicals and chemical products	3.299.273	15.481	213.118	2.089
Manufacture of basic pharmaceutical products and pharmaceutical preparations	7.414.930	5.669	1.307.978	12.823
Manufacture of rubber and plastic products	5.529.514	17.532	315.396	3.092
Manufacture of other non-metallic mineral products	4.061.659	15.837	256.466	2.514
Manufacture of basic metals	4.062.838	17.399	233.510	2.289
Manufacture of fabricated metal products, except machinery	7.155.687	33.998	210.474	2.063
Manufacture of computer, electronic and optical products	5.203.753	10.695	486.559	4.770
Manufacture of electrical equipment	1.675.961	15.303	109.518	1.074





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Sector	Total Capital Employed (RSD)	Number of employees	Capital Employed / per Worker (RSD)	Capital Employed / per Worker (EUR)
Manufacture of machinery and equipment n.e.c.	3.725.263	18.515	201.202	1.973
Manufacture of motor vehicles, trailers and semi-trailers	2.770.886	17.970	154.195	1.512
Manufacture of other transport equipment	557.935	5.134	108.675	1.065
Manufacture of furniture	1.279.865	11.991	106.735	1.046
Other manufacturing	339.708	3.197	106.258	1.042
Repair and installation of machinery and equipment	365.836	3.641	100.477	985
Manufacturing Average	96.542.183	329.489	293.006	2.873

The table 10.4-3 summarizes then the economic benefits of the industrial zone for the municipality and the neighboring areas depending on the job creation scenarios contemplated.

Table 10.4-3: Estimation of Economic Benefits of IZ in Vladicin Han (Eur)

Source of Economic Benefits	Present value (2012-2036)	2015	2018	2020	2026	2036
Optimistic Scenario						
Direct Jobs Created	62.246.741	-	772.200	3.088.800	6.949.800	6.949.800
Indirect Jobs Created	18.674.022	-	231.660	926.640	2.084.940	2.084.940
Industrial Capital Invested	9.888.025	-	1.543.685	1.543.685	-	-
Realistic Scenario						
Direct Jobs Created	47.882.109	-	594.000	2.376.000	5.346.000	5.346.000
Indirect Jobs Created	14.364.633	-	178.200	712.800	1.603.800	1.603.800
Industrial Capital Invested	3.582.953	-	559.359	559.359	-	-
Pessimistic Scenario						
Direct Jobs Created	26.487.836	-	498.960	997.920	2.494.800	3.825.360
Indirect Jobs Created	5.297.567	-	99.792	199.584	498.960	765.072
Industrial Capital Invested	1.594.234	-	161.700	161.700	161.700	-





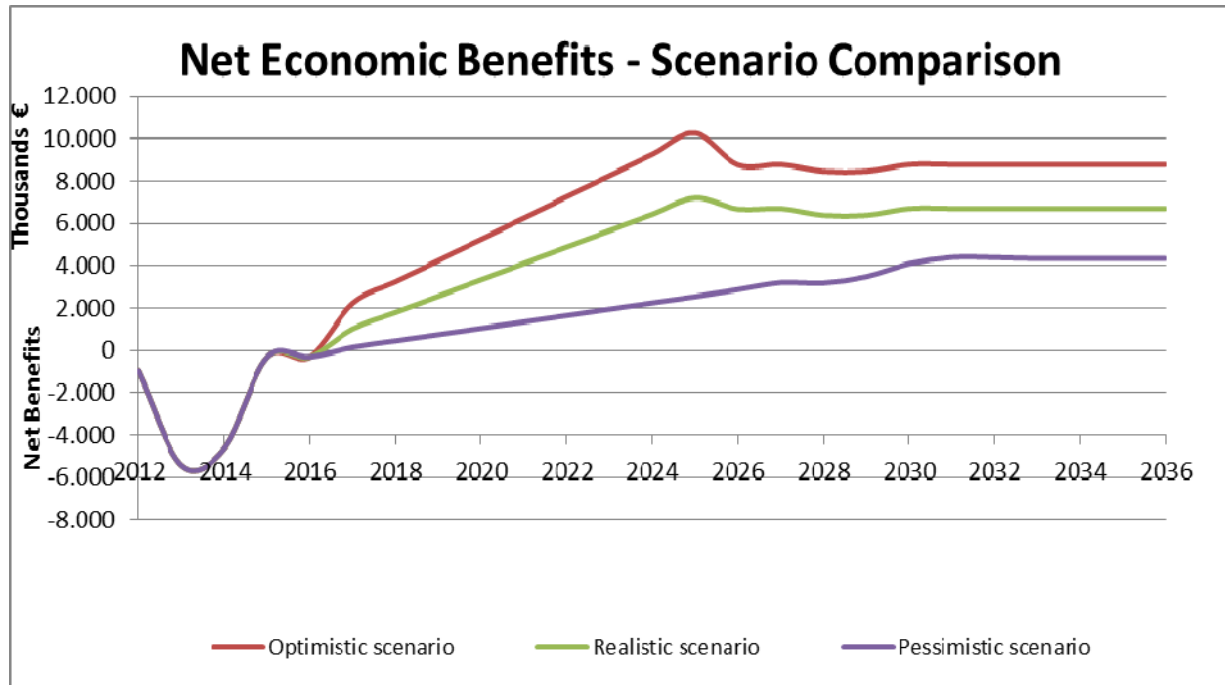
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Figure 10.4-1 Net Economic Benefits (K EUR, Constant Prices) – Scenario Comparison



10.4.4 Overall Economic Estimation and Recommendation

The estimated economic impact of the development of the industrial zone in Vladicin Han is the sum of the economic costs and benefits highlighted in preceding paragraphs.

Using the estimated average values coming out of the preceding paragraphs ENPVs and EIRRs can be derived for the project area and each of the project scenarios.

The table 10.4-4 summarizes the estimated economic benefits of the three investment options considered.

Table 10.4-4 Comparison of Investment Option in Economic Terms

Indicators	Unit	Optimistic Scenario	Realistic Scenario	Pessimistic Scenario
EIRR	%	25,2%	19,9%	11,1%
PV Benefits	EUR	90.808.789	65.829.695	33.379.637
PV Costs	EUR	14.428.996	14.428.996	14.428.996
ENPV	EUR	76.379.793	51.400.699	18.950.641
B/C	#	6,29	4,56	2,31

The main findings are:

1. The economic return whatever the scenario (between 11 % and 25%) is robust which is common for well structured employment generating investments. The robustness of the returns justify the proposed investment in economic terms for the country.
2. The realistic scenario is considered the most responsive approach considering the current economic difficulty of the area.



10.5 Sensitivity and Risk Analysis

10.5.1 General Aspects

All assumptions made regarding the basic variables used in the financial model are subject to uncertainties. Variations both positive or negative of certain variables are possible and may occur. The sensitivity and risk analysis deals with the evaluation of the likely impact of given changes and the risk associated to these changes to assess the likelihood that the project may become endangered in terms of financial viability or sustainability.

The assessment performed in the sensitivity analysis includes the following elements:

- Identification of the “critical variables”: This assessment documents the impact of assumed changes in variables and parameters used in the model to identify critical variables which have significant impact on key output financial indicators (FNPV/C&K, ERR, ENPV). Under EU guidelines a variable is considered critical if one 1% point of change in the variable is leading to 5% change or more in one or more of the above financial indicators.
- Identification of “switching values”: According to EC CBA guidelines this assessment identifies the values of tested input variables that leads to a financial and/or economic NPV=0. This is intended to provide additional information to clarify what input variables have the most critical influence on the project’s financial parameters.
- Risk probability analysis: The purpose is in large part to provide a rational basis for a contingency allocation. It involves determining the probability distribution for each critical variable and calculates the cumulative probability for different scenarios, both optimistic and pessimistic, by combining the probabilities of the individual variables.

10.5.2 Financial CBA

10.5.2.1 Identification of “Critical Variables”

A “critical variable” is a parameter which with 1% change leads to more than 5% change in one or more of the above key outputs financial indicators. The applied methodology was to modify variables in the “with-project” scenario while leaving them in “without-project” scenario unchanged.

The following variables were assessed:

- 4) Investment Cost
- 5) Plot areas sold/leased to industry
- 6) Sale/Lease Price for Industrial Land

The limits within which the model variables were modified were set at -10% to +10% below and above their base case estimate while leaving all other model variables unchanged.

The sensitivity analysis was developed for the realistic job creation scenario only.

The figures 10.5-1 and 2 summarize the sensitivity of the above variables on the FNPV/C and FNPV/K of the project investment considering the period 2012-2036.



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Figure 10.5-1 Sensitivity of key variables on FNPV/C (Realistic Scenario)

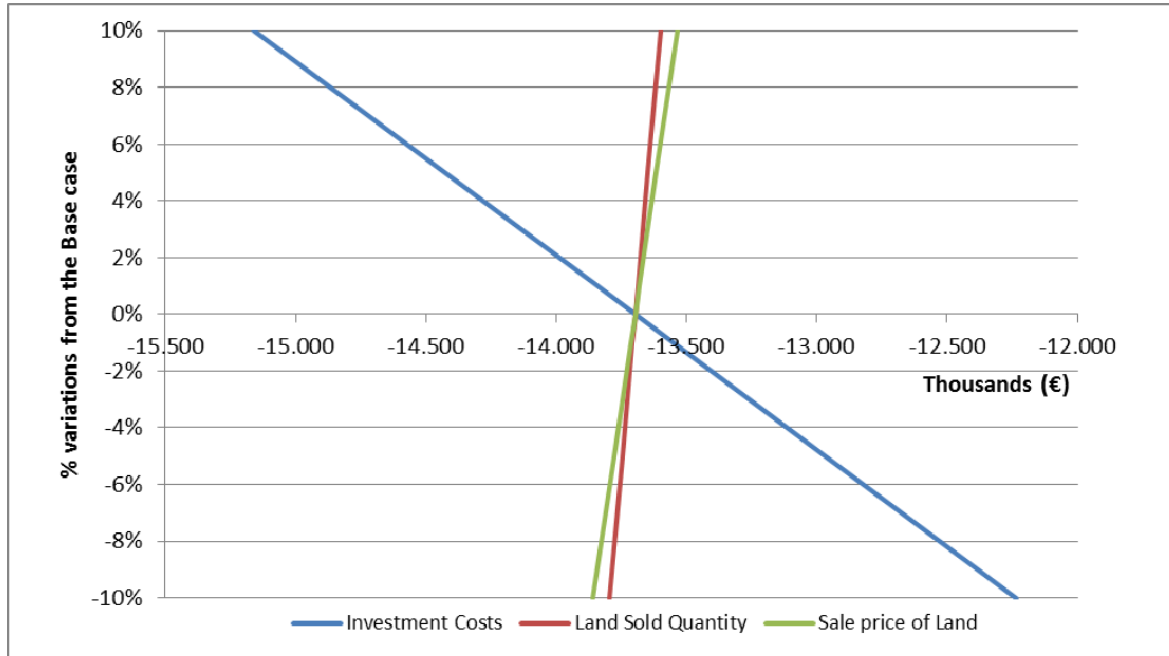


Figure 10.5-2 Sensitivity of key variables on FNPV/K (Realistic Scenario)



The Tables 10.5-1 to 3 document the variation ratios of the project Key Financial Performance Indicators for a +/- 1%, +/- 5% and +/- 10% variation of the selected variable.





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Table 10.5-1

Sensitivity Key Project Financial Indicators – Variation in Investment Costs

Variation in investment costs		Before community assistance	After community assistance
		NPV/C	NPV/K
1	Base case	-13.696.529	-4.853.607
2	Sensitivity case 2 (-1%)	-13.550.188	-4.795.696
3	Sensitivity case 3 (-5%)	-12.964.826	-4.564.050
4	Sensitivity case 4 (-10%)	-12.233.123	-4.274.493
5	Sensitivity case 5 (+1%)	-13.842.869	-4.911.519
6	Sensitivity case 6 (+5%)	-14.428.232	-5.143.164
7	Sensitivity case 7 (+10%)	-15.159.935	-5.432.721

Table 10.5-2

Sensitivity Key Project Financial Indicators – Variation in Plot Areas Sold/ Leased

Variation in investment costs		Before community assistance	After community assistance
		NPV/C	NPV/K
1	Base case	-13.696.529	-4.853.607
2	Sensitivity case 2 (-1%)	-13.706.346	-4.863.425
3	Sensitivity case 3 (-5%)	-13.745.616	-4.902.694
4	Sensitivity case 4 (-10%)	-13.794.703	-4.951.782
5	Sensitivity case 5 (+1%)	-13.686.711	-4.843.790
6	Sensitivity case 6 (+5%)	-13.647.442	-4.804.520
7	Sensitivity case 7 (+10%)	-13.598.355	-4.755.433

Table 10.5-3

Sensitivity of Key Project Financial Performance Indicators – Variation in Sale/Lease Price of Industrial Land

Variation in investment costs		Before community assistance	After community assistance
		NPV/C	NPV/K
1	Base case	-13.696.529	-4.853.607
2	Sensitivity case 2 (-1%)	-13.712.646	-4.869.725
3	Sensitivity case 3 (-5%)	-13.777.116	-4.934.195
4	Sensitivity case 4 (-10%)	-13.857.704	-5.014.783
5	Sensitivity case 5 (+1%)	-13.680.411	-4.837.490
6	Sensitivity case 6 (+5%)	-13.615.941	-4.773.020
7	Sensitivity case 7 (+10%)	-13.535.354	-4.692.432



10.5.2.2 Identification of “Switching Values”.

The Table 10.5-4 documents the switching values which represent the change of value in percentage of key variables for which the FNPV turn to 0 and “switch” from positive to negative. It requires significant change of value to switch the FNPV, which proves the financial robustness of the proposed investment.

Table 10.5-4 Switching Values for Key Project Financial Variables

Variable	%
Investment Costs	-93,6%
Plot Areas Sold/ Leased	+1.395,1%
Sale/Lease Price of Land	+849,8%

10.5.2.3 Risk Probability Analysis

In this assessment, variations in the key variables investment costs, land sold quantity and sale/lease price have been used to conduct a risk probability analysis based on the FNPV/C and FNPV/K. This was done by assuming base scenarios.

The tables 10.5-5 to 7 document the probability of occurrence of given variation.

Table 10.5-5 Probability of Various Scenarios of Investment Cost Variations

Scenario	Variation of Values	Probability in %
Optimistic Scenario	-10,0%	10,0%
Realistic Scenario	0,0%	80,0%
Pessimistic Scenario	10,0%	10,0%

Table 10.5-6 Probability of Various Scenarios of Land Areas Sold / Leased Variations

Scenario	Variation of Values	Probability in %
Optimistic Scenario	-10,0%	10,0%
Realistic Scenario	0,0%	80,0%
Pessimistic Scenario	10,0%	10,0%

Table 10.5-7 Probability of Various Scenarios of Sale/ Lease Price of Land

Scenario	Variation of Values	Probability in %
Optimistic Scenario	-10,0%	10,0%
Realistic Scenario	0,0%	80,0%
Pessimistic Scenario	10,0%	10,0%

The Figures 10.5-3 and 4 reflect the probability distribution of occurrence of percentage change from base case for FNPV/C (figure 10.5-3) and FNPV/K (figure 10.5-4) as function of investment costs, land sold quantity and sale/lease price.



Figure 10.5-3 Probability distribution of FNPV/C

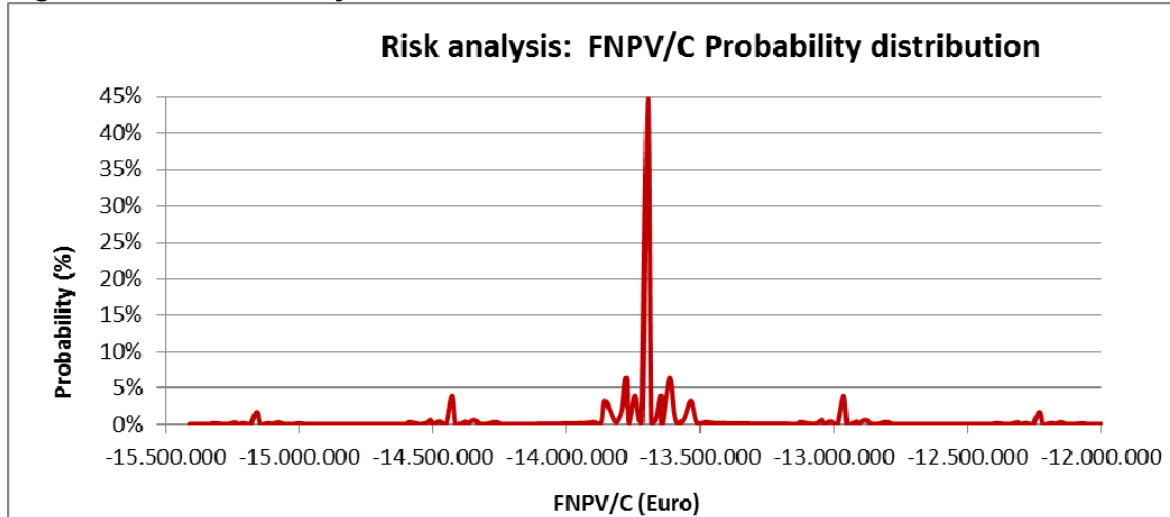
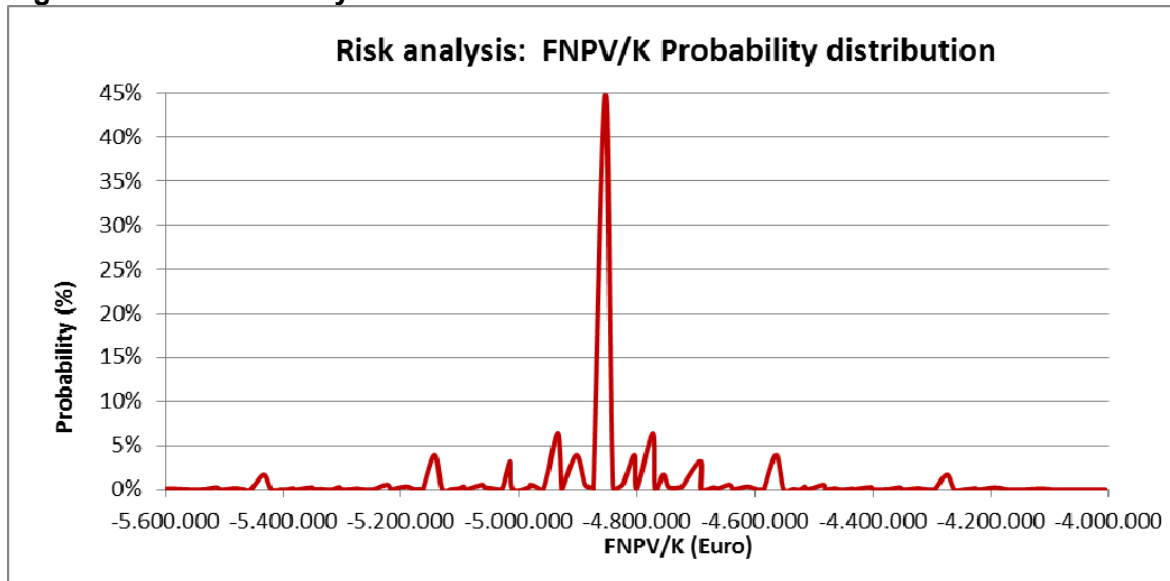


Figure 10.5-3 Probability Distribution of FNPV/K



10.5.3 Economic CBA

10.5.3.1 Identification of “Critical Values”

The applied methodology was to modify variables in the “with-project” scenario while leaving them in “without-project” scenario unchanged.

The following variables were assessed:

- 4) Investment Cost
- 5) Direct Jobs Created
- 6) Overall Economic Benefits

The Table 10.5-8 documents the variation ratios of the project Key financial Indicators for a $\pm 1\%$, $\pm 5\%$ and $\pm 10\%$ variation of the selected variable.



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Table 10.5-8
Sensitivity of Key Project Economic Indicators – Variation in Investment Costs

Variation in Investment Costs		NPV	ERR	BCR
1	Realistic Scenario	51.400.699	19,9%	4,56
2	Sensitivity case 2 (-1%)	51.504.138	20,0%	4,60
3	Sensitivity case 3 (-5%)	51.917.896	20,5%	4,73
4	Sensitivity case 4 (-10%)	52.435.093	21,1%	4,91
5	Sensitivity case 5 (+1%)	51.297.259	19,8%	4,53
6	Sensitivity case 6 (+5%)	50.883.502	19,3%	4,40
7	Sensitivity case 7 (+10%)	50.366.304	18,8%	4,26

Table 10.5-9
Sensitivity of Key Project Economic Indicators – Variation in Jobs Created

Variation in Jobs created		NPV	ERR	BCR
1	Realistic Scenario	51.400.699	19,9%	4,56
2	Sensitivity case 2 (-1%)	50.600.192	19,7%	4,51
3	Sensitivity case 3 (-5%)	47.426.894	19,1%	4,29
4	Sensitivity case 4 (-10%)	43.524.912	18,3%	4,02
5	Sensitivity case 5 (+1%)	52.204.078	20,0%	4,62
6	Sensitivity case 6 (+5%)	55.446.327	20,6%	4,84
7	Sensitivity case 7 (+10%)	59.563.778	21,4%	5,13

Table 10.5-10
Sensitivity of Key Project Economic Indicators – Variation in Economic Benefits

Variation in Economic Benefits		NPV	ERR	BCR
1	Realistic Scenario	51.400.699	19,9%	4,56
2	Sensitivity case 2 (-1%)	50.742.402	19,8%	4,52
3	Sensitivity case 3 (-5%)	48.109.214	19,2%	4,33
4	Sensitivity case 4 (-10%)	44.817.729	18,6%	4,11
5	Sensitivity case 5 (+1%)	52.058.996	20,0%	4,61
6	Sensitivity case 6 (+5%)	54.692.183	20,5%	4,79
7	Sensitivity case 7 (+10%)	57.983.668	21,1%	5,02

The Table 10.5-11 documents the variation ratios of the project Key financial Indicators for a $\pm 1\%$ variation of the selected variable.

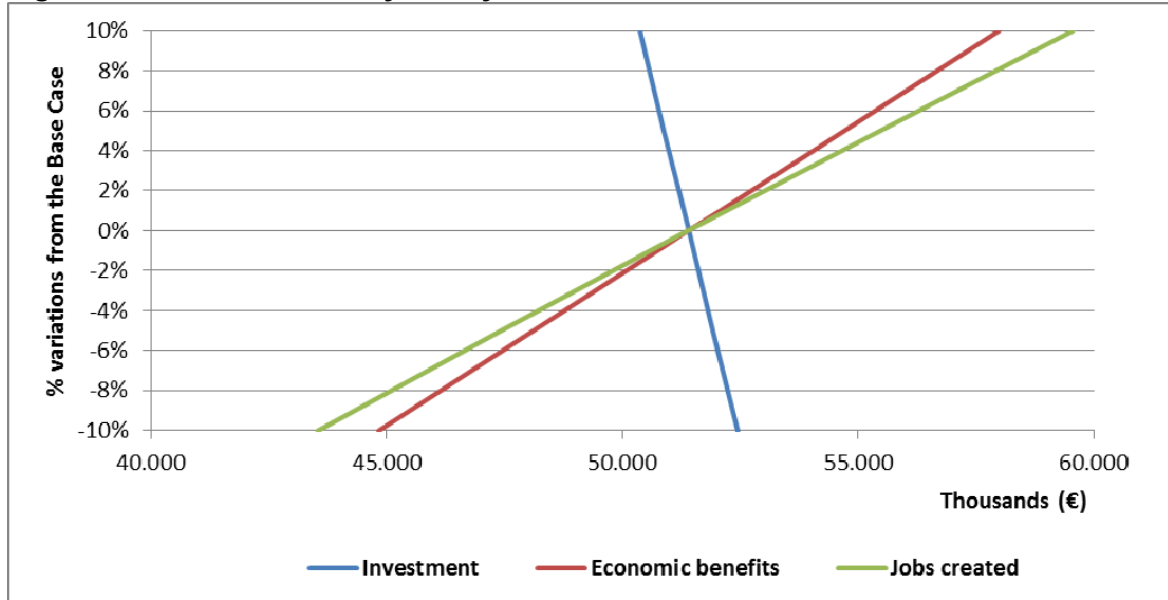
Table 10.5-11 Sensitivity of Economic Indicators

Variable Tested	ERR variation	ENPV variation
Investment costs (increase of 1%)	-0,55%	-0,20%
Investment costs (decrease of 1%)	0,56%	0,20%
Jobs Created (increase of 1%)	0,76%	1,56%
Jobs Created (decrease of 1%)	-0,76%	-1,56%
Economic benefits (increase of 1%)	0,63%	1,28%
Economic benefits(decrease of 1%)	-0,63%	-1,28%





Figure 10.5-4 Sensitivity of Key Variables on ENPV



10.5.3.2 Identification of “Switching Values”

The Table 10.5-12 documents the switching values expressed as percentage variation of the tested variable for which the ENPV turns to 0.

Table 10.5-12 Switching Values for Economic NPV

Critical Variable	Switching value	
Project investment cost	Maximum increase before ENPV equals 0 (%)	496,9%
Jobs created	Maximum increase before ENPV equals 0 (%)	-73,9%
Economic benefits	Maximum increase before ENPV equals 0 (%)	-78,1%

10.5.3.3 Economic Risk Analysis

The assessment of economic risk was carried out by comparing the optimistic (O) and the pessimistic (P) scenario to the realistic base case. In a first step (variant “A” of the scenarios), all three key variables have been considered for the analysis. In the pessimistic scenario, the effect of unfavourable developments in all three key variables show less performance than in the base case, while in the optimistic scenario the opposite is assumed. In a second step (variant “B” of the scenarios), the analysis is limited to two of the three key variables leaving economic benefits unchanged. The rationale is there that the economic benefits will be difficult to document quantitatively in an ex-post evaluation because of the lack of data.

Three scenarios: Optimistic, Base, Pessimistic.

The tables 10.5-13 and 14 summarize the assumptions for the scenarios



Table 10.5-13 Assumptions of Variation for the Scenarios

Scenario	Key Variables Variation		
	Investment Cost (I)	Jobs Created (J)	Economic Benefits (E)
Optimistic (O)	-5,0%	5,0%	5,0%
Realistic Base Case (BC)	0,0%	0,0%	0,0%
Pessimistic (P)	5,0%	-5,0%	-5,0%

Table 10.5-14 Probabilities of Variation for the Scenarios

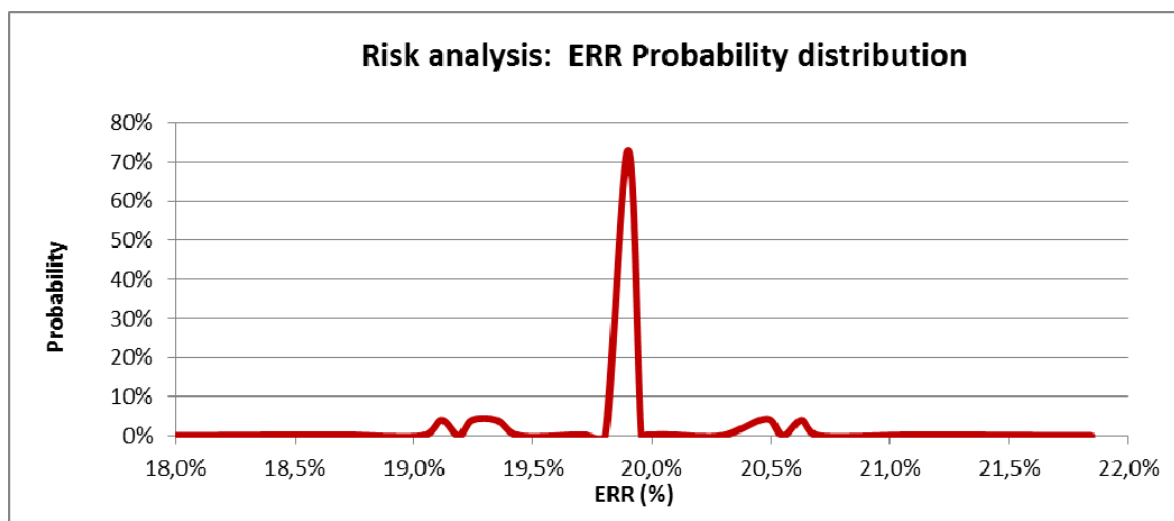
Scenario	Key Variables		
	Investment Cost (I)	Jobs Created (J)	Economic Benefits (E)
Optimistic Scenario (O)	5,0%	5,0%	5,0%
Realistic Base Case (BC)	90,0%	90,0%	90,0%
Pessimistic Scenario (P)	5,0%	5,0%	5,0%
Total	100,0%	100,0%	100,0%

The results of the assessment yield the results shown on table 10.5-15 and Figures 10.5-5 and 6.

Table 10.5-15 Results of Economic Risk Analysis

Variable	Variation ENPV	Variation ERR
Realistic Scenario	0,00%	0,00%
Optimistic Scenario	+15,67%	+9,87%
Pessimistic Scenario	-14,75%	-9,6%

Figure 10.5-5 Risk analysis: ERR Probability distribution





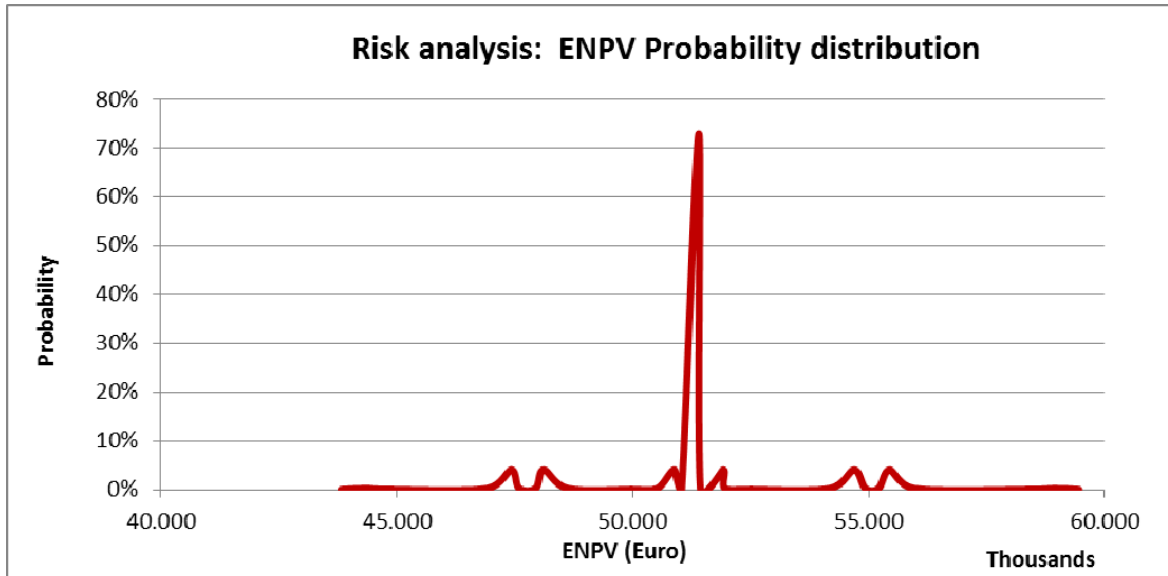
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Figure 10.5-5 Risk analysis: ENPV Probability Distribution





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10.6 Financial Assessment of the Company d.o.o. Slobodna zona V. Han

For the management of the previous Free zone, public utility for the management of Free Zone Vladicin Han was established in 1995 and was operational till 2005. Foundation Act of the Company was signed in 1994 between the municipality of Vladicin Han and 9 companies (HANPLAST, HANING, FOPA, IGM 8 September. PUC Vodovod, SLOGA, JUZNA MORAVA and DELISES). Similar to other public utilities in Serbia the Founder of this company was the municipality of Vladicin Han. At the time when this public utility was formed it had the biggest share of capital together with other 8 companies which were operating within industrial zone. For that reason, public utility had a form of Limited Liability Company D.O.O where the municipality has the biggest share.

10.6.1 Profit and Loss Statements

The analysis is based on official data that were submitted by the company to the Central Bank in accordance with the current Accounting Law for budget beneficiaries.

Table 10.6-1

Profit & Loss statement for d.o.o “Slobodna zona” Vladicin Han (RSD ‘000)

No	Description	2008		2009		2010	
		RSD 000)	%	RSD 000)	%	RSD 000)	%
1.	Current revenues	-	0%	1,569	100%	216	100%
1.1.	Donations & transfers	-	0%	-	0%	216	100%
1.2.	Budget revenues	-	0%	1,569	100%	-	0%
2.	Current Expenditures	-	0%	1,566	100%	218	101%
2.1.1	Compensation of employees	-	0%	1,379	88%	-	0%
2.1.2	The use of services and goods	-	0%	63	-	218	-
2.1.2.3	Contract Services	-	0%	59	4%	217	100%
2.1.2.4	Standing cost	-	0%	4	0%	1	0%
3.	Other expenditures	-	0%	124	8%	-	0%
4.	SURPLUS OF INCOME	-	0%	3	0%	-	0%
5.	DEFICIT OF REVENUES	-	0%	3	0%	(2)	-1%
6.	The correction of surplus or deficit of revenues and earnings	-	0%	-	0%	3	1%
7.	SURPLUS OF INCOME AND EARNINGS	-	0%	3	0%	1	0%

*Source: the doo “Slobodna zona”, Vladicin Han financial statements

Below are some of the most important results of the financial performance analysis of the company d.o.o “Slobodna zona” – Vladicin Han:

Profitability and Revenues

Main feature of the profit & loss statement of the company are: The operation activities are recorded only in 2009 and 2010.

Current revenues of the company was RSD 1.6 million in 2009 recorded on the position revenues from municipal budget and RSD 216,000 in 2010 recorded on the position donation and transfers from the republic level.

Current expenditures of the company were from RSD 1.3 million in 2009, and RSD 218,000 in 2010. The expenditures are recorded on the position compensation of employees (salaries) and use of service and goods.



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Although the financial performance below 0% profit is more or less general practice of Serbian public utilities, this rule is also applied to the company d.o.o “Slobodna zona” Vladicin Han, which records a symbolic loss in 2010 which is covered based on corrections of excess or deficit of revenues and earnings in 2010.

10.6.2 Cash Flow Statements and budget execution report

The table below summarizes the cash flow for the d.o.o “Slobodna zona” Vladicin Han.

Table 10.6-2 Cash flow Statement: d.o.o “Slobodna zona” Vladicin Han (RSD ‘000)

Description	2008	2009	2010
A. CASH INFLOWS	0	1,569	216
I. Current revenues	0	1,569	216
1. Donations and transfers	0	0	216
1.1 Current transfers from other level of government	0	0	216
1.2 Revenues from municipal budget	0	1,569	0
B. CASH OUTFLOWS	0	1,566	218
II. Current expense	0	1,566	218
2.1 Compensation of employees	0	1,379	0
2.2 Use of services and goods	0	63	218
2.3 Other expense	0	124	0
C. SURPLUS of cash flow (A-B)	-	3	-
D. DEFICIT of cash flow (B-A)	-	-	2
E. CORRECTED inflows for received cash in calculations	0	1,569	216
F. CORRECTED outflows for paid cash in calculations	0	1,566	218
G. CASH BALANCE AT THE END OF YEAR (E-F)	0	3	-2

In the last two years **cash inflow** from current revenues recorded on the position Donation and transfers from the other level of government. RSD 216 thousands is recorded in 2010 as a transfer from Republic budget. In 2009 RSD 1,6 million is recorded on the position revenue from municipality Vladicin Han budget. The same amount is presented also in Municipal decision on final accounts of municipality Vladicin Han for 2009 on position **451100 Current subsidies to public non-financial corporations, subventions to free zone**. Summary of budget execution report in 2009 and 2010 is presented in a table below.

Cash outflow is recorded on position compensation of employees (salaries) and use of services and goods in a last two years.

On the **balance, cash balance at the end of year** is positive in 2009 and records negative value in 2010.

Budget execution report

The table below summarizes the execution of budget for the company d.o.o “Slobodna zona” Vladicin Han which represent budget beneficiary of municipality.



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Table 10.6-3 Budget execution report: d.o.o “Slobodna zona” Vladicin Han (RSD ‘000)

Budget execution summary	Amount of realized revenues and receives					
	2009 (RSD 000)			2010 (RSD 000)		
Description / Source	Total	Republic	Municipality	Total	Republic	Municipality
I. Current revenues						
1. Current transfers from other level of government		-	1,569		216	-
A. TOTAL REVENUES & RECEIVES	1,569	-	1,569	216	216	-
II. Current expense						
1. Cost of Salaries		-	1,379	-	-	-
2. Use of services and goods		-	63		-	218
3. Other services		-	124		-	-
B. TOTAL COST & EXPENSE	1,566	-	1,566	218	-	218
C. SURPLUS of revenues-budget surplus (A-B)	3	-	3		216	
D. DEFICIT of revenues-budget deficit (B-A)		-		2		218

The d.o.o “Slobodna zona” Vladicin Han records a symbolic budget surplus and budget deficit in observing years. The company at present time is purely formally established without any operational activities performed, amount of receives from different sources, actually current subsidies from municipal and republic budget in previous years are recorded also in a municipal final accounts and used for covering of cost of salaries and other services like: fines, penalties and other taxes. Summary of the budget execution presented in a table above does not reflect any significant operational activity of the company in a last two years.

10.6.3 Balance Sheet

The Balance sheet plan of the company d.o.o Slobodna zona Vladicin Han for 2011 was not submitted and the analyzed period is 2008 to 2010.

Table 10.6-4 Balance Sheet for d.o.o “Slobodna zona” – Vladicin Han (RSD ‘000)

Description	2008		2009		2010	
	RSD(000)	%	RSD(000)	%	RSD(000)	%
ASSETS	2,848	100%	3	100%	1	100%
Non financial assets	77	3%	0	0%	0	0%
FINANCIAL Assets	2,771	97%	0	0%	1	100%
Cash, metals, security receive. &-term inv	1,598	0%	3	100%	1	100%
Accounts	0	0%	3	100%	1	100%
Short-term receivables	1,480	52%	0	0%	0	0%
Trade receivables and other receivables	1,480	52%	0	0%	0	0%
Short-term investments	118	4%	0	0%	0	0%
prepayments and deposits	118	4%	0	0%	0	0%
Accrued, unpaid costs and expenses	1,173	41%	0	0%	0	0%
LIABILITIES	2,848	100%	3	100%	1	100%
Liabilities for expenses for employees	1,185	42%	0	0%	0	0%
Operating liabilities	1,615	57%	0	0%	0	0%
CAPITAL op. results & off-balance records	0	0%	3	100%	1	100%
Accruals	48	2%	0	0%	0	0%
Surplus of income - surplus	0	0%	3	100%	1	100%

*Source: the doo “Slobodna zona”, Vladicin Han financial statements



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The **Assets** is recorded only in 2008 on the position financial assets, trade receivables and calculated unpaid costs and expense. In total RSD 2,8 million is recorded.

The **Liabilities** also recorded only in 2008 on the position liabilities for salaries for employees, and insignificant amount on accruals. In total RSD 2,8 million is recorded.

In 2009 & 2010 company in charge for managing of free zone Vladicin Han did not record any activity according to the balance sheets.

10.6.4 Summary and conclusions

Based on the results of this analysis, it is clear that the company at present time is purely formally established without any operational activities performed. What is needed will be a serious strengthening of the technical and financial management of the operation of the company.

An add-on technical assistance initiative geared to promote a FOPIP (Financing and Operational Improvement Programme) along the lines prescribed by the OECD may be necessary to be foreseen in the overall project development process to help build the financial discipline and financial credibility of the company to a level required to attract a loan. The inclusion of a loan in the mix of financing resources mobilized for the financing of the project would be a desirable approach in the proposed project as a means to encourage greater financial discipline by the companies toward cost covering operation in line with EU good governance principles.



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11 CONCLUSION AND PRIORITY INVESTMENT PLAN

11.1 Introduction

This section of the feasibility study summarizes the scope of the project to be implemented in this phase, carries out an analysis of the current situation regarding project preparation and makes recommendation on the next steps for implementation of the current phase of the project.

11.2 Project Justification

The preceding sections of this feasibility showed that the extension of the Suva Morava industrial zone to provide an initial 50 hectares of serviced greenfield plots could generate about 4,000 jobs in the zone during the period up to 2020. This job creation initiative provides a significant contribution to the 400,000 jobs which are necessary for successful implementation of the Strategy and Policy Development of Industries in Serbia between 2010 and 2020.

The estimated economic internal rate of return for the investment varies between 11% and 25% depending on the rate of job creation and is well over the minimum social discount rate of 5.5% expected for projects of such nature.

11.3 Description of the Priority Project

The project consists of the following components:

- Improvement of 1 km of existing road access to the industrial zone
- Construction of about 5km of internal roads with street lighting
- Construction of flood protection
- Development of about 50 hectares of farmland into disposable plots
- Construction of 5km of new underground 35kV and 110kV electricity cable
- Construction of 9 new transformer stations 10/0.4kV, 630kVA and 16.200km of 10kV underground cable network
- Construction of street light lightning with 150 pole mounted luminaries supplied by 5.6km of 0.4kV underground cable
- Installation of 3km of ducts for telecommunication system
- Construction of new wellfield with initial capacity of 50l/s
- Construction of about 5km of water supply pipelines
- Construction of about 6km of surfacewater drainage network
- Construction of about 4 km of wastewater network with a 3000 population equivalent WWTP

11.4 Cost Estimates and Funding Plan

A summary of the costs for the proposed works is provided hereafter. The cost estimate also includes the cost of technical assistance which has to be provided to the municipality to ensure successful implementation.



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Table 11.4-1 Costs for the proposed works

		Total	2012	2013	2014
		M EUR	M EUR	M EUR	M EUR
	Total Investment Costs				
1	Land	1.66	0.83	0.83	
2	Planning / design (4% of main works)	0.36	0.18	0.18	
3	Capital Works	9.07		4.57	4.50
4	TA & Training (5% of main works)	0.44		0.22	0.22
5	Supervision (7% of main works)	0.62		0.31	0.31
6	Public Relation	0.04		0.02	0.02
7	Contingencies (10% on 2 to 6)	1.06	0.02	0.53	0.51
	Total Investment Costs	13.25	1.03	6.66	5.56

Note: All costs are in nominal terms for year 2011.

A tentative funding plan in current terms has been prepared and is presented in the following table.

Table 11.4-2 Funding Plan

Financing Source	Investment Values (current price, x1000€)	Percentage %
Grant (potential EU IPA)	11,551	77%
Central / Regional Government grant	1,071	7%
Loan for land acquisition	1,314	9%
Local Budget for land acquisition	970	7%
Others	0	0%
Total	14.906	100%

Note: All costs in current terms, i.e. includes escalation and to be agreed by Municipality

The project is presently being considered by the Serbian Government for funding under the European Union's Instrument for Pre-Accession and is in competition with other projects which are also seeking similar very advantageous grant finance. The final decision will depend on many factors which the Government may consider as part of the final selection criteria and of which the status of project preparation.

11.5 Status of Project Preparation

After successful preliminary negotiation on the funding arrangement there are still many other activities which have to be completed for successful implementation of the project. The status of these activities are evaluated hereafter:

- Land acquisition
- Preparation of project documentation
- Implementation arrangement
- Finalisation of funding agreements

11.5.1 Land Acquisition Plan

Land acquisition has been a continuous source of delays in the implementation of many projects in Serbia. This project may suffer from the same potential risks because very little of the land which are planned to be developed into the industrial zone is actually in the ownership of the Municipality.

It is estimated that at least 25 hectares of land, all farm land have to be acquired by the Municipality and another 17 hectares of land will have to be obtained from the old paper factory in exchange for its liabilities towards the municipality prior to the preparation of the project documentation.

Industrial zone "Jug" in Vladicin Han Concept I, phase 1 - Land acquisition plan



LEGEND:

- existing road
- new road
- corridor X
- main entrance to industrial zone
- emergency exit
- existing railway
- future railway
- future WWTP
- lagoons
- regulation line
- future lot
- 1-water pumping station, 2-transformer station
- boarder of the ind. zone in phase 1

Land acquisition:

	Roads	4.00 ha
	WWTP	1.00 ha
	Lot 1	4.80 ha
	Lot 2	4.40 ha
	Lot 3	6.35 ha
	Lot 4	4.45 ha
	Total area	25.00 ha





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Resolution of all these land issues are prerequisite to consolidation of all the plots into a single plot for registering in the cadastre as the property of the investor. This registration in the Cadastre is itself normally a prerequisite to the issue of a Location permit and other following procedures. However, there has been many issues in the cadastral system in Serbia and registration in the cadastre can be very lengthy and location permits have been issued on the basis of contract between owners and buyers on a case by case basis.

On completion of the construction works, the land use right for the land plots for construction of factories will have to be transferred to the asset holding company if management of the zone is to be through a separate company.

It is strongly recommended that the municipality starts the process of land acquisition as soon as possible if the decision to go ahead with the project is agreed with the financing authority.

11.5.2 Project Documentation

Under Serbian Law on Construction and Spatial Planning a preliminary design must be completed at the same time as completion of a feasibility study which would confirm the feasibility of the project.

Normally it would be expected that the investor has carried out a feasibility study to confirm a positive outcome before deciding to go ahead with the project.

The Municipality has already completed a detailed regulation plan but the plan has to be updated to include new elements such as connection to the highway E75 which is part of Corridor X. The regulation plan should have been completed after completion of a feasibility study and preliminary design which would have confirmed whether the project is financially and economically sustainable and whether the project should go forward. The preparation of a regulation plan may constrain the feasibility of the project because it may impose some expensive solutions without proper evaluation.

On deciding to go ahead with the project the investor will then proceed to acquire the land necessary for implementation of the project. Once the land is acquired a location permit can then be obtained together with the design conditions relevant to the location.

During the preparation of the feasibility study and preliminary design the investor is expected to seek from the institution responsible for providing the location permit, the design conditions including the necessity for an environmental impact assessment.

The preliminary design has to be completed on the basis of the design conditions and the preliminary design has then to be reviewed to confirm adherence with the design and technical conditions. The review is carried out at republic level or at local level depending on the type of project. It is sometimes quoted that a reviewed preliminary design may be a necessity for requesting a location permit where the project is not already identified in the Urban Plan or in the detailed regulation plan. However, this necessity can be a contradiction because the preliminary design has to be completed on the basis of design conditions which are normally issued with the location permit. Based on the full list of design and technical conditions as well as comments from the review of the preliminary design, issued with the location permit the Investor can then proceed with the detailed design. The current status of project preparation are provided hereafter:



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Table 11.5-1 Status of Project Documentation

Component	Detailed Regulation Plan	Location Permit & Technical Condition	Preliminary Design	Review of Preliminary Design	Detailed Design	Review of Detailed Design	Construction Permit	Tender Documents
Industrial Zone Suva Morava	✓	x	x	x	x	x	x	x

Note: ✓ - Completed, x - Not completed, P – Under preparation, R - Requested

The above table confirms that this project is still at its early stage and all the project documentation has yet to be completed.

11.6 Implementation Arrangement

After completion of this feasibility study and in order that the momentum towards implementation is not lost, there is need for continuing management efforts which includes appointment of consultants for completion of the project documentation such as preliminary design, detailed design, preparation of the tender documents and supervision of construction.

In parallel to the completion of the project documentation, the administrative activities such as permitting and creation of operational structure have to be completed.

11.6.1 Permitting

There are two permits which are necessary prior to the launch of any tender for construction. A location permit is required for initiating the construction process.

Such a permit will be sufficient for launching a tender where the Contractor will carry out the detailed design. Where the detailed design is prepared by the investor as is the case for this project, a construction permit has to be obtained prior to launching of the tender.

The tender for construction should only be launched after all permits have been issued without any condition attached.

Neither the location nor the construction permit has been issued yet.

11.6.2 Procurement of Preliminary Design and Detailed Design

There is a need to prepare preliminary design and detailed design for the whole package of works. All the design documentation have to be prepared in Serbian language to comply with Serbian regulations and for review purposes.

The tasks which have to be completed include the following:

- Launch the tender for carrying out the preliminary design
- Complete the preliminary design review and obtain a positive review for all preliminary designs
- Carry out topographical and geotechnical investigations
- Carry out detailed design for works
- Prepare functional and material specifications for the construction contract
- Prepare sufficiently detailed drawings and bill of quantities for tendering and for construction
- Complete the detailed design review and obtain a positive review for all detailed designs

The appointment of a consultant for preparation of the design documents is the responsibility of the Municipality of Vladicin Han or the Implementation Agency depending on the financing agency.





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11.6.3 Procurement of Tender Documentation

There is a need to prepare tender documentation for the remaining components of the proposed project for the whole package of works.

All public procurements in Serbia have to comply with the recent procurement law as published in the Official Gazette 116/08 of 20th December 2008. The procurement law is modelled on the EU Directive 2004/17 and 2004/18.

Tenders have to be launched for all procurement but small value contracts procedures are simplified and the threshold for small value contract are determined every year in the Law on Budget. An international tender must be launched for Service contracts over 150MRSD and for Works contract over 300MRSD.

However, the projects implemented according to an agreement of applying the special procedure of the international institutions, offering credits and donations, are exempted from this rule and leaves the way for using EU procedures.

The necessity to comply with Serbian as well as EU procedures means that international tendering procedures have to be adopted. This imply that tender documents have to be prepared in English.

This requirement can be very demanding for local consultants and therefore it is recommended that a consultant with international experience be appointed to complete the documentation.

The tasks of the consultant for this assignment may include the following:

- Determine and advise the Implementation Agency on the tender strategy, procedures and model conditions of contract
- Translate a sufficient portion of the design into English for tender purposes
- Prepare tender documentation including invitation, prequalification and bid documents in accordance with the agreed procedures and model conditions of contract
- Obtain approval of the tender documents from the Implementation Agency and other approving authorities as required
- Assist the contracting authority in publishing the tender and in answering bidders' queries during the tender period and evaluating the bids
- Assist in preparing bid evaluation reports
- Assist the contracting authority in negotiating with the potential contractor
- Prepare the final construction contracts
- Report to the implementing agency and to the IFA on progress

The appointment of a consultant for preparation of the tender documents is the responsibility of the Municipality of Vladicin Han or the Implementation Agency.

11.6.4 Procurements of Works and Supervision of Construction

On completion of the project documentation and tender documents other decisions will have to be taken concerning how the construction will be procured and on the arrangement for managing the procurement process. These procedures can be very complex and since the Municipality does not have the expertise or the human resources necessary for such complex activities it is necessary to recruit experienced external consultants who will assist the municipality or the Implementation Agency with the implementation activities.

The purpose of procurement procedures is to make sure that public contracts are open to firms on equal terms and to make procurement procedures transparent so that compliance with the equality and competition principles are enforced and for the European Union, in particular those laid down in the Treaty of Rome.



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The competition policy of the Acquis Communautaire establishes a number of fundamental requirements for public bodies when awarding contracts. These include

- Avoidance of discrimination such as specifying a branded product
- Equal treatment of all competitors i.e. everyone receives the same information
- Transparency of the process with clear specifications for the goods and services and prevention of collusion between competitors
- Free movement of goods and services in accordance with WTO rules

These principles translate into the following actions:

- Community-wide advertising of contracts so that firms in all Member States have an opportunity of bidding for them
- The banning of technical specifications liable to discriminate against potential foreign bidders
- Application of objective criteria in tendering and award procedures

These requirements apply irrespective of the application of the EC Procurement Directives. They can have far-reaching effects. For example, asking a bidder if he intends to recruit locally or requiring a bidder to have a local office may be discriminatory; providing information to some bidders which is not available to all may breach the principle of equal treatment; failing to provide adequate information to bidders may breach the principle of transparency, and introducing a requirement which is more difficult for certain suppliers to meet, for example, specifying a material which only a particular manufacturer produces may breach the principle of free movement of goods and services.

Moreover, a strategy has to be developed for the procurement of the works such that the implementation risks are reasonable and manageable for all parties.

Implementation Agency

The identity of the implementation agency will depend on the funding agency for the project. The International finance institution for this project is likely to be the EU delegation (EUD) who could be providing funds through the Instruments for Pre-accession (IPA) 2012 funds or later programmes. If funded as part of the IPA, this project will be part of the programme proposed to support competitiveness in Serbia.

Depending on the progress of Serbia towards accession to the EU and implementation of the Decentralized Implementation System (DIS), the implementation agency could be the Ministry of Economy and Regional Development if the DIS is successfully installed, otherwise the implementation agency will be the European Union Delegation.

Procurement Strategy

At a very early stage in the design the procurement strategy has to be agreed because the strategy will determine the number and type of tender documentation which will have to be prepared by the Consultant appointed to prepare the tender documents.

The number and type of tender documents will depend on the following:

- Type of contract
- Model condition of contract
- Tendering procedures
- Number of contracts

Types of Contract

Four types of Works contract are usually adopted for the works which are proposed.





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- Firm price contract with detailed design and bill of quantities
- Firm price design and build contract with schedule of prices
- Re-measured contract with detailed design and bill of quantities
- Re-measured contract with fixed tender price, detailed design and bill of quantities

The proposed works will be mainly civil engineering works for which the design of works will be provided to the contractor and the Contractor will be paid for the works actually carried out.

The design and build option is not suitable because

The danger with a fully re-measured contract is that the final outcome price is not known and therefore this creates a budgeting issue not acceptable to the Contracting Authority. The last option of a re-measured contract with a fixed tender price is preferred because it provides the flexibility for unforeseen changes in the quantities of works and also limits the exposure of the Contracting Authority. Obviously the fixed price can still be changed with a variation upon approval of the Contracting Authority.

Given the risks associated with each of the four components of the project, the re-measured contract with a fixed price is the recommended type of Contract.

Model Condition of Contract

There are three models conditions of contract which could be used:

- FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Red Book), 1999
- FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Pink Book), 2005
- EU PRAG conditions of contract, 2010

The FIDIC Red Book and the PRAG models are frequently used for EU funded projects and many agencies including the proposed implementing agency has indicated that it will use the FIDIC conditions of contract.

The latest edition of the FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer, 2005 is the harmonized version which generally incorporates the requirements of the World Bank, Asian Development Bank and many other IFIs into the 1999 edition. The acceptance of this version, known as the Pink Book is still low because of the recent introduction and although this version is based on a model agreed between the various Multilateral Development Banks (MDB) the World Bank still maintains its own model conditions of contract, albeit based on the Pink Book.

It is also the opinion of the consultant that the FIDIC conditions of contract is a better choice because of the wide experience gained in the utilization of these conditions for international contract which has evolved since 1957.

The EU PRAG conditions is an adaptation of the FIDIC conditions first published in 2004 and is known to have some weaknesses solutions which have yet to be really tested in real situations. The FIDIC conditions on the other hand have been in existence since 1957 and since then a large body of case laws have been established to clarify any ambiguity in the text..

Given the relative unfamiliarity of many beneficiaries and contractors with the Pink Book, the FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by The Employer (Red Book), 1999 is therefore recommended as a model condition of contract.

Tendering Procedures





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There is no rule governing whichever procurement procedures may be used by the Implementing Agency provided it is in compliance with the EU Procurement Directives.

The EU PRAG procedures for launching and managing the tender process have been in use since 2001 with regular updates including the latest update in April 2011 and is therefore a well proven set of procedures adapted for international tendering. Since this project will be funded mostly by a grant from the EU there is no reason to use any other procurement procedures.

This imply that all project documentation has to be adapted for this tendering procedure which is based on open international tendering. The PRAG procedures require that tender documentation are prepared in English.

Number of contracts

The proposed project components can be grouped into four very distinct types of projects:

- Works including construction of roads, footpaths, fencing
- Utilities including water supply, wastewater networks, electricity and telecommunications networks
- Design works and preparation of tenders
- Evaluation of tenders and supervision of construction

It is proposed that only one works contract be arranged so that coordination of all construction activities is entirely within one organization.

However, it may be the case that some utilities companies demand that networks for which they take over responsibility for operation be constructed by themselves or their appointed sub-contractor.

The design of the works, preparation of tender documents and supervision of construction will require a separate technical assistance contract.

11.7 Implementation Plan

This section presents the constraints and critical activities as well as a preliminary programme which identifies the sequence of the activities.

11.7.1 Programme Constraints

Implementation of the construction requires a preparation period during which the detailed design consultant has to be engaged and the tender documentation completed. The tender process as described by the PRAG procedures has to be adhered to and this process requires a minimum tender period during which proposals can be prepared and presented. There are other activities which can be critical to the implementation programme and these are presented hereafter.

11.7.2 Critical Activities

Analysis of the implementation programme shows that the critical activities are the procurement of the following services:



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Critical Activity	Reasons
Land Appropriation	The transfer of land ownership and use to the public company responsible for operating the facility on completion is still unresolved. Delays in completing this activity will result in delays in obtaining a location permit.
Detailed Regulation Plan	The project is already registered on the detailed regulation plan but the solution for the access road from the E75 highway is not in accordance with the regulation and the EU Directive. The water supply proposal in the plan has to be amended for a short term solution. The solution for stormwater has not been addressed in the plan. There will be a need to change the detailed regulation plan.
Permitting	Location and construction permits have to be obtained from local planning authorities before some activities can formally completed. Location permit can only be obtained on proof of ownership or permission of owner to allow construction. Construction permit can only be obtained on positive review of the detailed design.
Design conditions	Formal design conditions have to be obtained from relevant authorities (road, cultural heritage etc) and utilities (electricity, gas, water etc). The duration of this process can be very lengthy and cannot be guaranteed.
Preliminary Design (Idejni Projekat)	The preliminary design have not yet been started. The Municipality is responsible for ensuring that the preliminary design is completed.
Preliminary Design (Idejni Projekat) Design Review	Formal review of the preliminary design is a legal requirement prior to starting the detailed design.
Detailed design (Glavni Projekat)	The detailed design have not yet been started. The Municipality is responsible for ensuring that the detailed design is completed.
Detailed design review	Formal review of detailed design documentation is a legal requirement and construction permits are only issued if a positive design review is obtained.
Environmental impact assessment	EIA is not required for construction of the industrial zone facilities but each investor will have to arrange an EIA for the facilities proposed on each plot.
Tender Documents	Tender documents have to be prepared in accordance with the procedures required by the Implementation Agency. If funds for construction is from the EU, the procedures has to be the PRAG procedures used by the EU for procurement. This means that that the tender will have to be open to international competition and therefore the documents shall be prepared in English. The model conditions of will also be normally either of the PRAG or the FIDIC model conditions of contract.

11.7.3 Implementation Programme

Analysis of the critical activities resulted in the implementation programme as presented hereafter. The minimum period thought possible and normally adopted by EU procurement rules has been allowed for each activity.

Using the above basis the draft implementation programme has been prepared and presented on the following Figure.



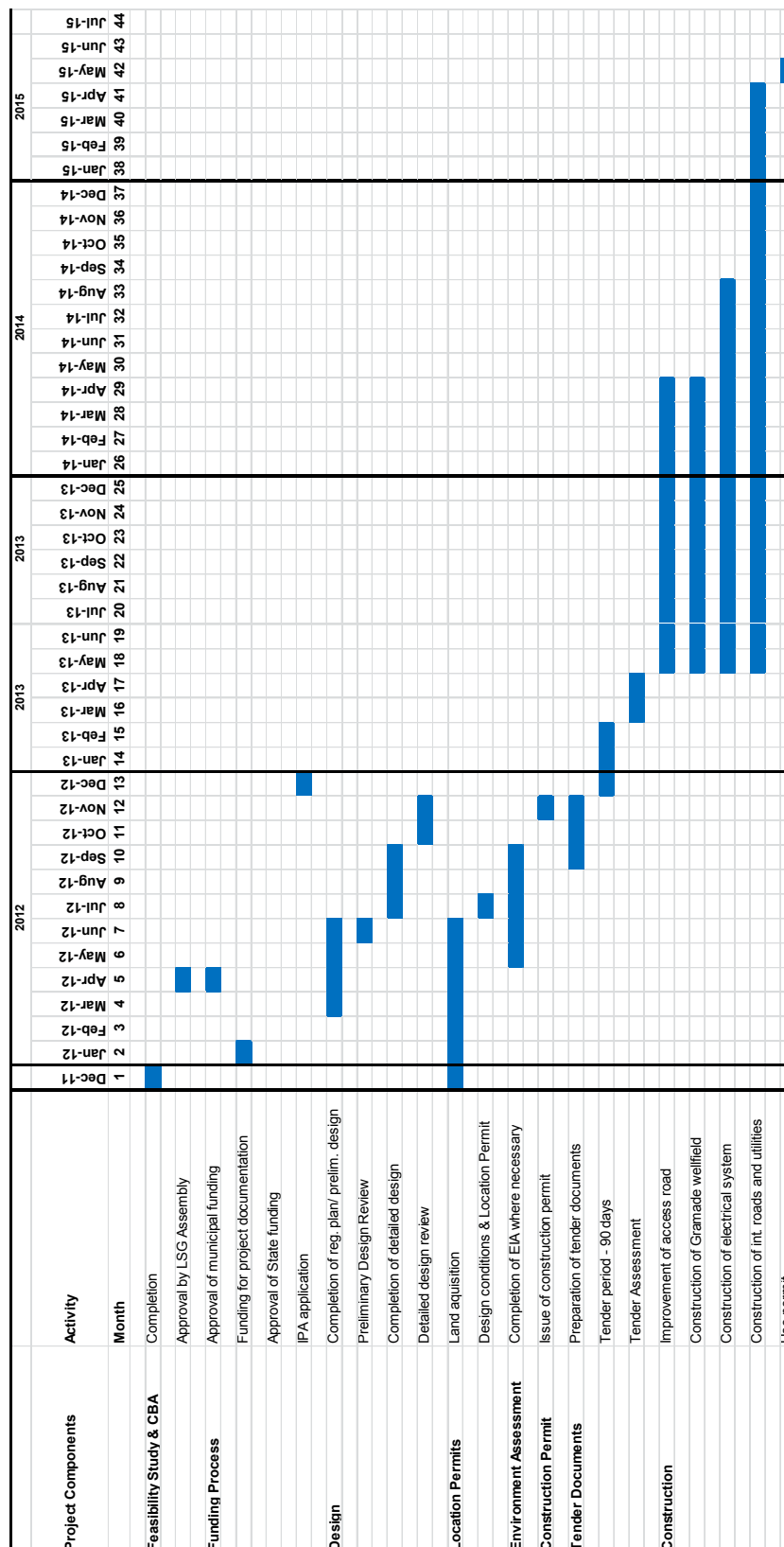
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Figure 111.7-1 Implementation Plan





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11.8 Risk Analysis

A risk analysis has been carried out to identify the issues which are still unresolved and which can impact on the implementation process.

Successful implementation of any project can suffer from risks beyond the control of the implementation team. However, if the risks are identified mitigation measures can be implemented to reduce the impact of such risks.

The impacts and mitigating measures which can be applied are also presented in the risk assessment table.

Risk Events	Impacts	Mitigation Measures
Project preparation		
Land use issues	Location permit not issued and delays to completion of tender documents Loss of IPA funds	Resolve outstanding issues before the end of the validity period of IPA funds.
Delay in changing the detailed regulation plan	Location permit not issued and delays to completion of tender documents Loss of IPA funds	Start the procedures for changing the detailed regulation plan rapidly
Design conditions not issued	Location permit not issued and delays to completion of tender documents	Communicate the urgency with the relevant authority
Preliminary design not completed	Delays to completion of tender documents	Procure as early as possible the services of a consultant for preliminary design for the pier.
Construction permit not issued on time	Delays to launch of tender	Communicate the urgency with the relevant authority
Tender documents not prepared	Delays in start of construction	Procure as early as possible the services of a consultant.
Tender documents not in required format	Delays in start of construction	Employ consultant with experience of preparing tender document for open international tendering.
Procurement		
Poor ground condition for road	Higher contractor's prices	Additional geotechnical investigations
Changes to scope of works	Additional costs Delays in completion	Beneficiary to agree on scope before tendering
Changes to design during construction	Additional costs Delays in completion Insufficient funds for completion	Beneficiary to ensure that design is in accordance with all legal and technical requirements and is complete before tendering

11.9 Institutional Improvement and Support

In 2005 the ministers of developed and developing countries made the Paris Declaration on Aid Effectiveness which states that aid effectiveness must increase significantly to support partner country efforts to strengthen governance and improve development performance.

Moreover in the process of the accession of Serbia to the European Union, the transition from potential candidate country status to candidate country status imply that Serbia has to put into place the operating structures which are necessary to manage and implement future EU assistance. These operating structures imply the creation of new procedures for managing projects at local government level and for implementing and operating the project on completion of the construction works.

To this effect and although the operating structures are not yet formally established it is recommended that a project implementation unit (PIU) is created at the level of the Municipality to supervise the construction in parallel with the Implementation Agency. This approach will provide on the job training for staff of the municipality in the implementation of projects using modern procurement procedures.





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The Municipality of Vladicin Han like most municipalities in Serbia have limited capacity to identify, prepare, procure and implement projects. There is thus a need to support the Municipality in building up its capacity to carry out these tasks which are under its competences.

A technical assistance programme is therefore essential and should include as a minimum, the creation of a project implementation unit supported by external specialists, assistance in setting up the institution which will operate and maintain the facilities after construction and preparation of the procedures and rules under which this institution will operate.

11.10 Visibility & Communication Plan

Visibility of the project has been maintained during the preparation of the Master Plan and the Feasibility Stage by presentation of the project to invited guests such as municipal administrators, other assistance programmes, NGOs, water utility staff.

It is important that the visibility of the project is continued to ensure that adverse public reaction to the project is minimized.

A public relations office is recommended to keep the public informed of all activities related to the Project.

11.11 Marketing Plan

Given this project is about selling land, the importance of marketing the benefits to investors cannot be stressed sufficiently. In order that the marketing gets started on a good footing, a marketing plan has to be prepared close to the implementation period and which will define the type of marketing material and the media through which to communicate with potential investors.

Marketing material commissioned specifically for the project include the following:

- Written material (articles, scientific and technical presentation)
- Graphic and photographic material
- Leaflets, pamphlets, brochures, webpages, web contents
- Audio and video material

Distribution channels include traditional as well as new ones such as:

- Print (leaflets, brochures)
- Radio/TV (audio and video presentations)
- Industry specific magazines
- The Yellow Pages
- Direct mail
- Trade show booths
- Project Website created for the purpose
- Social networking (LinkedIn, Facebook, Twitter)
- Search engine sponsored link

As shown above the choice of marketing material and channels is getting very wide and it can be very expensive to cover all possible options. It is therefore essential that a good marketing plan is prepared within an affordable marketing budget.

The amount to be set aside specifically for this purpose is usually equivalent to about 5% of the sale value of the land or about 150,000€.

Assuming that sale will be spread over 10 years, the annual amount is about 15,000€.

Whilst it is necessary to regularly spend on marketing it is also important to monitor the results of any marketing efforts.