

INTEGRATED TOURISM INFRASTRUCTURE FOR THE VLASINA LAKE

1 PROJECT IDENTIFICATION

1.1 Overview

The project concerns the development of integrated tourism infrastructure in the ecologically protected area of the Vlasina Lake belonging to the Surdulica Municipality in the Pcinja district in South Serbia. The Pcinja District is one of the poorest district in Serbia. The development of touristic sites like the Vlasina lake has been declared of particular importance in the national development plan as source of economic development and employment for the district and the region.

The main components of the project include:

- (i) A water supply system to be expanded for three settlement areas to be developed in terms of tourism around the lake area,
- (ii) Wastewater management infrastructure for the same settlements,
- (iii) Storm water drainage for the same areas,
- (iv) Solid waste management equipment and services for the lake surrounding areas,
- (v) Improvement and extensions of local roads around the lake to enhance accessibility and attractiveness of touristic sites to visitors,
- (vi) Public tourism infrastructure to support the development of the lake as an attractive eco-tourism destination.

The Vlasina Lake (in Serbian: Власинско језеро, Vlasinsko jezero) is an area of high natural values. It is a semi-artificial lake, extending over 16 km². Located at an altitude of about 1200 m, it is the highest and largest artificial lake in Serbia. It was created in 1947–51, when the peat bog called Vlasinsko blato (Vlasina mud) was closed by a dam and submerged by waters of incoming rivers and streams, chiefly the Vlasina.

Figure 1: Vlasina Lake Autumn Views



The Vlasina lake flora and fauna are rich, and includes several endemic species. It features over 850 species of flora, 180 species of vertebrates, including rare species of mammals, reptiles and amphibians, a few of them unique in Europe.

The region of the Lake Vlasina and its surrounding was put under protection at the end of 2005, being designated as the "Vlasina" region of exceptional features and the Serbian national asset of great value. By the decision of the Government of Serbia, the Vlasina region is protected as a so-called 'landscape of outstanding beauty' (ПРЕДЛО ИЗУЗЕТНИХ ОДЛИКА: 'landscape of outstanding qualities'), since 2006. The total protected area is 12,741 hectares, of which 9.6 ha. under the 1st level of protection (islands of Dugi Del and Stratorija), 4,354 ha under the 2nd level and 8,377 ha under the 3rd level of protection.

The areas under level 1 of protection covers an area of 10 hectares and encompass the islands of Dugi Del and Stratorija, where the exploitation of the natural resources is forbidden as well as all the other activities, with the exception of the scientific researches and controlled education.

Figure 2: Schematic Map of Surdulica Municipality and the Vlasina Lake



1.2 Project Objectives

The project intends to achieve the following major economic development objectives:

- Development of tourism enabling public infrastructure compatible with the ecological protection of the area in line with all relevant EU regulations and guidelines for comparably defined nature protection areas in the EU;
- Provision of public drinking water to the lake settlements and planned associated touristic areas meeting the standard of the EC Drinking Water Directive 98/83/EEC and other subsequent directives and their amendments;
- Provision of wastewater collection and treatment to the lake settlements and planned associated touristic areas meeting the standard of the EC Urban Wastewater Management Directive 91/271/EEC and other subsequent amendments;
- Provision of complementary storm water drainage infrastructure for developed areas around the lake that are aligned with relevant EU Regulation;
- Provision of waste collection and disposal services for the development areas around the lake that are aligned with the national waste strategy and the existing regional solid waste management plan and are compatible with relevant EC regulation on domestic waste management especially the new waste framework directive 2008/98/EC;
- Improvement and extensions of local roads in the lake area that can help enhance the accessibility and attractiveness of the lake area for tourists as an ecologically protected area;
- Development of a limited number of public tourism infrastructure to support the development of the lake as an attractive and educative eco-tourism destination in South Serbia.

The table 1 summarizes important performance indicators expected from the investment project in the various infrastructural sectors.

Table 1: Performance Indicators for the Investment Project

| Water Supply | | | |
|-------------------------------------|------------------------------------|--|---|
| Service coverage in urbanized areas | Unit rate (l/capita/day) | Service conditions | Water quality |
| 100% | 150 (resident) 300 (tourist) | 24 hours service; 2-6 bars pressure | Full compliance with Serbian and EU regulation & standards |
| Wastewater | | | |
| Service coverage in urbanized areas | Unit rate (l/capita/day) | System concept | Effluent quality |
| 100% | 125 (resident) 250 (tourist) | Separate system; full secondary treatment level of collected wastewater; discharge of effluent outside protected areas | Full compliance with Serbian and EU regulation & standards |
| Storm Water | | | |
| Coverage | Design return period | System concept | Receiving water protection |
| Local road catchments | 5 years | Separate system | Retention basin; first flush of storm flow to be directed to WWTP |
| Solid Waste | | | |
| Service coverage | Maximal unit rates (kg/capita/day) | Solid waste management concept | Waste disposal |
| 100% | 0,35 (resident) 0,50 (tourist) | Local or regional | Full compliance with EU regulation & standards |
| Local Road | | | |

| Type of structure | Traffic mode | Recommended average speed | Minimum curve radius |
|------------------------|---------------------------------|-------------------------------|------------------------------------|
| Contemporary/asphalted | One/two-way carriage | 45 km/h | 15-45 m |
| Tourism Infrastructure | | | |
| Type of infrastructure | Information infrastructure | Sport activity infrastructure | Ecological activity infrastructure |
| Eco-tourism oriented | Training and information centre | Bicycle and walking paths | Bird watching platforms |

1.3 Existing Situation

The current population around Vlasina lake is distributed inside three areas characterized by a number of scattered very small settlements of a few houses, so called "mahala". The four areas are Vlasina Rid, Vlasina Okruglica, Vlasina Stojkoveva. The distribution and number of Vlasina people per "mahalas" is presented in the following table.

Table 2: Vlasina Population in 2008

| | Number of Mahalas | Permanent Population | Occasional Population | Total Population |
|---------------------------|-------------------|----------------------|-----------------------|------------------|
| Vlasina Rid | 28 | 228 | 1372 | 1600 |
| Vlasina Okruglica | 31 | 90 | 399 | 489 |
| Vlasina Stojkoveva | 19 | 138 | 593 | 731 |
| Total | 78 | 456 | 2364 | 2820 |

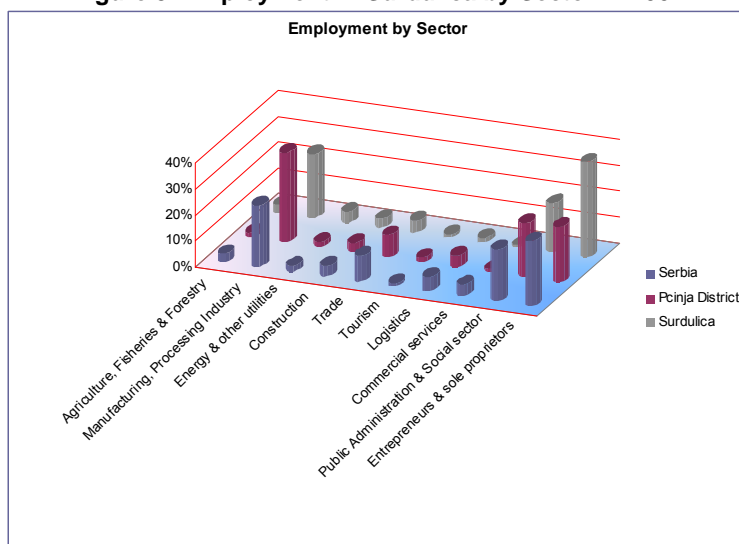
Source: Surdulica Municipality;

Less than 50% of the population is living in the project area permanently. The remaining population comes in the Vlasina area occasionally mostly during weekends or holidays (vikendasi).

Employment trend in the Surdulica municipal area for the period 2005-2007 shows a negative trend with an increasing fall since 2007.

The Figure 3 reflects the main sources of employment in the Surdulica municipality for the year 2007. Tourism is currently the sector with the lowest employment opportunity, justifying the desire of the central government to stimulate the sector with the project.

Figure 3: Employment in Surdulica by Sector in 2007



In terms of contribution to the national income, the district of Pcinja is one of the less developed and active. As shown on the table 3, the 2005 income of the Pcinja District was 1,5 % of Serbia's total national income with Surdulica municipality contributing a marginally (0,1%).

Table 3: Contribution of Pcinja District to National Income (2005)

| Indicator | Serbia | Pcinja District | Surdulica |
|--|-------------|-----------------|-----------|
| National income (in '000 CSD, nominal) | 918.732.972 | 14.065.459 | 1.010.416 |
| % of total | 100,0% | 1,5% | 0,1% |
| National income per capita | 123.473 | 61.232 | 47.025 |

Source: Statistical Office of Republic of Serbia

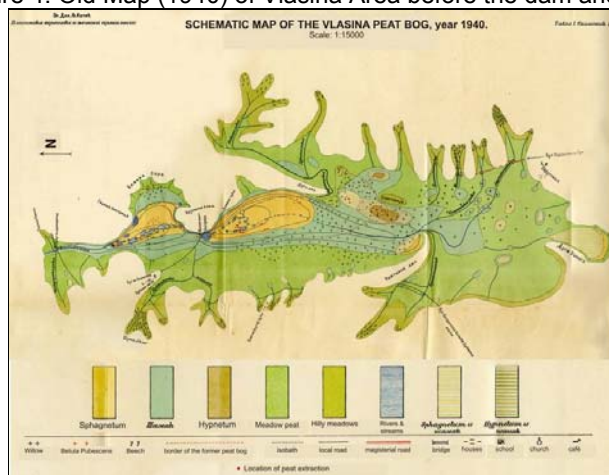
2 ENVIRONMENTAL SETTING

The environmental settings of the project area is geologically and historically one of Highland Peat Bog marshland.. Highland peat bogs are amongst the rarest habitat types all over Europe. They are characterized by a unique flora and fauna, many of the species found here are endemic. Besides environmental issues, peat bogs areas played a vital role in development of local cultures and traditions. Whether they have been exploited (fire material, organic fertilizer) or be used for farming, peat bogs were always closely linked with human development.

Peat bogs are formed by layers of in-composed plant material accumulating over time to compressed formations of sometimes some meters thickness. In Vlasina, the accumulation

occurred in a depression in the landscape. The Figure 4 provides an overview of the peat bog areas in Vlasina as shown in an old map from 1940 before the dam and the flooding of the area.

Figure 4: Old Map (1940) of Vlasina Area before the dam and lake



Conditions in the Vlasina area changed significantly in 1949 when the dam was built with the purpose of hydro power generation. Flooding of the area started gradually. In order to increase the lake size, the flows of three creeks were artificially conducted to discharge into the lake. The lake area increased over the years. About two-thirds of the former peat bog area was flooded and only about 30 ha of the area remained above water level.

Today following the building of the dam on the Vlasina river, the artificial Lake Vlasina's appearance is dominated by the open water surface surrounded by extensive meadows and different types of forests embedded into the Cemernik, Vardenik and Gramada mountain massive. Today, Lake Vlasina is insignificantly larger and more shallow. The lake surface is about 16 km², the water volume is about 165 million m³. The average depth ranges between 10,3 and 22 m.

Lake Vlasina according to Serbian Regulations is a protected site categorized as 'Natural value of an outstanding significance', even when the lake is of artificial origin. It is one of 9 sites registered in Serbia under the UN RAMSAR Convention (Convention on wetlands of international importance).

The area is the seat of unique flora and fauna in Europe. According to relevant literature from IUCN from among 215 extinct or critically endangered flora species in Serbia, 11 belong to the Vlasina area. A few birds species there are also unique in Europe.

The area also has identified historical and cultural value with some remnant of old architectural features dating back from the X century.

Due to the features highlighted above, the Vlasina land is a designated area to be integrated into the EU NATURA 2000 network once Serbia becomes EU member state.

It is already part of the EMERALD Network of the Republic of Serbia which is a network preparing the integration into the NATURA 2000 network that promotes the inventory of Important Plant Areas (IPAs), the inventory of important Bird Areas, the inventory of

wetlands and the harmonisation of classification of habitats with international community standards – EUNIS and CORINE.

In environmental protection terms, the Vlasina area can be defined as an area of medium to high environmental sensitivity. It can be easily negatively affected by both natural and human factors. Erosion is the main natural process affecting Vlasina. Human activities had and have complex negative effects which make these natural factors worse, threatening the biodiversity and even the existence of Vlasina peat land.

3 TOURISM DEVELOPMENT STRATEGY

3.1 Tourism Prospect in South Eastern Serbia

Tourism prospect in South Eastern Serbia is documented and embedded in the “Tourism Strategy of the Republic of Serbia - First interim report”, adopted by the Serbian Government in 2006.

As one of the four national priority destination areas for tourism development (Belgrade, Vojvodina, South-Western Serbia, South-Eastern Serbia), the slogan for SE-Serbia in which the cluster Vlasina is mentioned is ‘Still Undiscovered’. The desired focus is therefore on authenticity, genuine people, genuine food, unspoilt landscapes, rather than on large scale tourism development.

Combined to the environmental situation and constraints highlighted in preceding chapter, the only form of tourism development compatible with the environmental settings of the region is some form of “Eco-Tourism”. Sustainable “Eco-Tourism” is defined in Europe as a form of tourism that emphasizes the following objectives: (i) protect the natural environment (flora, fauna , landscape); (ii) preserve the cultural heritage (architecture, landscape); (iii) respect local cultures (traditions, religions, folklore); (iv) benefit local communities (economically and socially); (v) conserve natural resources (energy, water, etc. - during travel / on destination); and (vi) minimize pollution (noise, water, waste and congestion).

In the perspective of the Vlasina lake site, this translates into the desirability to develop in the areas the following key products: (i) touring; (ii) special interests (protected natural park related like walking, trekking, biking, bird watching, geo-catching, canoeing and in winter Nordic skyking); (iii) mountains and lakes; (iv) health ('wellness') tourism; and (v) rural tourism.

- For Vlasina Lake to become a recognized nature related tourism destination as described above and comparable to the primary present-day destinations in South Serbia (Tara, Kopaonik, Zlatibor) a great number of investments have to take place, both public and private. These investments need to be made both in hardware (physical infrastructure and facilities) as in software ('human capital': training).

3.2 Public Infrastructure Integrated in the Project

- The focus of this feasibility study is exclusively on the public municipal infrastructural investment elements that will need to be invested as a precondition to attract private investment (hotels and special interest attractions) while protecting the future environment of the area in line with the specific natural park character of the area.

- The following sectoral public municipal Infrastructure were considered, dimensioned and integrated into the proposed project.

1. Water Supply (capture, transmission, treatment and distribution)
2. Wastewater Management (collection, treatment, discharge and sludge disposal)
3. Solid Waste Management (waste collection, transport and disposal)
4. Storm Water (collection, storage and controlled release)
5. Local Road (access to touristic sites)
6. Tourism Facilities (Eco-tourism training and documentation centre, bicycle paths, walking paths, birds watching platforms)

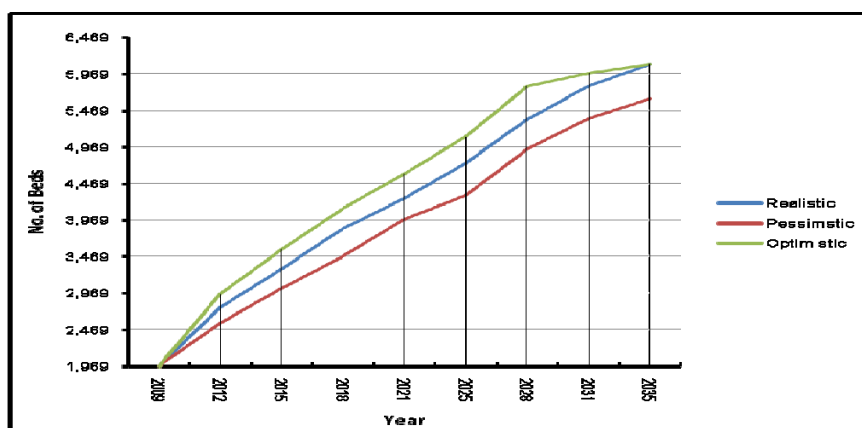
3.3 Sustainable Tourism Capacity of the Vlasina Area

The maximal tourism capacity compatible with the protected character of the area was defined in a master plan completed in 2007. Tourism facilities are expected to take place in five different areas around the lake that can be grouped and defined as follows: (i) Vlasina Okruglica zone – main entry into the area; (ii) Vlasina Rid / Stari Rid zone – main hotels

area; (iii) Vlasina Stojkovicewa Zone – mostly preserve area, some scattered private villas; (iv) Klisura and Božica – rural villages; (v) isolated and scattered rural homes.

The figure 4 summarizes the expected tourism development profiles of the whole area between the existing situation up to the fulfilment of the master plan maximal tourism development target, considering three development scenarios: (i) an “optimistic” development scenario; (ii) a “realistic” development scenario and (iii) a “pessimistic” development scenario.

Figure 4: Three Tourism Development Scenarios Considered



For the development of the infrastructure, only the “realistic scenario” was taken into account integrating some phasing in the provision of the necessary infrastructure. The table 4 summarizes the realistic development scenario by locality in the project area that are considered for infrastructure planning.

Table 4: Tourist Beds Programmed Under the Realistic Scenario

| Type of Tourist Facility | Estimated Tourist Development Capacity between 2009 & 2035 | | | | | | |
|---|--|------------|---------------|------------|---------------|------------|---------------|
| | N° of beds | | | N° of beds | | N° of beds | |
| | Existing 2009 | Additional | Total 2015 | Additional | Total 2025 | Additional | Total 2035 |
| Vlasina Rid + scattered properties | | | | | | | |
| Hotels + Annexes | 285 | 150 | 435 | 150 | 585 | 150 | 735 |
| Private B&B's | 0 | 311 | 311 | 166 | 477 | 166 | 643 |
| Resort | 260 | 0 | 260 | 0 | 260 | 0 | 260 |
| Camps | 500 | 0 | 500 | 0 | 500 | 0 | 500 |
| Rural Accommodations + lodges | 0 | 100 | 100 | 100 | 200 | 100 | 300 |
| Holiday homes / Villa's | 520 | 150 | 670 | 150 | 820 | 150 | 970 |
| Vlasina Rid Total | 1.565 | 711 | 2.276 | 566 | 2.842 | 566 | 3.408 |
| Vlasina Okruglica + scattered properties | | | | | | | |
| Hotels / Motels | 50 | 0 | 50 | 200 | 250 | 200 | 450 |
| Rural Accommodations + B&B's | 14 | 57 | 71 | 107 | 178 | 100 | 278 |
| Resorts + annexes | 130 | 0 | 130 | 0 | 130 | 0 | 130 |
| Private Houses / Villa's | 0 | 130 | 130 | 130 | 260 | 51 | 311 |
| Vlasina Okruglica Total | 194 | 187 | 381 | 437 | 818 | 351 | 1.169 |
| Vlasina Stojkovicewa +scattered properties | | | | | | | |
| o Hotels + Annexes | 60 | 0 | 60 | 25 | 85 | 25 | 110 |
| o Rural Accommodations + B&B's | 50 | 107 | 157 | 107 | 264 | 107 | 371 |

| Type of Tourist Facility | Estimated Tourist Development Capacity between 2009 & 2035 | | | | | | |
|---|--|------------|-------|------------|-------|------------|-------|
| | N° of beds | | | N° of beds | | N° of beds | |
| | Existing | Additional | Total | Additional | Total | Additional | Total |
| | 2009 | | 2015 | | 2025 | | 2035 |
| o Holiday homes / Villa's | 100 | 84 | 184 | 64 | 248 | 64 | 312 |
| o Vlasina Stojkovicewa Total | 210 | 191 | 401 | 196 | 597 | 196 | 793 |
| o Klisura + Božica + scattered properties | | | | | | | |
| o Klisura: Hotel / Pension | 0 | 50 | 50 | 50 | 100 | 50 | 150 |
| o Klisura: B&B's | 0 | 72 | 72 | 72 | 144 | 72 | 216 |
| o Božica: Hotel / Pension | 0 | 50 | 50 | 50 | 100 | 50 | 150 |
| o Božica: B&B's | 0 | 73 | 73 | 73 | 146 | 73 | 219 |
| o Klisura + Božica Total | 0 | 245 | 245 | 245 | 490 | 245 | 735 |
| o TOTAL CAPACITY | 1.969 | 1.334 | 3.303 | 1.444 | 4.747 | 1.358 | 6.105 |

To be able to allocate infrastructural development and operational cost per tourist night spent in the project area, some occupancy rates for the tourism beds were estimated. The table 5 reflects the occupancy rates considered for the area under the realistic scenario showing the estimated growth of tourist inflow in the area.

Table 5: Programmed Occupancy Rates under the Realistic Scenario

| Type of Tourist Facility | Occupancy rates 2015 | | | Occupancy rates 2025 | | | Occupancy rates 2035 | | |
|---|----------------------|----------------------------|--------------------------------|----------------------|----------------------------|--------------------------------|----------------------|----------------------------|--------------------------------|
| | Number of beds | | | Number of beds | | | Number of beds | | |
| | Total | Average occupancy rate (%) | Max. (peak) Occupancy rate (%) | Total | Average occupancy rate (%) | Max. (peak) Occupancy rate (%) | Total | Average occupancy rate (%) | Max. (peak) Occupancy rate (%) |
| Vlasina Rid +scattered properties | | | | | | | | | |
| Hotels + Annexes | 435 | 40% | 95% | 585 | 50% | 95% | 735 | 60% | 95% |
| Private B&B's | 311 | 25% | 100% | 477 | 40% | 100% | 643 | 50% | 100% |
| Resort | 260 | 40% | 95% | 260 | 50% | 95% | 260 | 60% | 95% |
| Camps | 500 | 20% | 95% | 500 | 30% | 95% | 500 | 40% | 95% |
| Rural Accommodations + lodges | 100 | 30% | 100% | 200 | 40% | 100% | 300 | 50% | 100% |
| Holiday Homes / Villa's | 670 | 25% | 100% | 820 | 30% | 100% | 970 | 40% | 100% |
| Vlasina Okruglica + scattered properties | | | | | | | | | |
| Hotels / Motels (2) | 50 | 40% | 95% | 250 | 50% | 95% | 450 | 60% | 95% |
| Rural Accommodations + B&B's | 71 | 30% | 100% | 178 | 40% | 100% | 278 | 50% | 100% |
| Resorts + annexes | 130 | 60% | 95% | 130 | 60% | 95% | 130 | 60% | 95% |
| Private Houses / Villa's | 130 | 25% | 100% | 260 | 30% | 100% | 311 | 40% | 100% |
| Vlasina Stojkovicewa + scattered properties | | | | | | | | | |
| Hotels + Annexes | 60 | 40% | 95% | 85 | 50% | 95% | 110 | 60% | 95% |
| Rural Accommodations + B&B's | 157 | 30% | 100% | 264 | 40% | 100% | 371 | 50% | 100% |
| Holiday Homes / Villa's | 184 | 25% | 100% | 248 | 30% | 100% | 312 | 40% | 100% |
| Klisura + Božica + scattered properties | | | | | | | | | |
| Klisura: Hotel / Pension | 50 | 40% | 80% | 100 | 50% | 80% | 150 | 60% | 90% |
| Klisura: B&B's | 72 | 30% | 100% | 144 | 30% | 100% | 216 | 40% | 100% |
| Božica: Hotel / Pension | 50 | 40% | 80% | 100 | 50% | 80% | 150 | 60% | 90% |
| Božica: B&B's | 73 | 30% | 100% | 146 | 40% | 100% | 219 | 50% | 100% |

4 OPTIONS ANALYSIS

Option analyses in terms of number, size and location of facilities were investigated for the two main and most costly utilities (water supply and wastewater) required in the project area to attract tourism while keeping the area aligned with longer term nature protection objectives.

They are successively briefly documented in the paragraphs below.

4.1 Water Supply

The table 6 reflects the water demand for the five villages (i) Vlasina Rid, (ii) Vlasina Okruglica, (iii) Vlasina Stojkovicева as well as (iv) Klisura and Bozica up to the year 2035 taken as ultimate horizon of the project.

Table 6: Potable Water Demand Projection for Vlasina tourism development

| | User count | | | | Unit Loading rate (l/cap/day) | Q _{average gross} (l/s) | | | | K _{max day} | Q _{max day gross} (l/s) | | | | K _h | | | | Q _{peak hour} (l/s) | | | |
|-------------------|--------------|--------------|--------------|--------------|-------------------------------|----------------------------------|-------------|-------------|-------------|----------------------|----------------------------------|-------------|-------------|-------------|----------------|------------|------------|------------|------------------------------|-------------|-------------|-------------|
| | 2006 | 2015 | 2025 | 2035 | | 2006 | 2015 | 2025 | 2035 | | 2006 | 2015 | 2025 | 2035 | 2006 | 2015 | 2025 | 2035 | 2006 | 2015 | 2025 | 2035 |
| st Resorts | | | | | | | | | | | | | | | | | | | | | | |
| na Rid | 1,715 | 2,025 | 2,425 | 4,815 | 300 | 7.9 | 9.4 | 11.2 | 22.3 | 1.5 | 10.9 | 12.9 | 15.4 | 30.7 | 2.1 | 2.0 | 2.0 | 1.8 | 20.5 | 23.7 | 27.9 | 51.4 |
| na glica | 180 | 480 | 880 | 880 | 300 | 0.8 | 2.2 | 4.1 | 4.1 | 1.5 | 1.1 | 3.1 | 5.6 | 5.6 | 2.7 | 2.4 | 2.2 | 2.2 | 2.7 | 6.6 | 11.3 | 11.3 |
| na ovicева | 160 | 310 | 310 | 460 | 300 | 0.7 | 1.4 | 1.4 | 2.1 | 1.5 | 1.0 | 2.0 | 2.0 | 2.9 | 2.7 | 2.5 | 2.5 | 2.4 | 2.5 | 4.5 | 4.5 | 6.3 |
| st Resorts | 2,055 | 2,815 | 3,615 | 6,155 | | 9.5 | 13.0 | 16.7 | 28.5 | | 13.1 | 17.9 | 23.0 | 39.2 | 2.0 | 1.9 | 1.9 | 1.8 | 24.0 | 31.8 | 39.8 | 64.0 |
| es | | | | | | | | | | | | | | | | | | | | | | |
| na Rid | 1,493 | 1,539 | 1,589 | 1,640 | 150 | 3.5 | 3.6 | 3.7 | 3.8 | 1.5 | 4.8 | 4.9 | 5.1 | 5.2 | 2.3 | 2.3 | 2.3 | 2.3 | 9.8 | 10.0 | 10.3 | 10.6 |
| na glica | 478 | 531 | 589 | 648 | 150 | 1.1 | 1.2 | 1.4 | 1.5 | 1.5 | 1.5 | 1.7 | 1.9 | 2.1 | 2.6 | 2.6 | 2.6 | 2.5 | 3.5 | 3.9 | 4.3 | 4.6 |
| na ovicева | 632 | 681 | 736 | 790 | 150 | 1.5 | 1.6 | 1.7 | 1.8 | 1.5 | 2.0 | 2.2 | 2.3 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 4.5 | 4.8 | 5.2 | 5.5 |
| Villages | 2,603 | 2,750 | 2,914 | 3,078 | | 6.0 | 6.4 | 6.7 | 7.1 | | 8.3 | 8.8 | 9.3 | 9.8 | 2.1 | 2.1 | 2.1 | 2.1 | 16.0 | 16.8 | 17.7 | 18.6 |
| Tourist | 4,658 | 5,565 | 6,529 | 9,233 | | 15.5 | 19.4 | 23.5 | 35.6 | | 21.4 | 26.7 | 32.3 | 49.0 | 1.9 | 1.9 | 1.8 | 1.7 | 37.2 | 45.4 | 53.8 | 78.1 |
| es | | | | | | | | | | | | | | | | | | | | | | |
| a-ation | 350 | 350 | 350 | 350 | 150 | 0.8 | 0.8 | 0.8 | 0.8 | 1.5 | 1.1 | 1.1 | 1.1 | 1.1 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| a-visitors | 0 | 100 | 100 | 100 | 300 | 0.0 | 0.5 | 0.5 | 0.5 | 1.5 | 0.0 | 0.6 | 0.6 | 0.6 | 0.0 | 2.9 | 2.9 | 2.9 | 0.0 | 1.6 | 1.6 | 1.6 |
| a-total | 350 | 450 | 450 | 450 | | 0.8 | 1.3 | 1.3 | 1.3 | | 1.1 | 1.8 | 1.8 | 1.8 | 2.7 | 2.6 | 2.6 | 2.6 | 2.7 | 4.0 | 4.0 | 4.0 |
| a-ation | 350 | 350 | 350 | 350 | 150 | 0.8 | 0.8 | 0.8 | 0.8 | 1.5 | 1.1 | 1.1 | 1.1 | 1.1 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| a-visitors | 0 | 100 | 100 | 100 | 300 | 0.0 | 0.5 | 0.5 | 0.5 | 1.5 | 0.0 | 0.6 | 0.6 | 0.6 | 0.0 | 2.9 | 2.9 | 2.9 | 0.0 | 1.6 | 1.6 | 1.6 |
| a-total | 350 | 450 | 450 | 450 | | 0.8 | 1.3 | 1.3 | 1.3 | 1.5 | 1.1 | 1.8 | 1.8 | 1.8 | 2.7 | 2.6 | 2.6 | 2.6 | 2.7 | 4.0 | 4.0 | 4.0 |

The following three options were considered:

Option 1:

- Connecting additional water sources west of the existing WTP Vlasina – towards Cemernik;
- Continued use of the existing WTP Vlasina, with extended capacity up to 30l/s;
- Activation of a new raw water intake at the Grubina River, next to Klisura settlement of 20 l/s capacity, transportation to the future WTP Jerma, located some 1.400m west of the main road M 1.13 (Vladicin Han – Surdulica – Klisura – Strezimirovci);

- d. Therefore, supply of consumers would be based on two groups of sources (Cemernik, Grubina reka), i.e. two corresponding treatment plants (Vlasina and Jerma);

Option 2:

- a. Connecting additional water sources west of the existing WTP Vlasina – towards Cemernik
- b. Continued use of the existing WTP Vlasina, with extended capacity up to 30l/s;
- c. Activation of a new raw water intake from Jerma canal with a capacity of 20l/s, transportation and treatment at the WTP Jerma as described in option 1;
- d. Similarly to alternative 1, consumers would be supplied from two main sources (Cemernik, Jerma canal) and two treatment plants.

Option 3:

- a. Usage of the existing and additional springs at the outskirts of Cemernik, upgrade and extension of the existing WTP for the capacity of 50l/s;
- b. If required, supplementary raw water supply from the Vlasina lake to supplement raw water capacity up to 50l/s.
- c. Raw water would be provided from two water sources (Cemernik, supplementary from Vlasina lake), while there would be a single water treatment plant at the location of the existing WTP.

The table 7 reflects the water sources and infrastructure necessary in the three options. The comparison was limited to the elements which would be clearly different in the options.

Table 7: Main Investment Value of 3 Water Supply Options Considered

| Item | Option 1: ('000 EUR) | Option 2: ('000 EUR) | Option 3: ('000 EUR) |
|--|-------------------------|-------------------------|-------------------------|
| Impoundment Water sources Used (maximal daily) | 21 | 21 | 21 |
| Local Water Fields used | 105 | 105 | 105 |
| Transmission lines required | 115 | 115 | 115 |
| Treatment Plants | 375 | 375 | 675 |
| Storage Facilities (new) | 810 | 810 | 810 |
| Distribution network | 2.978 | 2.978 | 2.978 |
| Pumping stations | 490 | 490 | 490 |

The comparison of the three options in financial terms was based on a comparison of the present value (PV) of the cost of the investment plus operation cost of the system over a 25 years analysis period less the residual value of the investment at the end of the analysis period. The three alternatives were based on similar water quality and quantity being delivered to each of the villages. Environmental and social externalities, such as health impact or reduced amenities linked to site proximity to human settlements or protected areas and impact on employment and income distribution were considered comparable and therefore a comparison in economical terms was not considered necessary. As the externalities of each option were considered similar, the three options were compared through a strict least-cost financial analysis. The table 8 summarizes the financial comparison of the three options.

Table 8: Financial Comparison of Water Supply Options

| Item (discount rate 5%) | Unit | Option 1: | Option 2: | Option 3: |
|----------------------------|-------------|-----------|-----------|-----------|
| PV Investment | million EUR | 1 063 | 1 063 | 1 326 |
| PV O&M for 25 years | million EUR | 2 302 | 1 949 | 1 595 |

| Item (discount rate 5%) | Unit | Option 1: | Option 2: | Option 3: |
|--|------------------------|-----------|-----------|-----------|
| PV Residual Value of Investment after 25 years | million EUR | 86 | 86 | 133 |
| Quantity of water provided (billed quantity) over analysis period | Million m ³ | 10 788 | 10 788 | 10 788 |
| Average Incremental Cost | EUR/ m ³ | 0,30 | 0,27 | 0,26 |

According to the results of the analysis the option 3 yields the lowest average incremental cost and can therefore be considered the most responsive for the project. It represents the recommendation of this feasibility study and was pursued further in the technical and financial analysis.

4.2 Wastewater Management

Currently the infrastructure available for wastewater management in the project area is limited to a partially developed sanitary sewerage system in the area of Vlasina Rid and a dysfunctional wastewater treatment plant, downstream of the Vlasina dam.

The table 9 reflects the wastewater quantity required to be collected and treated for the five villages of the project area up to the year 2035 taken as ultimate horizon of the project.

Table 9: Overall Wastewater Quantity in Project Area

| Vlasina Resorts & Villages | User count | | | | Unit loading rate (kg/cap/day) | Q _{average} (l/s) | | | | L _{max} (l/s) | | | | Q _{infiltr} (l/s) | | | | Q _{sewage} (l/s) | | | | K _{max} (l/s) | Q _{max day} (l/s) | | | | K ₀ | | | | Q _{max hour} (l/s) | | | |
|---|--------------|--------------|--------------|--------------|--------------------------------------|----------------------------|-------------|-------------|-------------|------------------------|-------------|-------------|-------------|----------------------------|------------|------------|------------|---------------------------|-------------|-------------|-------------|------------------------|----------------------------|-------------|-------------|-------------|----------------|------------|------------|------------|-----------------------------|-------------|-------------|-------------|
| | 2006 | 2015 | 2025 | 2035 | | 2006 | 2015 | 2025 | 2035 | 2006 | 2015 | 2025 | 2035 | 2006 | 2015 | 2025 | 2035 | 2006 | 2015 | 2025 | 2035 | | 2006 | 2015 | 2025 | 2035 | 2006 | 2015 | 2025 | 2035 | 2006 | 2015 | 2025 | 2035 |
| Tourist Resorts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vlasina Rid | 1 715 | 2 025 | 2 425 | 4 815 | 255 | 5.1 | 6.0 | 7.2 | 14.2 | | | | | | | | | | | | | 1.5 | 7.6 | 9.0 | 10.7 | 21.3 | 2.1 | 2.1 | 2.0 | 1.9 | 16.0 | 18.5 | 21.7 | 39.7 |
| Vlasina Okruglica | 180 | 480 | 880 | 880 | 255 | 0.5 | 1.4 | 2.6 | 2.6 | | | | | | | | | | | | | 1.5 | 0.8 | 2.1 | 3.9 | 3.9 | 2.8 | 2.5 | 2.3 | 2.3 | 2.2 | 5.2 | 6.9 | 6.9 |
| Vlasina Stojkovicewa | 160 | 310 | 310 | 460 | 255 | 0.5 | 0.9 | 0.9 | 1.4 | | | | | | | | | | | | | 1.5 | 0.7 | 1.4 | 1.4 | 2.0 | 2.8 | 2.6 | 3 | 2.5 | 2.0 | 3.6 | 3.6 | 6.0 |
| Tourist Resorts - total | 2,055 | 2,815 | 3,615 | 6,155 | | 6.1 | 8.3 | 10.7 | 18.2 | | | | | | | | | | | | | | 3.1 | 12.5 | 16.0 | 27.2 | 2.1 | 2.0 | 1.9 | 1.8 | 18.8 | 24.8 | 30.9 | 49.3 |
| Villages | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vlasina Rid | 1 493 | 1 539 | 1 589 | 1 540 | 128 | 2.2 | 2.3 | 2.3 | 2.4 | | | | | | | | | | | | | 1.5 | 3.3 | 3.4 | 3.5 | 3.6 | 2.3 | 2.3 | 2.3 | 2.3 | 7.7 | 7.9 | 8.1 | 8.4 |
| Vlasina Okruglica | 478 | 531 | 589 | 648 | 128 | 0.7 | 0.8 | 0.9 | 1.0 | | | | | | | | | | | | | 1.5 | 1.1 | 1.2 | 1.3 | 1.4 | 2.7 | 2.6 | 2.5 | 2.6 | 2.8 | 3.1 | 3.4 | 3.7 |
| Vlasina Stojkovicewa | 632 | 681 | 736 | 790 | 128 | 0.9 | 1.0 | 1.1 | 1.2 | | | | | | | | | | | | | 1.5 | 1.4 | 1.5 | 1.6 | 1.7 | 2.6 | 2.6 | 2.5 | 2.5 | 3.6 | 3.9 | 4.1 | 4.4 |
| Total Villages | 2,603 | 2,750 | 2,914 | 3,078 | | 3.8 | 4.1 | 4.3 | 4.5 | | | | | | | | | | | | | | 5.8 | 6.1 | 6.5 | 6.8 | 2.2 | 2.2 | 2.2 | 2.1 | 12.6 | 13.2 | 13.9 | 14.6 |
| Total Tourist Resorts and Villages | 4,658 | 5,565 | 6,529 | 9,233 | | 9.9 | 12.4 | 15.0 | 22.7 | 0.0 | 23.6 | 35.4 | 47.3 | 0.0 | 4.7 | 7.1 | 9.5 | 9.9 | 17.1 | 22.1 | 32.2 | | 14.9 | 23.3 | 29.5 | 43.5 | 1.9 | 1.8 | 1.8 | 1.7 | 28.9 | 38.9 | 47.3 | 67.7 |
| Božica-population | 350 | 350 | 350 | 350 | 120 | 0.5 | 0.5 | 0.5 | 0.5 | | | | | | | | | | | | | 1.8 | 0.9 | 0.9 | 0.9 | 0.9 | 2.7 | 2.7 | 2.7 | 2.7 | 2.5 | 2.5 | 2.5 | 2.5 |
| Božica-visitors | 0 | 100 | 100 | 100 | 255 | 0.0 | 0.3 | 0.3 | 0.3 | | | | | | | | | | | | | 1.8 | 0.0 | 0.5 | 0.5 | 0.5 | 0.0 | 2.9 | 2.9 | 2.9 | 0.0 | 1.5 | 1.5 | 1.5 |
| Božica-total | 350 | 450 | 450 | 450 | | 0.5 | 0.8 | 0.8 | 0.8 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.5 | 1.4 | 1.4 | 1.4 | | 0.9 | 2.1 | 2.1 | 2.1 | 2.7 | 2.5 | 2.5 | 2.5 | 2.5 | 4.2 | 4.2 | 4.2 |
| Kisura-population | 350 | 350 | 350 | 350 | 120 | 0.5 | 0.5 | 0.5 | 0.5 | | | | | | | | | | | | | 1.8 | 0.9 | 0.9 | 0.9 | 0.9 | 2.7 | 2.7 | 2.7 | 2.7 | 2.5 | 2.5 | 2.5 | 2.5 |
| Kisura-visitors | 0 | 100 | 100 | 100 | 255 | 0.0 | 0.3 | 0.3 | 0.3 | | | | | | | | | | | | | 1.8 | 0.0 | 0.5 | 0.5 | 0.5 | 0.0 | 2.9 | 2.9 | 2.9 | 0.0 | 1.5 | 1.5 | 1.5 |
| Kisura-total | 350 | 450 | 450 | 450 | | 0.5 | 0.8 | 0.8 | 0.8 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.5 | 1.4 | 1.4 | 1.4 | | 0.9 | 2.1 | 2.1 | 2.1 | 2.7 | 2.5 | 2.5 | 2.5 | 2.5 | 4.2 | 4.2 | 4.2 |

Two wastewater management options were considered. They are briefly summarized below.

Option 1

Spread of the wastewater into two different wastewater collection systems leading to two wastewater treatment plants (one WWTP in Vlasina and the other WWTP in Vrla) with the following main components:

- Main gravity sewers VL-1, VL-2, VR-1, VR-2, VR-3
- Wastewater treatment plants Vlasina and Vrla
- One sewage pumping station in the southern region of the Vlasina lake, transferring flows from Vlasina Stojkovicewa to Vlasina Okruglica and to WWTP Vrla

- Force-main from the sewage pumping station to the WWTP,
- Individual gravity sewerage networks in Bozica and Klisura settlements
- Small package wastewater treatment plants in Bozica and Klisura.

Option 2

Collection of the entire wastewater flow into a single centralised WWTP in Vlasina Rid with the following main components:

- Single centralised wastewater treatment option in Vlasina Rid.
- Main sewers running around the lake perimeter from Vlasina with a phased implementation.
- Two sewage pumping stations and corresponding force mains to transfer the entire wastewater flow to the central WWTP.

The table 10 reflects the wastewater management infrastructure necessary in the two options analysed. The comparison was limited to the elements which would be different in the two options taking into account the entire analyse period up to 2035 and the phasing of implementation of specific components.

Table 10: Main Investment Value of 2 Wastewater Options Considered

| Item | Option 1: ('000 EUR) | Option 2: ('000 EUR) |
|--|-------------------------|-------------------------|
| Treatment Plants | 4.118 | 3.485 |
| Gravity Collectors, Pumping Stations and Force mains | 4.226 | 4.219 |

As for water supply, the comparison of the two options in financial terms was based on a comparison of the present value (PV) of the cost of the investment plus operation cost of the system over a 25 years analysis period considering as well the residual value of the investment at the end of the analysis period. The two alternatives were based on similar wastewater services (compatible with the EU Urban Wastewater Treatment (UWWT) directive and the programmed nature protection objectives of the area) to each of the 5 villages of the project area. Environmental and social externalities, such as health impact or reduced amenities linked to site proximity to human settlements or protected areas and impact on employment and income distribution were considered comparable and therefore a comparison in economical terms was not considered necessary. As the externalities of each option were considered similar, the three options were compared through a strict least-cost financial analysis. The table 11 summarizes the financial comparison of the three options.

Table 11: Financial Comparison of Wastewater Options

| Item (discount rate 5%) | Unit | Option 1: | Option 2: |
|---|------------------------|-----------|-----------|
| PV Investment | million EUR | 7.458 | 6.884 |
| PV O&M for 25 years | million EUR | 5.855 | 5.054 |
| PV Residual Value of Investment after 25 years | million EUR | 1.177 | 1.086 |
| Quantity of water provided (billed quantity) over analysis period | Million m ³ | 13.049 | 13.049 |
| Average Incremental Cost (EUR/m ³) | EUR/ m ³ | 0,93 | 0,83 |

According to the results of the analysis the option 2 is considered the most responsive for the project. It represents the recommendation of this feasibility study and was pursued further in the technical and financial analysis.

5 INVESTMENT COMPONENTS

5.1 Investment Components of the Project

The table 12 summarizes the main technical specification of the key components foreseen for the project spread by types of investment and by concerned municipality.

Table 12: Technical Components of the Project

| Item No. | Description of Components |
|--|--|
| PUC Utility Services | |
| 1 | Water Supply |
| 1.1 | Protection and extension of raw water sources for the required capacity of up to 50 l/s |
| 1.2 | Raw water transportation system from the source to the water treatment facilities |
| 1.3 | Upgrade and extension of the water treatment facilities for the design capacity of 50 l/s |
| 1.4 | Development of water distribution system including mains, pumping stations and water storage tanks |
| 2 | |
| Wastewater Collection and Treatment | |
| 2.1 | Construction of main sewers, pumping stations and forcemains in order to collect wastewater from the Project Area |
| 2.2 | Construction of wastewater treatment facilities for Vlasina of the total capacity 9.000 PE (phase 1: 6.000 PE) and for rural settlements Bozica and Klisura 2 x 500 PE |
| 3 | |
| Solid Waste Management | |
| 3.1 | Upgrade and improvement of solid waste collection system including containers and collector-trucks |
| 4 | |
| Tourism Related Infrastructure | |
| Local Roads | |
| 4.1 | Upgrade of the local road network for tourism development purposes (app. 17.5km) |
| 5 | |
| Storm Water Management | |
| 5.1 | Stormwater collection and disposal system including culverts, canals and retention basins |
| 6 | |
| Tourism Facilities | |
| 6.1 | 1 Eco-Tourism Information and Training Centre |
| 6.2 | Biking paths (26 km) |
| 6.3 | Walking paths (5,3 km) |
| 6.4 | 4 Birds watching platforms |

5.2 Technical Assistance

The Technical Assistance Services are grouped into three different packages, for which separate Consultants would need to be contracted:

1. The first Technical Assistance project will deal with assistance to the PIU for overall Project Management, infrastructure final design and publicity.

2. The second Technical Assistance project will be for Capacity Building and the strengthening of the three keys institutions involved in the development and later sustainable operation of the planned infrastructure i.e.: the Utility PUC, (water supply, wastewater, solid waste), the Local Road Construction Directorate (LRDC) and the Tourism Organisation (TO).
3. The third Technical Assistance project will be for the strict construction supervision of the project.

The Technical Assistance project for Project Management will include the following components:

- Support the PIU established for the Project Management and Implementation;
- Support the Beneficiary PUC, LRDC and TO in Final Design and Tendering
- Support the Beneficiary in the procurement of material, equipment, construction and services;
- Support training in the field of new technologies, equipment and instruments.
- Support Project Publicity.

The TA for Capacity Building will aim at strengthening the institutional capacities of the enhanced PUC, LRDC and TO and will develop a FOIP program for the PUC services in the project area.

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

The cost breakdown and phasing of the Technical Assistance Services are as reflected in the table 13.

Table 13: Breakdown of T.A. Costs (Current Prices, million EUR)

| Technical Assistance | Total 2009-14 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Detailed Design | 0,270 | 0,000 | 0,160 | 0,110 | 0,000 | 0,000 | 0,000 |
| Capacity Building and FOIP for PUC; Capacity building for LRDC and TO, | 0,524 | 0,000 | 0,311 | 0,213 | 0,000 | 0,000 | 0,000 |
| Supervision of Construction | 0,445 | 0,000 | 0,000 | 0,000 | 0,085 | 0,177 | 0,183 |
| Total | 1,239 | 0,000 | 0,471 | 0,323 | 0,085 | 0,177 | 0,183 |

5.3 Investment Costs

The tables 14 to 19 summarize the investment cost of the project in constant (table 14, 15 & 16) and current (Table 17, 18 & 19) prices using the template used by the EC services for project seeking support from EU structural funds. The investment has purposely been split into two main separate components because of their expected different sources of financing: Utility services managed by the PUC and Tourism related infrastructure.

**Table 14: PUC Utility Services Investment Cost
(Constant Price, million EUR, 2009)**

| Project Investment Cost | eligible | life-time | Total 2009-2013 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|------------------------------|----------|-----------|-----------------|-------|-------|-------|-------|-------|-------|
| Civil works | yes | 50 | 6,290 | 0,000 | 0,000 | 0,000 | 1,258 | 2,516 | 2,516 |
| Electro-mechanical equipment | yes | 15 | 2,670 | 0,000 | 0,000 | 0,000 | 0,534 | 1,068 | 1,068 |

| Project Investment Cost | eligible | life-time | Total 2009-2013 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|----------|-----------|-----------------|-------|-------|-------|-------|-------|-------|
| Pipe works | yes | 40 | 3,810 | 0,000 | 0,000 | 0,000 | 0,762 | 1,524 | 1,524 |
| Sub-total 1 (w/out land) | | | 12,770 | 0,000 | 0,000 | 0,000 | 2,554 | 5,108 | 5,108 |
| thereof Administration Buildings | no | | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Land acquisition | no | - | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Sub-total 2 (including land) | | | 12,770 | 0,000 | 0,000 | 0,000 | 2,554 | 5,108 | 5,108 |
| TA: Support Project Mgmt. To PIU (incl. NetMod & Publ.) | yes | | 0,545 | 0,000 | 0,316 | 0,229 | 0,000 | 0,000 | 0,000 |
| TA: Detailed Design | yes | | 0,544 | 0,000 | 0,265 | 0,101 | 0,036 | 0,071 | 0,071 |
| Local Legal Taxes, Fees and Permits | yes | | 0,062 | 0,000 | 0,000 | 0,000 | 0,012 | 0,025 | 0,025 |
| TA: Supervision of construction | yes | | 0,383 | 0,000 | 0,000 | 0,000 | 0,077 | 0,153 | 0,153 |
| Sub-total 3 (w/out contingencies) | | | 14,304 | 0,000 | 0,581 | 0,33 | 2,678 | 5,358 | 5,358 |
| Technical Contingencies (10% of Sub-total 1) | yes | | 1,277 | 0,000 | 0,000 | 0,000 | 0,255 | 0,511 | 0,511 |
| Sub-total 4 (with contingencies) | | | 15,581 | 0,000 | 0,581 | 0,330 | 2,934 | 5,868 | 5,868 |
| Total eligible cost including contingencies | | | 15,581 | 0,000 | 0,581 | 0,330 | 2,934 | 5,868 | 5,868 |
| % of contingencies contained in eligible project cost | | | | | | | | | |
| ineligible cost including contingencies | | | | | | | | | |

**Table 15: Tourism Infrastructure Investment Cost
(Constant Price, million EUR, 2009)**

| Project Investment Cost | eligible | life-time | Total 2009-2013 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|----------|-----------|-----------------|-------|-------|-------|-------|-------|-------|
| Civil works | yes | 50 | 4,130 | 0,000 | 0,000 | 0,480 | 0,730 | 1,460 | 1,460 |
| Electro-mechanical equipment | yes | 15 | 0,082 | 0,000 | 0,000 | 0,082 | 0,000 | 0,000 | 0,000 |
| Pipe works | yes | 40 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Sub-total 1 (w/out land) | | | 4,212 | 0,000 | 0,000 | 0,562 | 0,730 | 1,460 | 1,460 |
| thereof Administration Buildings | no | | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Land acquisition | no | 99 | 0,133 | 0,000 | 0,026 | 0,000 | 0,021 | 0,043 | 0,043 |
| Sub-total 2 (including land) | | | 4,345 | 0,000 | 0,026 | 0,562 | 0,751 | 1,503 | 1,503 |
| TA: Support Project Mgmt. To PIU (incl. NetMod & Publ.) | yes | | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| TA: Detailed Design | yes | | 0,158 | 0,000 | 0,055 | 0,011 | 0,040 | 0,026 | 0,026 |
| Local Legal Taxes, Fees and Permits | yes | | 0,098 | 0,000 | 0,080 | 0,000 | 0,004 | 0,007 | 0,007 |
| TA: Supervision of construction | yes | | 0,133 | 0,000 | 0,000 | 0,024 | 0,021 | 0,044 | 0,044 |
| Sub-total 3 (w/out contingencies) | | | 4,734 | 0,000 | 0,161 | 0,597 | 0,816 | 1,580 | 1,580 |
| Technical Contingencies (10% of Sub-total 1) | yes | | 0,422 | 0,000 | 0,000 | 0,056 | 0,074 | 0,146 | 0,146 |
| Sub-total 4 (with contingencies) | | | 5,156 | 0,000 | 0,161 | 0,653 | 0,890 | 1,726 | 1,726 |
| Total eligible cost including contingencies | | | 5,023 | 0,000 | 0,135 | 0,653 | 0,869 | 1,683 | 1,683 |
| % of contingencies contained in eligible project cost | | | | | | | | | |

| Project Investment Cost | eligible | life-time | Total 2009-2013 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|----------|-----------|-----------------|-------|-------|-------|-------|-------|-------|
| ineligible cost including contingencies | | | 0,133 | 0,000 | 0,026 | 0,000 | 0,021 | 0,043 | 0,043 |

**Table 16: Integrated Investment Cost
(Constant Price, million EUR, 2009)**

| Project Investment Cost | eligible | life-time | Total 2009-2013 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|----------|-----------|-----------------|-------|-------|-------|-------|-------|-------|
| Civil works | yes | 50 | 10,420 | 0,000 | 0,000 | 0,480 | 1,988 | 3,976 | 3,976 |
| Electro-mechanical equipment | yes | 15 | 2,752 | 0,000 | 0,000 | 0,082 | 0,534 | 1,068 | 1,068 |
| Pipe works | yes | 40 | 3,809 | 0,000 | 0,000 | 0,000 | 0,761 | 1,524 | 1,524 |
| Sub-total 1 (w/out land) | | | 16,982 | 0,000 | 0,000 | 0,562 | 3,284 | 6,568 | 6,568 |
| thereof Administration Buildings | no | | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 |
| Land acquisition | no | - | 0,133 | 0,000 | 0,026 | 0,000 | 0,021 | 0,043 | 0,043 |
| Sub-total 2 (including land) | | | 17,115 | 0,000 | 0,026 | 0,562 | 3,305 | 6,611 | 6,611 |
| TA: Support Project Mgmt. To PIU (incl. NetMod & Publ.) | yes | | 0,545 | 0,000 | 0,316 | 0,229 | 0,000 | 0,000 | 0,000 |
| TA: Detailed Design | yes | | 0,702 | 0,000 | 0,320 | 0,112 | 0,076 | 0,097 | 0,097 |
| Local Legal Taxes, Fees and Permits | yes | | 0,160 | 0,000 | 0,080 | 0,000 | 0,016 | 0,032 | 0,032 |
| TA: Supervision of construction | yes | | 0,516 | 0,000 | 0,000 | 0,024 | 0,098 | 0,197 | 0,197 |
| Sub-total 3 (w/out contingencies) | | | 19,039 | 0,000 | 0,742 | 0,927 | 3,494 | 6,938 | 6,938 |
| Technical Contingencies (10% of Sub-total 1) | yes | | 1,699 | 0,000 | 0,000 | 0,056 | 0,329 | 0,657 | 0,657 |
| Sub-total 4 (with contingencies) | | | 20,739 | 0,000 | 0,742 | 0,983 | 3,824 | 7,595 | 7,595 |
| Total eligible cost including contingencies | | | 20,606 | 0,000 | 0,716 | 0,330 | 3,803 | 7,552 | 7,552 |
| % of contingencies contained in eligible project cost | | | | | | | | | |
| ineligible cost including contingencies | | | 0,133 | 0,000 | 0,026 | 0,000 | 0,021 | 0,043 | 0,043 |

**Table 17: PUC Utility Services Investment Costs for the Project
(Current Price, million EUR)**

| Item | Total Project Costs (A) | Ineligible Costs* (B) | Eligible Costs (C)=(A)-(B) |
|--|-------------------------|-----------------------|----------------------------|
| 1. Planning/design fees | 0,209 | 0,000 | 0,209 |
| 2. Land purchase | 0,000 | 0,000 | 0,000 |
| 3. Building and construction | 12,496 | 0,000 | 12,496 |
| 4. Plant and machinery | 3,066 | 0,000 | 3,066 |
| 5. Contingencies | 1,556 | 0,000 | 1,556 |
| 6. Price adjustment (not applicable, cost are in current prices) | 0,000 | 0,000 | 0,000 |
| 7. Technical assistance | 0,270 | 0,000 | 0,270 |
| 8. Support to PIU and publicity | 0,524 | 0,000 | 0,524 |
| 9. Supervision during construction implementation | 0,445 | 0,000 | 0,445 |
| 10. Sub-TOTAL | 18,566 | 0,000 | 18,566 |
| 11. VAT (here: eligible local taxes, permits, | 0,063 | 0,000 | 0,063 |

| | | | |
|------------------|--------|-------|--------|
| fees) | | | |
| 12. TOTAL | 18,629 | 0,000 | 18,629 |

* 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.

**Table 18: Tourism Infrastructure Investment Costs for the Project
(Current Price, million EUR)**

| Item | Total Project Costs (A) | Ineligible Costs* (B) | Eligible Costs (C)=(A)-(B) |
|---|-------------------------|-----------------------|----------------------------|
| 1. Planning/design fees | 0,074 | 0,000 | 0,074 |
| 2. Land purchase | 0,159 | 0,159 | 0,000 |
| 3. Building and construction | 5,109 | 0,000 | 5,109 |
| 4. Plant and machinery | 0,093 | 0,000 | 0,093 |
| 5. Contingencies | 0,52 | 0,000 | 0,52 |
| 6. Price adjustment (if applicable) | 0,000 | 0,000 | 0,000 |
| 7. Technical assistance | 0,068 | 0,000 | 0,068 |
| 8. Support to PIU and publicity | 0,000 | 0,000 | 0,000 |
| 9. Supervision during construction implementation | 0,172 | 0,000 | 0,172 |
| 10. Sub-TOTAL | 6,195 | 0,000 | 6,195 |
| 11. VAT (here: eligible local taxes, permits, fees)** | 0,098 | 0,000 | 0,098 |
| 12. TOTAL | 6,293 | 0,133 | 6,134 |

**Table 19: Integrated Infrastructure Investment Costs for the Project
(Current Price, million EUR)**

| Item | Total Project Costs (A) | Ineligible Costs* (B) | Eligible Costs (C)=(A)-(B) |
|---|-------------------------|-----------------------|----------------------------|
| 1. Planning/design fees | 0,283 | 0,000 | 0,283 |
| 2. Land purchase | 0,159 | 0,159 | 0,000 |
| 3. Building and construction | 17,605 | 0,000 | 17,605 |
| 4. Plant and machinery | 3,159 | 0,000 | 3,159 |
| 5. Contingencies | 2,076 | 0,000 | 2,076 |
| 6. Price adjustment (if applicable) | 0,000 | 0,000 | 0,000 |
| 7. Technical assistance | 0,338 | 0,000 | 0,338 |
| 8. Support to PIU and publicity | 0,524 | 0,000 | 0,524 |
| 9. Supervision during construction implementation | 0,617 | 0,000 | 0,617 |
| 10. Sub-TOTAL | 24,761 | 0,000 | 24,761 |
| 11. VAT (here: eligible local taxes, permits, fees)** | 0,161 | 0,000 | 0,161 |
| 12. TOTAL | 24,922 | 0,133 | 24,763 |

The table 20 documents then the spread of the eligible costs in local (RSD) and foreign (EUR) currency in constant prices, 2009 spread into the

**Table 20: Eligible Cost Breakdown Local & Foreign Currency
(Constant Prices)**

| Cost Item | Unit | Total | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-----------------------|--------|------|------|------|-------|-------|--------|
| PUC Utility Services Investment | | | | | | | | |
| Eligible Cost | 1000 EUR, 2009 | 15 581 | 0 | 580 | 329 | 2 934 | 5 869 | 15 581 |
| Local Currency | 1000 EUR, 2009 equiv. | 13 082 | 0 | 289 | 164 | 1 217 | 2 431 | 13 082 |
| Local Currency | % of Total | 84% | 0% | 50% | 50% | 41% | 41% | 84% |

| Cost Item | Unit | Total | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-----------------------|-----------|-------|---------|--------|---------|---------|-----------|
| Local Currency | 1000 RSD, 2009 | 1 447 496 | 0 | 23 896 | 18 965 | 278 396 | 560 995 | 1 447 496 |
| Foreign Currency | 1000 EUR, 2009 | 2 499 | 0 | 291 | 165 | 1 717 | 3 438 | 2 499 |
| Tourism Infrastructure Investment | | | | | | | | |
| Eligible Cost | 1000 EUR, 2009 | 5 023 | 0 | 135 | 653 | 869 | 1 683 | 5 023 |
| Local Currency | 1000 EUR, 2009 equiv. | 4 770 | 0 | 67 | 297 | 830 | 1 609 | 4 770 |
| Local Currency | % of Total | 94,97% | 0,00% | 49,63% | 45,45% | 95,47% | 95,58% | 94,97% |
| Local Currency | 1000 RSD, 2009 | 717 710 | 0 | 458 009 | 474 | 28 130 | 78 633 | 717 710 |
| Foreign Currency | 1000 EUR, 2009 | 253 | 0 | 68 | 356 | 39 | 74 | 253 |
| Integrated Investment | | | | | | | | |
| Eligible Cost | 1000 EUR, 2009 | 20 604 | 0 | 715 | 982 | 3 803 | 7 552 | 20 604 |
| Local Currency | 1000 EUR, 2009 equiv. | 17 852 | 0 | 356 | 461 | 2 047 | 4 040 | 17 852 |
| Local Currency | % of Total | 86,64% | 0,00% | 49,79% | 46,95% | 53,83% | 53,50% | 86,64% |
| Local Currency | 1000 RSD, 2009 | 2 165 206 | 0 | 481 905 | 19 439 | 306 526 | 639 628 | 2 165 206 |
| Foreign Currency | 1000 EUR, 2009 | 2 752 | 0 | 359 | 521 | 1 756 | 3 512 | 2 752 |

The cost in local currency represents around 86,6 % of the total investment value with the tourism infrastructure displaying an higher local content (95 %).

5.4 Investment Plan

The table 21 outlines in constant prices 2009, the longer term investment plan for the project. Phase 1 is the immediate project for which funding is being considered based on this feasibility study report. The Phase 2 corresponds to a needed further extension of some infrastructure expected to be developed as a follow-up project but not included in the current recommended project.

Table 21: Long Term Investment Plan (Constant Price, 2009, 1000 EUR)

| Year | Total | Phase 1 | | | | | | ... | Phase 2 | | |
|------------------------|---------------|----------|------------|------------|--------------|--------------|--------------|------------|--------------|--------------|------------|
| | | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | | 2018 | 2019 | ... |
| Water Supply | 7 723 | 0 | 352 | 273 | 1 182 | 2 365 | 2 365 | ... | 593 | 593 | ... |
| Wastewater | 10 628 | 0 | 228 | 57 | 1 705 | 3 411 | 3 411 | ... | 908 | 908 | ... |
| Solid Waste | 237 | 0 | 0 | 0 | 47 | 95 | 95 | ... | ... | ... | ... |
| Storm water Drainage | 777 | 0 | 0 | 0 | 121 | 241 | 241 | ... | 87 | 87 | ... |
| Local Roads | 5 491 | 0 | 0 | 0 | 491 | 983 | 983 | ... | 1 517 | 1 517 | ... |
| Tourism Infrastructure | 1 505 | 0 | 135 | 91 | 277 | 501 | 501 | ... | ... | ... | ... |
| Total | 26 361 | 0 | 715 | 421 | 3 823 | 7 596 | 7 596 | ... | 3 105 | 3 105 | ... |

5.5 Funding Sources for the Capital Investment

The Tables 22 and 23 summarizes the financial sources assumed in first approximation for the capital investment of the project as a basis for discussion with the ministries and the international donor community.

Purposely two groups of investments were considered separately:

Firstly PUC utility investment, which in an economic type of project can essentially be financed out of the revenues generated by the utility charges applied to the tourists visiting the area. Tourists (but not the resident population) are expected to be able to shoulder a significant element of the full costs of the utility services being provided (economic type of project). The EC grant funding for these projects components should not exceed the funding gap calculated for the investment based on the EC guidelines to avoid a distortion of market forces;

Secondly Tourism Infrastructure, which have only a very limited capacity to recover their costs (only the tourism tax) and are therefore expected to have an higher funding gap.

Table 22: Tentative Financial Sources for PUC Investment

| Financing Source | Investment Values (current price, EUR) | Percentage % |
|------------------------|--|--------------|
| Government Grant | 6 524 076 | 35 % |
| IPA Funding | 6 524 076 | 35 % |
| Municipal Contribution | - | 0 % |
| Loan | 5 592 065 | 30 % |
| Others | - | 0 % |
| Total | 18 640 218 | 100 % |

Table 23: Tentative Financial Sources for Tourism Investment

| Financing Source | Investment Values (current price, EUR) | Percentage % |
|------------------------|--|--------------|
| Government Grant | 1 574 232 | 25 % |
| IPA Funding | 4 722 696 | 75 % |
| Municipal Contribution | - | 0 % |
| Loan | - | 0 % |
| Others | - | 0 % |
| Total | 6 296 927 | 100 % |

These figures need final refinement and confirmation after a dialogue during the second half of 2009 with the respective potential sponsors (Ministries and EC services). The feasibility report in its final version will then reflect the outcome of these discussions.

For the loan component the following (table 24) general assumptions applied in other loans provided by EBRD for other infrastructural investment in Serbia were applied.

Table 24: Assumptions of Loan Conditions

| | | |
|----------------|----------------|-----|
| Loan interest | %, EUR nominal | 8 |
| Loan interest | %, RSD nominal | 21 |
| Loan duration | Years | 12 |
| Grace period | Years | 3 |
| Upfront fee | % | 1 |
| Commitment fee | % | 0,5 |

6. Financial Analysis

6.1 Financial Model

For the financial and economic analysis a financial model was developed. It develops year on year projections of capital investment outlay, utility and tourism tax revenues and operating costs for all infrastructure. It is followed by financial statements incorporating

project capital costs and funding, together with any other major projects and loan repayment obligations especially in connection with the utility investments to be managed by the PUC..

Affordability of tariffs, especially for households and for visiting tourists is examined to ensure that tariffs are affordable to the local resident population and to the tourists.

The worksheets in the model are summarized below in the table 25.

Table 25: Description of CBA Model Worksheets

| Number | Worksheet Title | Description |
|--------|---|--|
| 1. | Inputs | Major input variables and assumptions of the model |
| 2. | Population | Calculation of population projections for three possible scenarios |
| 3. | Demand, Investment, OM costs Water Supply | Projections of demand, Investment, OM costs for water supply |
| 4. | Demand, Investment, OM costs Waste water | Projections of Demand, Investment, OM costs for waste water |
| 5. | Demand, Investment, OM costs Solid waste | Projections of Demand, Investment, OM costs for solid waste |
| 6. | Demand, Investment, OM costs Storm water drainage | Projections of Demand, Investment, OM costs for storm water drainage |
| 7. | Demand, Investment, OM costs Local roads | Projections of Demand, Investment, OM costs for local roads |
| 8. | Demand, Investment, OM costs Tourism infrastructure | Projections of Demand, Investment, OM costs for tourism facilities |
| 9. | Data Loan | Calculations of loan repayment and debt service and funding sources description |
| 10. | Tariff, Affordability, Revenues Water Supply | Affordability analysis, revenues in EUR and RSD and full cost based tariff calculations Water Supply |
| 11. | Financial analysis Water Supply | Output report financial analysis for all components together Water Supply |
| 12. | Tariff, Affordability, Revenues Waste water | Affordability analysis, revenues in EUR and RSD and full cost based tariff calculations Waste Water |
| 13. | Financial analysis Waste water | Output report financial analysis for all components together Waste Water |
| 14. | Tariff, Affordability, Revenues Solid waste | Affordability analysis, revenues in EUR and RSD and full cost based tariff calculations Solid waste |
| 15. | Financial analysis solid waste | Output report financial analysis for all components together Solid waste |
| 16. | Working capital, Income statement, Cash flow | Calculation of working capital, profit and loss and cash flow projections of PUC |
| 17. | Financial analysis PUC | Output report financial analysis for all components together PUC |
| 18. | Tourism tax, Revenue | Projections of tourism tax revenues in EUR and RSD |
| 19. | Financial analysis TO | Output report financial analysis for all components together TO |
| 20. | Economic analysis | Output report analysis of economic cost and benefit for all overall project |
| 21. | Sensitivity analysis | Different scenario and risk analysis based on variation of main variables |
| 22. | Graphs | Graphic presentations of main financial and economic variables |

6.2 Incremental Approach

A cost benefit analysis (CBA) 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.

As pointed out in the Guide to CBA, 2008, the incremental method is the standard and necessary method recommended for carrying out the CBA 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 and past losses of weak utilities.

The tables 26 and 27 summarizes important parameters selected to differentiate the without and with project scenarios required in the incremental approach prescribed by the EC guidelines.

Table 26: Overall Service Performance Boundaries of Scenarios

| Item | With Project Scenario | Without Project Scenario |
|--|---|---|
| General Definition and Scenarios Boundaries | The with-project scenario encompasses all the investment measures contemplated in the phase 1 of the chapter 5 (essentially utilities water, wastewater and solid waste) plus tourism infrastructure (road, storm water, tourism infrastructure proper). Institutionally the PUC, the LRCD and the TO will be consolidated and strengthened as described in Chapter 9. | The without-project scenario assumes that none of the measures of the project will be implemented. The institutional structure within the Surdulica municipality remains essentially unchanged |
| Population | The resident population in the project areas has been assumed to develop similarly in the "with-project" and "without-project" scenarios, according to the population forecasts presented in the chapter 2. | |
| Tourism Development | The availability of new utility and tourism infrastructure is expected to attract private investors who would build hotels and guesthouses as documented in the "realistic" scenario of the chapter 4 in terms of tourist beds created and estimated average yearly occupancy rates. | No significant tourism develop in the area because of the lack of utility and tourism infrastructure. |

Table 27: Assumptions on Cost Coverage Mechanisms and Tariff Development

| Item | With-Project Scenario | Without-Project Scenario |
|---|--|--|
| Utility Tariff for the resident population | In the "with-project" scenario, it is assumed that the resident population can only afford a limited tariff corresponding in average to 5 % of the averaged three lowest deciles household monthly income (1,5 % for water supply; 2,5 % and wastewater; and 1,0 % for solid waste). | In the "without-project" scenario, the existing tariff in each town was applied and inflated yearly based on domestic inflation. |
| Utility Tariff for tourists | In the "with-project" scenario, it is assumed that the full cost tariff (investment, O&M and depreciation for reinvestment) for utility services beyond the costs covered by the resident population as outlined above, will be covered through utility taxes to be applied per "night" spend by tourists in the project area. | In the "without-project" scenario, no tourism development and therefore no revenues from tourists are taken into account. |
| Tourism Infrastructure | In the "with-project" scenario it is that part of the cost of developing and maintaining the tourism infrastructure (local road, storm water and tourism facilities) will be covered through an enhanced "tourism tax" estimated currently at 80 RSD (base year 2009) and increased as soon as tourism infrastructure start to be available. | In the "without-project" scenario the current tourism tax of 60 RSD was applied. |

6.3 Key Financial Indicators

The EU Guidelines on CBA places emphasis on two key financial indicators: the Financial Net Present Value (FNPV) and the Financial Internal Rate of Return (FRR).

To take into account the fact that the investment could be financed with financial support of the EU, two series of indicators are always considered. One set presents the financial performance in terms of project return on the total investment cost sunk in the project. These are defined as FNPV(C) and FRR(C). A second set of indicators documents the return based only on the national capital invested FNPV(K) and FRR(K). This means practically that the EU grant element is subtracted from the investment value because it is not financed out of resources provided by the country.

The financial performance indicators (FRR and FNPV) for the project are reflected in the tables 28 and 29 below. They are also presented separately for the PUC Utility Infrastructure and the Tourism Infrastructure.

Table 28: Financial Performance indicators before EU assistance

| Return on Investment | Unit | Value |
|-----------------------------------|----------|--------|
| PUC Utility Infrastructure | | |
| FNPV / C before EU assistance | 000' EUR | -7 032 |
| FRR / C before EU assistance | % | 1,82% |
| Tourism Infrastructure | | |
| FNPV / C before EU assistance | 000' EUR | -4 240 |
| FRR / C before EU assistance | % | -1,77% |

Table 29: Financial Performance indicators after EU assistance

| Return on Investment | Unit | Value |
|-----------------------------------|----------|--------|
| PUC Utility Infrastructure | | |
| FNPV / K after EU assistance | 000' EUR | -2 516 |
| FRR / K after EU assistance | % | 4,17% |
| Tourism Infrastructure | | |
| FNPV / K after EU assistance | 000' EUR | -676 |
| FRR / K after EU assistance | % | 4,14% |

For the two types of investment and for both, the status before or after the EU assistance (/C & /K values), the financial net present value (FNPV/C) is negative and the financial return of the investment (FRR/C) is below the discount rate confirming the justification for external financial support for the project.

6.4 Funding Gap According to Current EU Rules

The funding gap calculation was performed based on the incremental approach prescribed by the EC services. It subtracts the figures from a "without project" scenario from the "with project" scenario using the assumptions highlighted in tables 26 and 27. The tables 30 & 31 document the calculation of the funding gap for the project using the standard format.

Table 30: EU Funding Gap of the PUC Infrastructure Investment

| | Parameter | | Values Not Discounted (000' EUR) | Values Discounted (000' EUR) |
|----|-----------------------------|----|-------------------------------------|---------------------------------|
| 1 | Reference period (years) | 30 | | |
| 2 | Financial discount rate (%) | 5 | | |
| 3 | Total Investment Cost | | 18 640 | |
| 4 | DIC | | | 14 097 |
| 5 | Residual Value | | 8 377 | |
| 6 | Residual Value Discounted | | | 1 408 |
| 7 | Revenues | | 46 136 | 15 329 |
| 8 | Operating Costs | | 29 871 | 9 672 |
| 9 | DNR (7-8+6) | | | 7 065 |
| 10 | Eligible Expenditures (4-9) | | | 7 032 |
| 11 | Funding gap (5) | | | 49,88% |

All Cost excluding VAT

Table 31: EU Funding Gap of the Tourism Infrastructure Investment

| | Parameter | | Values Not Discounted (000' EUR) | Values Discounted (000' EUR) |
|----|-----------------------------|----|-------------------------------------|---------------------------------|
| 1 | Reference period (years) | 30 | | |
| 2 | Financial discount rate (%) | 5 | | |
| 3 | Total Investment Cost | | 6 297 | |
| 4 | DIC | | | 4 751 |
| 5 | Residual Value | | 2 971 | |
| 6 | Residual Value Discounted | | | 499 |
| 7 | Revenues | | 11 134 | 3 655 |
| 8 | Operating Costs | | 9 959 | 3 643 |
| 9 | DNR (7-8+6) | | | 511 |
| 10 | Eligible Expenditures (4-9) | | | 4 240 |
| 11 | Funding gap (5) | | | 89,23% |

All Cost excluding VAT

The result of the funding gap calculation confirms that different financing strategies are required to finance the project. The PUC infrastructures have a leaner funding gap (49%) which according to EU rules cannot be exceeded in terms of EU grant support. The Tourism Infrastructures on the other hand, have a significantly higher funding gap (89%) and deserve therefore an appreciably larger EC grant support in percentage terms. The recommendation of the feasibility study is to apply for the two main types of investments an EU grant level that do not exceed in percentage the EU funding gap calculation.

6.5 Average Incremental Financial Costs (AIFC)

The table 32 reflects the AIFC of the proposed PUC infrastructure investments (water supply, wastewater and solid waste) expressed in relevant unit of consumption and types of users. The AIFC is obtained by dividing the discounted value (net present value) of the total cost of the service (investment and OM&Adm cost) by the discounted quantity of billed service consumption.

Table 32: AIFC of PUC Utility Services

| Item | NPV | Quantity Consumed (2010 – 2035) | | Incremental AIFC Values | |
|----------------------------------|----------------------------|------------------------------------|------------------|--------------------------|-------------|
| | Million EUR (2010-2035) | Unit | Quantity | Unit | EUR |
| Results par unit quantity | | | | | |
| Total Water Supply | 10,094 | m³ | 5 332 432 | EUR/m³ | 1,89 |
| Investment | 5,771 | m ³ | 5 332 432 | EUR/m ³ | 1,08 |
| OM&Adm | 4,120 | m ³ | 5 332 432 | EUR/m ³ | 0,77 |
| Reinvestment (depreciation) | 0,202 | m ³ | 5 332 432 | EUR/m ³ | 0,04 |
| Total Wastewater | 12,956 | m³ | 6 305 706 | EUR/m³ | 2,05 |
| Investment | 7,805 | m ³ | 6 305 706 | EUR/m ³ | 1,24 |
| OM&Adm | 4,645 | m ³ | 6 305 706 | EUR/m ³ | 0,74 |

| Item | NPV | Quantity Consumed (2010 – 2035) | | Incremental AIFC Values | |
|-------------------------------------|----------------------------|------------------------------------|-------------------|--------------------------|--------------|
| | Million EUR (2010-2035) | Unit | Quantity | Unit | EUR |
| Reinvestment (depreciation) | 0,506 | m ³ | 6 305 706 | EUR/m ³ | 0,08 |
| Total Water & Wastewater | 23,050 | WS m³ | 11 638 137 | EUR/m³ | 1,98 |
| Investment | 13,576 | WS m ³ | 11 638 137 | EUR/m ³ | 1,17 |
| OM&Adm | 8,765 | WS m ³ | 11 638 137 | EUR/m ³ | 0,75 |
| Reinvestment (depreciation) | 0,709 | WS m ³ | 11 638 137 | EUR/m ³ | 0,06 |
| Total Solid Waste | 1,809 | ton | 20 488 | EUR/ton | 88,27 |
| Investment | 0,201 | ton | 20 488 | EUR/ton | 9,80 |
| OM&Adm | 1,549 | ton | 20 488 | EUR/ton | 75,58 |
| Reinvestment (depreciation) | 0,059 | ton | 20 488 | EUR/ton | 2,90 |
| Total Solid Waste | 1,809 | m2 | 3 020 239 | EUR/m2 | 0,60 |
| Investment | 0,201 | m2 | 3 020 239 | EUR/m2 | 0,07 |
| OM&Adm | 1,549 | m2 | 3 020 239 | EUR/m2 | 0,51 |
| Reinvestment (depreciation) | 0,059 | m2 | 3 020 239 | EUR/m2 | 0,02 |

For the tourism infrastructures (Local Roads, Storm Water and Tourism facilities) the table 33 summarizes the AIFC of the investment over 25 years expressed as a cost per tourist-night.

Table 33: Incremental AIFC of Various Tourism Infrastructure (EUR)

| Item | NPV | Tourist-night used (2010 – 2035) | | Incremental AIFC Values | |
|-------------------------------------|----------------------------|-------------------------------------|-----------|---------------------------|-------------|
| | Million EUR (2010-2035) | Unit | Quantity | Unit | EUR |
| Total Local Road | 5,713 | Tourist-night | | EUR/ Tourist-night | 0,77 |
| Investment | 2,35 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,32 |
| OM&Adm | 2,85 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,39 |
| Reinvestment (depreciation) | 0,51 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,07 |
| Total Storm Water | 0,878 | Tourist-night | | EUR/ Tourist-night | 0,12 |
| Investment | 0,58 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,08 |
| OM&Adm | 0,17 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,02 |
| Reinvestment (depreciation) | 0,13 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,02 |
| Total Tourism Facilities | 2,934 | Tourist-night | | EUR/ Tourist-night | 0,40 |
| Investment | 1,98 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,27 |
| OM&Adm | 0,51 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,07 |
| Reinvestment (depreciation) | 0,44 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,06 |
| Total Tourism Infrastructure | 9,52 | Tourist-night | | EUR/ Tourist-night | 1,29 |
| Investment | 4,91 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,66 |
| OM&Adm | 3,52 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,48 |
| Reinvestment (depreciation) | 1,09 | Tourist-night | 7 402 088 | EUR/Tourist-night | 0,15 |

6.6 Tariff Recommendations for PUC Infrastructures

Considering that tourists in the area are expected to be significantly wealthier than local residents, a two pronged tariff approach is recommended. The tariff for residents is recommended to be capped at a reasonably affordable level fixed at 1,5 % of the average household income of the three lowest monthly household income deciles for water supply, 2,5 % of the same income for wastewater management and 1,0 % of the same income for solid waste management.

Tourists are then expected to pay on a “tourist-night” basis for the necessary additional costs required to invest and sustainably operate the utility infrastructure required in the project.

The tables 34 to 37 reflects the proposed tariff increases recommended to be promoted in the project area for long term residents and tourists and part time

resident using the area as a tourism site. It is expressed in RSD (excluding VAT). The table also highlights for the resident population the year to year necessary tariff increase.

Table 34: Recommended Tariff (RSD/m³; RSD/m²; RSD/ton) for Resident Population (excl. VAT)

| Item | Unit | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2025 | 2035 |
|---------------------|--------------------|--------|--------|--------|--------|--------|--------|----------|----------|
| Water Supply | | | | | | | | | |
| Current Price | RSD/m ³ | 35,09 | 38,42 | 42,06 | 46,04 | 50,40 | 54,65 | 110,72 | 196,17 |
| Yearly increase | % | 10,0% | 9,5% | 9,5% | 9,5% | 9,5% | 8,4% | 6,4% | 5,4% |
| Wastewater | | | | | | | | | |
| Current Price | RSD/m ³ | 68,81 | 75,33 | 82,46 | 90,27 | 98,82 | 107,16 | 217,10 | 384,65 |
| Yearly increase | % | 10,0% | 9,5% | 9,5% | 9,5% | 9,5% | 8,4% | 6,4% | 5,4% |
| Solid Waste | m ² | | | | | | | | |
| Current Price | RSD/m ² | 2,50 | 2,73 | 2,98 | 3,25 | 3,55 | 3,83 | 7,54 | 12,96 |
| Yearly increase | % | 9,7% | 9,1% | 9,1% | 9,1% | 9,1% | 8,1% | 6,1% | 5,1% |
| Solid Waste | ton | | | | | | | | |
| Current Price | RSD/ton | 766,74 | 804,00 | 843,76 | 886,17 | 937,17 | 982,65 | 1 944,55 | 3 160,18 |
| Yearly increase | % | 5,3% | 4,9% | 4,9% | 5,0% | 5,8% | 4,9% | 6,1% | 4,5% |

Table 35: Recommended PUC Utility Tariff as % of Household Income for Residents:

| Item | EUR/HH, month | | | % Household Income | | |
|---|---------------|-------|-------|--------------------|-------|-------|
| | 2015 | 2025 | 2035 | 2015 | 2025 | 2035 |
| Average Household in Project area (125 l/c/d; 112,5 l/c/d; 0,3 kg/c/d) | | | | | | |
| Total Water Supply | 6,06 | 10,43 | 15,09 | 1,04% | 1,04% | 1,04% |
| Total Wastewater | 10,70 | 18,41 | 26,63 | 1,84% | 1,84% | 1,84% |
| Total Water & Wastewater | 16,76 | 28,84 | 41,72 | 2,88% | 2,88% | 2,88% |
| Total Solid Waste | 2,33 | 3,22 | 4,28 | 0,40% | 0,32% | 0,30% |
| Total three Utilities | 19,09 | 32,06 | 46,00 | 3,28% | 3,20% | 3,18% |
| Average of Three lowest Income Deciles (75 l/c/d; 67,5 l/c/d; 0,3kg/c/d) | | | | | | |
| Total Water Supply | 3,64 | 6,26 | 9,05 | 1,50% | 1,50% | 1,50% |
| Total Wastewater | 6,06 | 10,43 | 15,09 | 2,50% | 2,50% | 2,50% |
| Total Water & Wastewater | 9,07 | 16,69 | 24,14 | 4,00% | 4,00% | 4,00% |
| Total Solid Waste | 2,33 | 3,22 | 4,28 | 0,96% | 0,77% | 0,71% |
| Total three Utilities | 12,03 | 19,91 | 28,42 | 4,96% | 4,77% | 4,71% |

Table 36: Recommended Tariff (RSD/tourist-night) for Tourists (excl. VAT)

| Item | Unit | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2025 | 2035 |
|--------------------------|-------------------|-------|-------|-------|-------|--------|--------|--------|--------|
| Water Supply | | | | | | | | | |
| Current Price | RSD/tourist-night | 5,74 | 7,54 | 16,41 | 30,15 | 51,83 | 83,14 | 284,94 | 470,45 |
| Wastewater | | | | | | | | | |
| Current Price | RSD/tourist-night | 4,43 | 7,52 | 16,35 | 30,04 | 51,65 | 82,85 | 283,95 | 468,81 |
| Solid Waste | | | | | | | | | |
| Current Price | RSD/tourist-night | 16,83 | 17,44 | 21,81 | 24,39 | 27,92 | 32,31 | 33,96 | 35,70 |
| Total 3 Utilities | | | | | | | | | |
| Current Price | RSD/tourist-night | 26,99 | 32,50 | 54,57 | 84,57 | 131,40 | 198,30 | 602,85 | 974,95 |

Table 37: Recommended PUC Utility Tariff per Tourist-night:

| Item | Unit | 2015 | 2025 | 2035 |
|---|--------------------|------|------|------|
| Tourist-night in Project area (300 l/c/d; 270 l/c/d; 0,5 kg/c/d) | | | | |
| Total Water Supply | EUR/ tourist-night | 0,81 | 2,43 | 3,38 |
| Total Wastewater | EUR/ tourist-night | 0,81 | 2,42 | 3,36 |
| Total Water & Wastewater | EUR/ tourist-night | 1,62 | 4,85 | 6,74 |
| Total Solid Waste | EUR/ tourist-night | 0,32 | 0,29 | 0,26 |
| Total three Utilities | EUR/ tourist-night | 1,94 | 5,14 | 7,00 |

6.7 Tourism Tax in Project Area

With tourism infrastructure improving in the area, it is expected that the municipality will be able to increase its Tourism tax matching other comparable tourism centres in Serbia.

The table 38 reflects the inflation corrected (current price) tourism tax recommended to be applied in the area and the revenue expected to be collected every year based on the tourism development and occupancy rates documented under the realistic scenario.

Table 38: Recommended “Tourism Tax” in Project Area

| Planned Tourism Tax | Unit | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2025 | 2035 |
|---|---------------|--------|--------|--------|--------|--------|--------|---------|---------|
| Constant price (2009) | RSD/night | 60,00 | 60,00 | 60,00 | 60,00 | 60,00 | 80,00 | 90,00 | 90,00 |
| Current price (inflated) | RSD/night | 64,20 | 68,69 | 73,50 | 77,91 | 82,59 | 116,72 | 221,12 | 360,19 |
| Collection rate | % | 70% | 72% | 75% | 76% | 77% | 78% | 88% | 98% |
| Expected Revenue | '000 RSD/year | 11 145 | 13 444 | 16 297 | 18 915 | 21 828 | 33 419 | 131 226 | 389 108 |
| Expected Revenue for the Municipality ¹⁾ | '000 RSD/year | 8 916 | 10 755 | 13 037 | 15 132 | 17 462 | 26 735 | 104 981 | 311 286 |

¹⁾based on 80 % of the “tourism tax” revenue remaining for the municipality

6.8 Cash Flow Viability

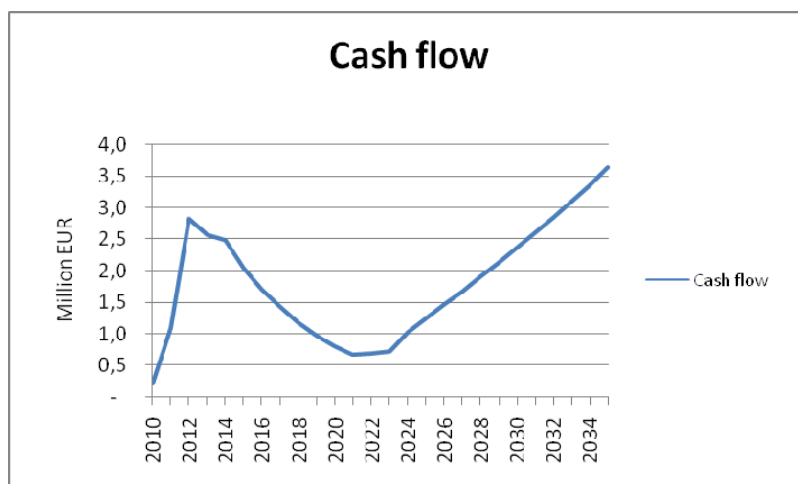
The Guidance on the Methodology for carrying out Cost-Benefit Analysis for EU supported project requires an assessment of the financial sustainability of the project, which needs to prove that the cumulated (undiscounted) net cash flows of the proposed operator are positive over the entire period considered. Considering that the tourism infrastructure are not expected to generate significant revenue, cash flow viability was only assessed for the PUC that will manage the triple utility services. The net cash flows considered for PUC costs and revenues in the project area include:

- Total investments costs, including re-investments for the replacement of assets;
- Revenues of the operator for the services provided;
- OM&Adm cost for the sustainable operation of the services provided;
- Yearly changes in working capital generated by the project;
- Capital resources applied for investment (EU and national budget grants);
- Debt service of contracted loans (fees, interest and capital repayment).

As the project is embedded in an existing revenue-generating system to be managed by the PUC, the financial sustainability analysis is assessed in an aggregated manner for the three services delivered by the PUC unit managing the project area.

The Figure 5 provides the expected cash-flow profile of the water supply system over the projected reference period. The cash flow will stay positive each year during the entire reference period.

Figure 5: Cash-Flow Profile of the Proposed Water Supply Systems



6.9 Financial Performance Indicators of Operator

The financial performance indicators were assessed for the PUC unit that will operate the proposed system. The table 39 summarizes the main indicators on year to year basis over the reference period.

Table 39: Estimated Financial Performance Indicators of the PUC Related Investments (million EUR)

| Item | Target | Projection | | | | | | | |
|----------------------------|-------------|------------------|------|------|------|------|--------|------|------|
| | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2025 | 2035 |
| Total System | | | | | | | | | |
| EBITDA | + each year | 0,11 | 0,14 | 0,20 | 0,25 | 0,37 | 0,10 | 1,11 | 1,46 |
| EBIT | + each year | 0,11 | 0,14 | 0,20 | 0,16 | 0,09 | (0,38) | 0,63 | 0,98 |
| CRR | >1 | 3,9 | 4,8 | 3,5 | 1,5 | 1,2 | 0,7 | 1,3 | 1,3 |
| Operating Cash flow | + each year | 0,14 | 0,10 | 0,08 | 0,18 | 0,39 | 0,12 | 1,11 | 1,46 |
| Cash year end | + each year | 0,2 | 1,1 | 2,8 | 2,6 | 2,5 | 2,0 | 1,3 | 3,6 |
| DSR | >1,3 | 4,0 | 2,2 | 0,4 | 0,5 | 0,7 | 0,2 | | |
| SFR | > 20% | | 328% | 210% | 187% | 99% | 0 | 0 | 0 |

Main findings are:

1. EBITDA remains positive over the analysis period,
2. Operating cash-flow and overall cash-flow at year end remain essentially positive over the years.
3. The debt service ratio (DSR) defined as EBITDA/debt service remains mostly over the 1,3 threshold (often prescribed by IFIs and lenders) during the period of repayment of the loan.

7. Economic Analysis

The economic CBA performed for the project describes the impact of the project in the regional economy context. For the purpose of the Economic CBA, economic costs and benefits of the project are identified, quantified and monetized. For the economic analysis a social discount rate of 5,5 % was applied in the model as recommended by the EC services.

Three types of corrections were taken into account compared to the financial flows:

- Fiscal corrections for cost streams that do really use up economic resources (subsidies, indirect taxes, social security payments and other transfer payments).
- Correction for externalities (external benefits and costs), and
- Conversion from market to accounting prices (shadow pricing) using conversion factors to correct prices driven away of a competitive market through monopoly regimes, trade barriers, labor regulation, incomplete information, etc.

Two main economic benefits were taken into account, quantified and monetized: (i) the expected expenditure to be incurred by tourists in the area during their stay in the project area, and (ii) the revenues of employment to be generated in the area due to tourism activities. The table 40 reflects the main economic performance indicators for the project considering the integrated project considering the five types of investment and their costs.

Table 40: Results of Economic CBA (000' RSD)

| Component | Unit | Values |
|----------------------------|----------|-----------|
| ERR | % | 19,6% |
| PV Benefits | 000' RSD | 1 168 853 |
| PV Costs | 000' RSD | 559 402 |
| ENPV (5,5 % discount rate) | 000' RSD | 22 634 |
| B/C | # | 1,02 |

The main findings are:

1. The economic return (approx. 19 %) is of a high level which can compare well with other types of public investment opportunities in the country.
2. The project is well worth investing in, regarding Serbia's limited financial resources perspective.

8. Sensitivity and Risk Analysis

The sensitivity analysis document the variability of the financial results compared to the "most realistic" estimate made in the preceding paragraphs. The figure 6 and the table 41 document the sensitivity of key variables considering the PUC related investments.

Figure 6: Sensitivity of key variables on FNPV/C

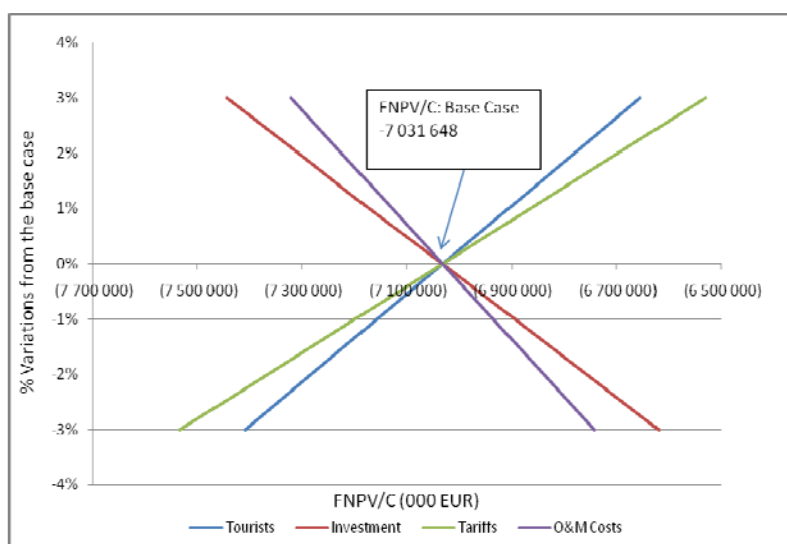


Table 41: Sensitivity of Key Project Financial Performance Indicators

| Variation of Variable | FNPV/C | FRR/C | FNPV/K | FRR/K |
|---------------------------|--------|--------|--------|--------|
| Tourism Development (+1%) | +1,76% | +6,44% | +4,22% | +3,60% |
| Investment (-1%) | +2,00% | +3,85% | +4,12% | +2,40% |
| OM&Adm (-1%) | +1,39% | +4,95% | +3,53% | +2,64% |
| Tariff (+1%) | +2,44% | +8,24% | +6,09% | +4,32% |
| Loan Size (-1%) | 0,00% | 0,00% | +0,83% | +0,48% |
| Loan Interest Rate (-1%) | 0,00% | 0,00% | +7,43% | +4,08% |
| Tourism Development (-1%) | -1,76% | -6,44% | -4,22% | -3,60% |
| Investment (+1%) | -1,97% | -3,85% | -4,12% | -2,40% |
| OM&Adm (+1%) | -1,36% | -4,95% | -3,53% | -2,64% |
| Tariff (-1%) | -2,32% | -8,79% | -6,09% | -4,32% |
| Loan Size (+1%) | 0,00% | 0,00% | -0,83% | -0,48% |
| Loan Interest Rate (+1%) | 0,00% | 0,00% | -7,43% | -4,08% |

Critical variables which are defined as variables for which a change of 1 % in value generate more than a 5 % change in terms of financial performance (NPV & IRR) are

- The number of tourists visiting the area,
- The investment values
- the tariff to be applied to the utility services,
- the loan size and
- The loan interest rate.

The Table 42 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 42: Switching Values for Key Project Financial Variables.

| Variable | % |
|---------------------|---------|
| Tourism development | -15,97% |
| Investment | +32,35% |
| OM&Adm | +20,47% |
| Tariff | -13,02% |

Finally the Figure 7 and 8 reflects the probability distribution of occurrence of percentage change from base case for FNPV/K (Figure 7) and risk of cash flow shortage during the period 2010-2015 (Figure 8) as function of costs and revenues.

Figure 7: Probability Distribution of FNPV/K

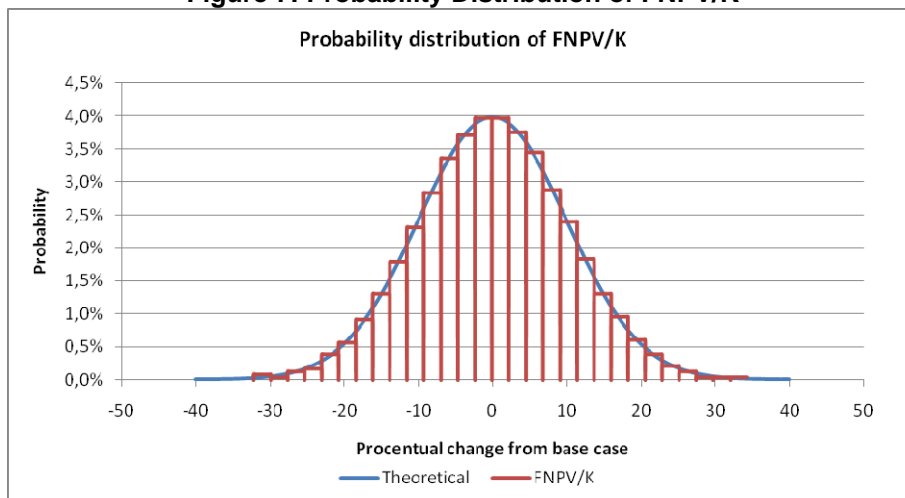
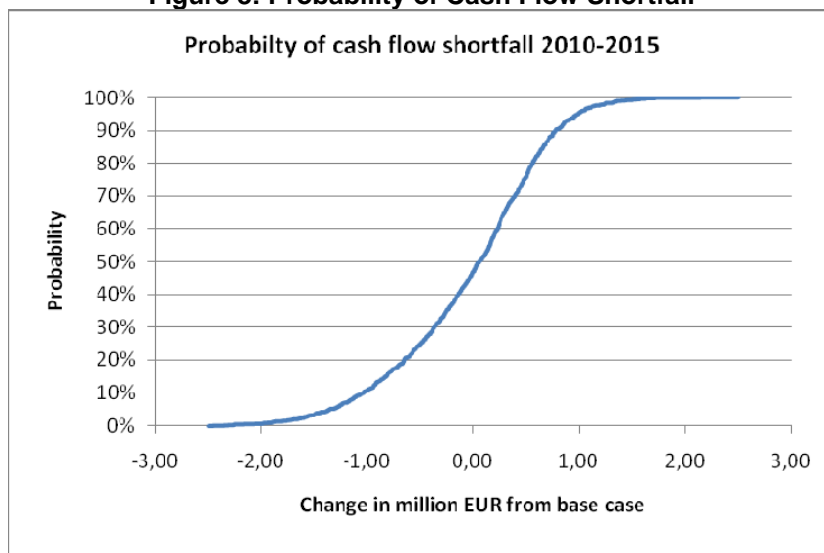


Figure 8: Probability of Cash Flow Shortfall



According to the graphs, the likelihood of significant cash flow shortage remains acceptable.

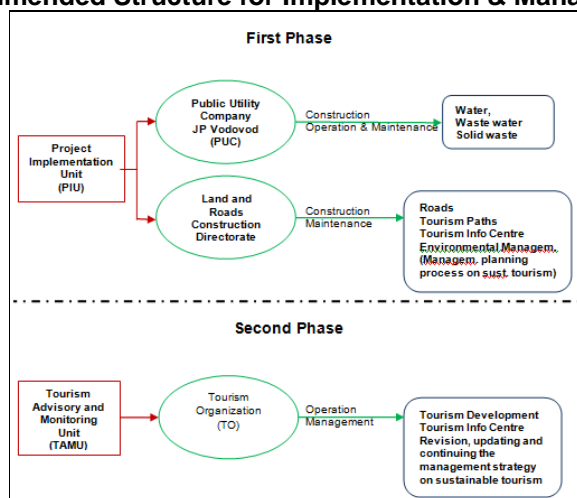
9. INSTITUTIONAL FRAMEWORK

9.1 Recommended Institutional Structure

Following the assessment of the existing institutional capacity of the Surdulica municipality, there is no need to establish a new public enterprise/company to implement and manage the project. The existing public bodies (PUC, LRCD, TO) which are already existing in the Surdulica municipality have demonstrated sufficient potential to carry out the management tasks required for the implementation of the project and later their sustainable operation. On the other hand it is proposed to strengthen their human resources in terms of number of people employed and professional qualification.

The Figure 9 summarizes the recommended structure for the implementation and later operation of the project.

Figure 9: Recommended Structure for Implementation & Management



Accordingly it is proposed that water, waste water collection and treatment and solid waste management falls within the current PUC's domain of authority. Communal roads and tourism centre construction is proposed to be managed by the current LRCD and the management of tourism and the operation of the tourism information centre is recommended to be managed by the municipal TO.

During the construction phase a Project Implementation Unit (PIU) reporting directly to the mayor shall be created until all the works of the various project components have been technically accepted. The PIU is to be supervised by a Management Board and managed by a project manager. The Management Board of the project is proposed to include 4 members: one appointed by the Municipality, and one each by the PUC, the LRCD and the TO respectively.

During the operation phase following the completion of the construction activities, a Tourism Advisory Monitoring Unit (TAMU) is to be established to monitor and periodically evaluate tourism development activities in the project area and adapt development to remain in line with the particular ecological protection character of the area. As for the PIU, the TAMU is to

be supervised by a Management Board comprising 4 members: one appointed by the Municipality, and one respectively by the PUC, the LRCD and the TO.

The figures 10 to 12 reflect the proposed organigramms with proposed staff strength of the three main institutional units of the Surdulica Municipality to be involved in the implementation and operation of the project.

Figure 10: Organisation Chart Public Utility Company (PUC) Surdulica

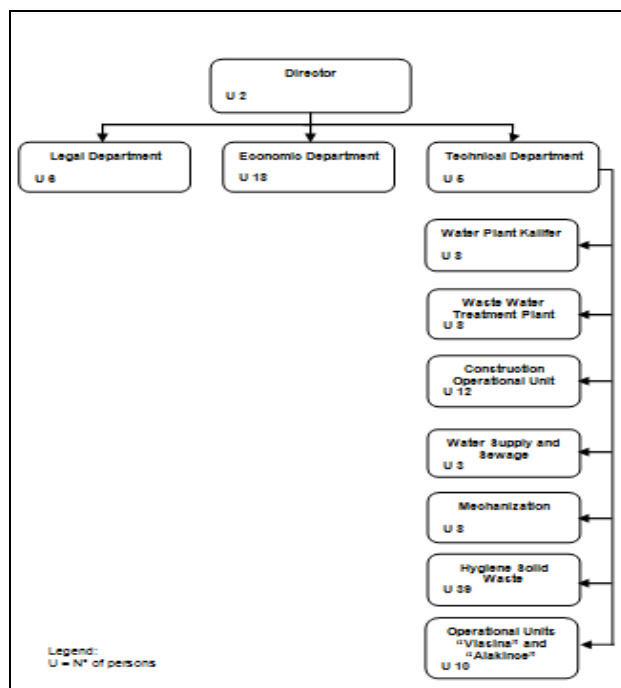


Figure 11: Organisation Chart Local Road Construction Directorate (LRCD)

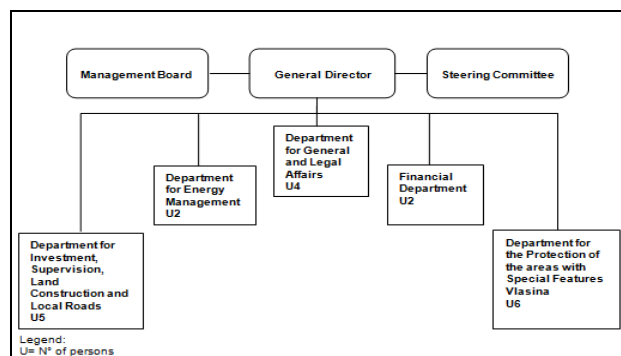
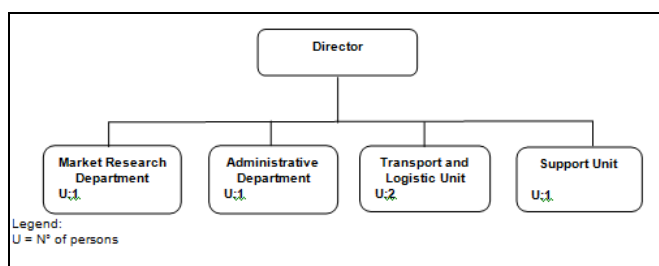


Figure 12: Organisation Chart Tourism Organisation (TO) Unit



The Tourism Information Centre is proposed to be used to provide (i) Eco-tourism related training for tourism professionals in the region and (ii) Eco-tourism promotion and information spreading for visitors and neighboring population.

During the operational phase, TAMU will also monitor the PUC's and RLCD's performances in the operation and maintenance of the infrastructures in the perspective of keeping and enhancing the ecological integrity and quality of the protected areas around the lake.

10. ENVIRONMENTAL ASSESSMENT

The Vlasina area is an area of medium to high environmental sensitivity. As a (former) peat bog, Vlasina is a sensitive habitat that is easily affected by both natural and human factors. Erosion is the main natural process affecting Vlasina. It exposes more of the peat to the atmosphere, increasing drying and oxidation of the peat.

Human activities had and have complex negative effects which make these natural factors worse, threatening the biodiversity and even the existence of Vlasina peat land. Anthropogenic impacts affect three key characteristics of peat land: water balance (content and level), nutrient levels and vegetation. In addition to the development of strict environmental impact assessment and establishment of environmental mitigation and management plans for the development of the proposed infrastructures in line with Serbian and EU EIA good practices, it is recommended that the following environmental issues are more strictly controlled in the project area:

1. The official banning of commercial extraction of peat by Simpo factory (which has been more or less abandoned since 1996);
2. The official banning of intensive agricultural activities by Simpo in the 2nd level protection zone of the Dugi del peninsula which leads to peat degradation and lake water eutrophication;
3. The control of forest vegetation destruction by cutting. Today, the surface area covered with beech forest has been reduced to one-third of the original area;
4. The control of the invasive allochthonous conifer tree species (pine, spruce) which already represent today the same surface than beech forests;
5. The strict permitting of house construction only in the areas foreseen for tourism development as per master plan and this feasibility study and the banning of any construction outside these areas;
6. The enhanced control and management of harvests of herbal medicinal plants, digestible plants and forest fruits (especially bilberry);

7. The control of grazing (sheep, cattle) that may have significant impact on the vegetation;
8. The banning of burning of lake banks or other vegetation in the project area for agricultural purposes or for fishing purposes;
9. The banning of wild dumping of agricultural or domestic waste in the project area.

11. PROCUREMENT PLAN

10. Project Procurement Plan

The tables 43 and 44 provide a provisional procurement plan for all the contracts expected to be tendered and developed for the implementation of the project. The table 43 lists the contracts, their main contents and the tendering procedures to be applied. The table 44 lists the expected tentative list of measures to be implemented (some measures may include several contracts) and their tentative timing.

Table 43: List of Contracts Expected to be Awarded

| Contract number | Type | Procedure | Description | Amount-estimated (€) |
|-----------------|----------|-----------------------------|---|----------------------|
| C1 | Works | PRAG/Red FIDIC | Construction of Potable Water Supply System | 5942000 |
| C2 | Works | PRAG/Red FIDIC/Yellow FIDIC | Construction of Wastewater Collection and Treatment | 6460000 |
| C3 | Works | PRAG + Red FIDIC | Construction of Stormwater Drainage System | 595000 |
| C4 | Works | PRAG + Red FIDIC | Construction of Local Roads | 2370000 |
| C5 | Services | PRAG | Procurement of solid waste collection equipment | 230000 |
| C6 | Works | PRAG + Red FIDIC | Construction of tourism infrastructure | 2000000 |
| Total | | | | 17597000 |

Comment [D1]: Ana check!

Table 44: Schedule of Measures to be Implemented

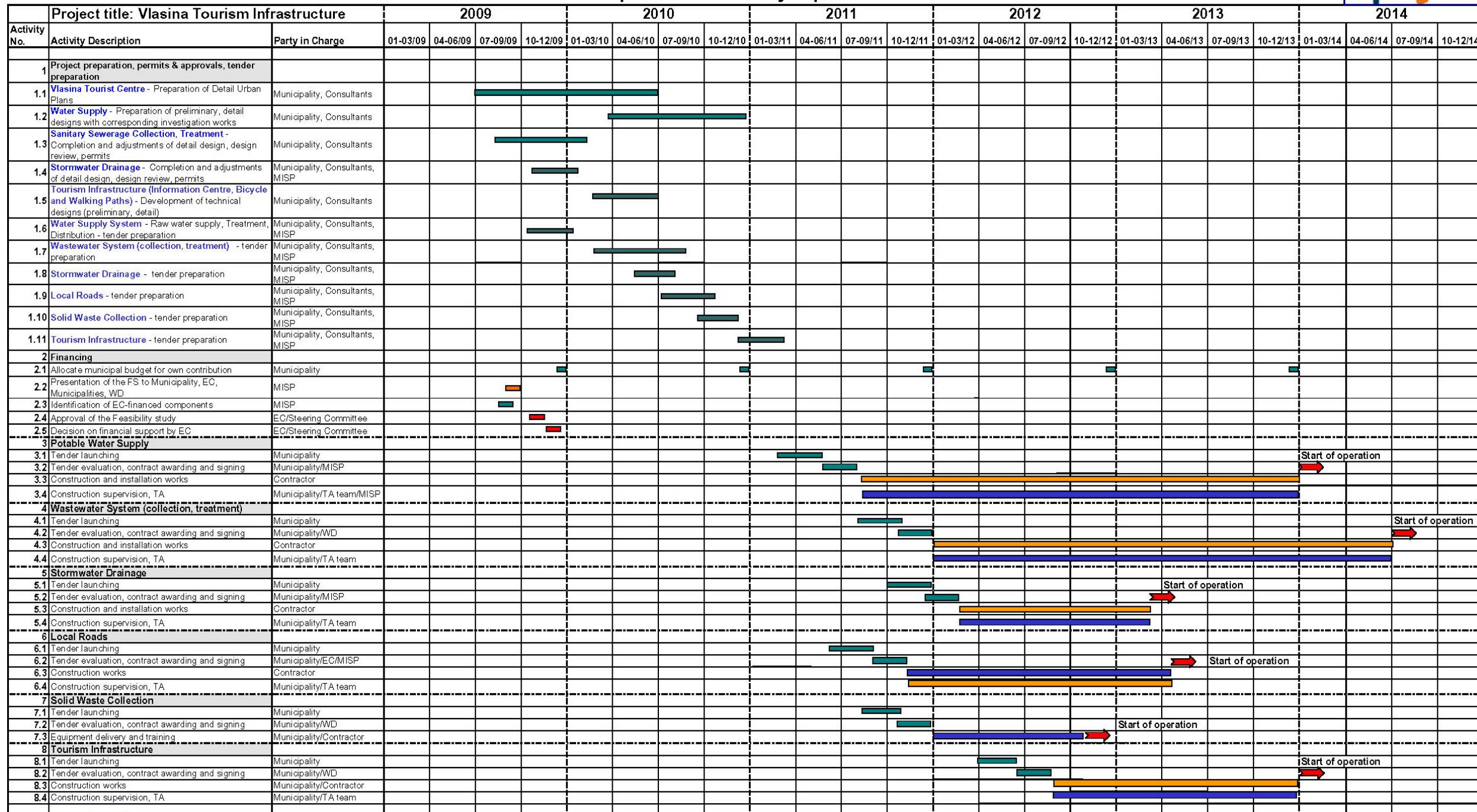
| No | Measure | Tendering | Award | Completion |
|----|---|-----------|---------------|---------------|
| 1 | Technical assistance for project implementation and supervision | July 2010 | December 2010 | December 2013 |

Finally the chart 1 provides a complete overview of the project procurement and implementation process.

1 Chart 1: Procurement and Implementation Plan



Vlasina Tourism Infrastructure Development - Preliminary Implementation Schedule



Municipal Infrastructure Support Program
An EU-funded project



Municipal Infrastructure Support Programme

An EU – funded project



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Note 1:

For services contracts, the following periods were considered:

- 15 days for publication of notices;
- 30 days for forecast notice;
- 30 days for procurement notice;
- 15 days for submission of EoI;
- 60 days for evaluation and preparation of short list;
- 30 days for submission of tenders;

Note 2:

For supply contracts, the following periods were considered:

- 15 days for publication of notices;
- 30 days for forecast notice;
- 60 days for procurement notice;
- 30 days for submission of tenders;
- 30 days for evaluation and contract award.