PROJECT APPRAISAL DOCUMENT

Construction of local road and reservoir in Caska municipality

August 2013

CASKA MUNICIPALITY

I. PROJECT DESCRIPTION

A. GENERAL INFORMATION ABOUT THE MUNICIPALITY

1. Location map

2. Information

Caska is a municipality located in center of Macedonia. With territory of 825km^2 is ranked among the biggest municipalities in the state. The region abounds in large territories of arable land used by the local residents for tobacco, wheat, rice, beans, potatoes, wine and vegetable production. The municipality is rich in quartz, different types of marble and high quality clay. There are several attractive tourist destinations such as cave Damjanica and large number of pits visited by speleologists or the most impressive waterfall on the Jakupica massif located after the river Babuna well. In Jasenovo a hospital complex for lung diseases treatment is located. There are 9 cultural monuments protected by the law due to valuable cultural-historical characteristics.

The agricultural land is 476km^2 and 49km^2 pastures.

According to the 2002 Census, the municipality has 7673 residents living in 42 rural settlements (this figures are corrected for territorial changes of 2005, when previous municipalities Bogomila and Izvor were incorporated into Caska municipality). All population is rural.

The population in 42 rural settlements is organized in 29 local communities. The biggest is community is Izvor comprising 6 villages.

According to SSO estimations the population number is slowly growing, mostly driven by growth of children in the age group 0-4.

Table 1: Changes in population number

	Estimated population number	Growth rate (%)
2008	7602	
2009	7647	0.6
2010	7735	1.2
2011	7787	0.7

Source: SSO

Table 2: Main characteristics of settlements

	Settlement	Inhabitants	Households
1.	Settlement Caska	1450	410
2.	Village Caska	21	5
3.	Banjica	55	25
4.	Busilci	18	9
5.	Vojnica	32	13
6.	Golozinci	43	25
7.	Gorno Vranovci	199	44
8.	Elovec	46	21
9.	Krajnici	16	9
10.	Kriva Krusa	2	1
11.	Lisice	159	60
12.	Melnica	743	159
13.	Novo Selo	6	4
14.	Otistino	59	17
15.	Rakovec	29	11
16.	Drenovo	35	15
17.	Gorno Jabolciste	1741	315
18.	Dolno Jabolciste	718	107
19.	Bistrica	124	71
20.	Bogomila	476	198
21.	Gabrovnik	9	5
22.	Kapinovo	0	0
23.	Mokreni	16	10
24.	Nezilovo	63	32
25.	Oraov dol	3	2
26.	Orese	218	75
27.	Papradiste	7	1
28.	Plevenje	2	1
29.	Sogle	137	36
30.	Teovo	189	82
31.	Creshenvo	8	0
32.	Vladilovci	77	27
33.	Dolno Vranovci	51	24
34.	Izvor	480	176
35.	Krnino	3	1
36.	Martolci	180	56
37.	Omorani	143	49
38.	Pomenovo	0	0
39.	Popadija	0	0
40.	Smilovci	20	9
41.	Stari grad	95	31
42.	Stepanci	0	0
	Total:	7673	2185

Source: Caska municipality, SSO 2002 Census – book XI

In the municipality there are 3 primary schools and 6 branches:

- School “Todor Janev” in Caska with branch in Melnica,
- School “Petre Pop Arsov” in Bogomila with branches in Izvor, Orese and Sogle,
- School “Lirija” in Gorno Jabolciste with branches in Dolno Jabolciste and Gorno Branovci.

The schools with branches provide services to more than 1,000 pupils. Municipality provides transport and dormitory services when necessary.

In Caska municipality there is one CSE “Topolka” responsible for water management, construction of new water capacities, solid waste collection, horticultural activities and management of public markets. CSE employs 22 persons including 5 dealing with water supply services. It was created by Council decision on 27 January 1997 and is financed by the fees paid for services delivered.

Sewage system exists only in 7 settlements (Caska, Izvor, Teovo, Bogomila, weekend settlement Gorno Vranovci, Melnica and Martolci). In the remaining settlements there are individual septic tanks. There is only one sewage treatment plant in the municipality in Teovo village serving only this village.

B. DEMOGRAPHIC AND ECONOMIC PROFILE

1. Gender and age repartition

The age structure shows that 15% of the total Caska population is more than 65 years old, which is far above the average in Macedonia (11%). Share of woman over 65 in total number of woman living in the municipality is 17.3%, wheras for man this share is 12.9%.

Male population is more numerous: 52.4% to 47.6% of female share.

Table 3: Age distribution

	Total	Structure
0-14	818	19.7
15-64	2568	62.0
over 65	758	18.3
Total	4144	100

Source: SSO, 2002 Census, book XI

2. Minorities repartition

According to the ethnic affiliation most of the population is Macedonian (57.3%). Other ethnicities are Albanians (35.2%) and Turks (5.1%). Albanian population is concentrated in a few villages: Gorno Jabolciste (1727), Dolno Jabolciste (716) and Gorno Vranovci (189). Bosnian population is living in two settlements: Melnica and Otistino, while Serbs are mainly in Caska. Turkish population is living mostly in Melnica (378).

Table 4: Population by ethnic groups

	Number	Share
Macedonians	4395	57.3
Albanians	2703	35.2
Turks	391	5.1
Romas	0	
Vlachs	1	0
Serbs	55	0.7
Bosniacs	67	0.9
Other	61	0.8
Total:	7673	100

Source: Caska municipality

3. Employment repartition

According to data of Employment Agency in the end of 2010 there were 1978 persons registered as unemployed, whereas in the mid 2012 this number decreased to 1900. Out of this number 833 are woman.

4. Economy

In 2012 there were 103 active business entities including 75 micro and 28 small enterprises. Out of this number 31 deal with trade, 22 with agriculture and 18 with transport. Population is mostly occupied with agriculture. 5,477 persons work in individual farming, but only for 1,503 this is the only economic activity they undertake.

The biggest employers are the following companies:

- Kanet Agro (greenhouses),
- Kame Komerc (production of quartz).

There are a few agricultural farms (pig, poultry, mushroom, snails).

5. Infrastructure

The network of local roads is equal to 122km. Out of this number 50.4km are asphalt roads, 65.3km are earth roads, 6km are macadam and 0.3km is cobble stone. The municipal Council adopts annual programs on maintenance of local roads.

Water supply networks exists in 21 settlements, but CSE manages and collects fee from only 5 of them (Caska, Izvor, Omorani, Teovo and Bogomila).

The storm water management system exists only in Caska settlement.

Sewage system exists in 6 villages. In other cases the sewage is transferred to the rivers Babuna and Topolka. There is sewage treatment plant constructed in village Teovo.

C. GENERAL DESCRIPTION OF THE PROJECT

The project comprises construction of reservoir in the Izvor village with the capacity of 100m^3 and reconstruction of the local road section Golozinci-Melnica with total length of 4.3km.

New reservoir will replace existing one with the same capacity, which is in sub-standard condition and due to significant leakages the energy costs of pumping the water are unnecessarily high.

Hence, the local road will be reconstructed on the section starting from the bridge on Topolka river to the Melnica village. Just behind the bridge there is a turn to Golozinci village. This road is the only connection for the population of Melnica and Golozinci to the regional roads leading to regional center: Veles. The existing road is over 30 years old and has not been reconstructed since then.

1. Current situation

a) Water supply system in the municipality

Municipal population is served with potable water from the water supply system, own wells and village taps. Water supply networks exist in 21 settlements (all others use taps). Water is provided from rivers Babuna and Topolka.

The first group of 5 settlements (Caska, Izvor, Omorani, Teovo, Bogomila) has water supply systems managed by the local CSE Topolka. Residents in these villages pay they water bills to the CSE.

The second group of 16[1] settlements has water supply networks managed by the local communities, and their residents do not pay regular bills for water used. The water is supplied from wells and taps.

The third group of 21 settlements has not internal water supply networks and residents are supplied with taps and do not pay water bills.

Table 5: Water supply systems managed by CSE Topolka

	Constructed in:	Technical characteristics	Connections	Companies served
Caska	1974, upgraded in 2000-2008 with construction of new reservoir and distribution network. Water is supplied from well.	Reservoir with capacity V=70m^3, two pumps each 8.5l/s and 15kW power	390	29
Izvor	Built in 1976 and reconstructed in 2004 and 2006. Water supplied from source. Reservoir located 600-700m from the village.	Reservoir with capacity V=100m^3, pump 5l/s and 7.5kW power. Partial gravity supply.	178	10
Omorani	2003. Water supplied from well.	Reservoir with capacity V=100m^3, sub-measurable pump with 4l/s and power 5.5kW.	84	1
Teovo	1994. Water supplied from well.	Reservoir with capacity V=36m^3, pump with 5l/s and	149	1

[1] These are: Lisice, Melnica, Gorno Jablociste, Dolno Jablociste, Elovec, Gorno Vranovci, Golozinci, Bistrica, Papradiste, Orese, Nezilovo, Sogle, Banjica, Vladilovci, Vojnica, Mokreni.

		5.5kW power.		
Bogomila	1935, upgraded 1975. Water supplied from well and from the source.	Reservoir with capacity V=80-100m^3, pump 15l/s and power 45kW.	308	13
		Total:	1109	54

**water supply system in Caska settlement was constructed with inhabitants' funds and voluntary work in 1976 and sewage in 1986.*

The storm water management system exists only in Caska settlement.

Sewage system exists in 6 villages. In other cases the sewage is transferred to the rivers Babuna and Topolka. There is sewage treatment plant constructed in village Teovo.

In 2004 the Izvor municipality, which existed at that time, launched activities on development of basic documents on water supply improvement in Izvor village. Due to lack of financial resources the project has been implemented only partially: pressure pipeline was constructed from the source to reservoir and incoming pipeline from reservoir to the village network and the pump station was reconstructed. These activities were financed with own funds and from the funds received from the Ministry of Environment and Spatial Planning. The only remaining element is construction of new reservoir. The primary goal is continuous provision of quality potable water.

Price of water

CSE prices were changed by Council decisions in January 2008, October 2009, October 2010 and June 2013.

Table 6: Price of water

Council decision	Connection price (MKD)	water price per 1m^3									
		Caska		Izvor		Omorani		Bogomila		Teovo	
		private	legal	private	legal	private	legal	private	legal	private	legal
0201-26/08 22.1.2008	5000 (exception Caska 2750)	23	30	15	30	20	30	---	---	---	---
07-1655/5 2.10.2009	5000 (exception Caska 2750)	23	30	20	30	23	30	23	30	23	30
0209-109/1 15.10.2010	5000 (exception Caska 2750)	23	30	20	30	23	30	23	30	23	30
0201-75/1 19.6.2013	5000 (exception Caska 2750)	28	30	28	30	28	30	28	30	28	30

Source: Caska municipality, Council decisions

Connection price to the water supply network has not changed and is equal to MKD 5,000 with exception of Caska where it is lower (MKD 2,750). In 2008 CSE Topolka managed only water supply systems in 3 settlements (Caska, Izvor and Omorani), whereas since 2009 it took over the systems in Bogomila and Teovo.

The water price for legal entities is not differentiated across settlements and has not changed over time. The price for households is unified at MKD 28/m^3. In the past lower price was applied to Izvor settlement because part of water supply is provided with gravity, although the majority is pumped up. In June 2013 the price of water was increased by 22% and unified across settlements.

Financial results of CSE operations

The financial operations of CSE were examined. Only 46% of the population is under the responsibility of the utility with access to water supply service. Observed water losses are not significant – below 10%. The collection rate for water supply services is growing slowly from 73%

in 2010 to 75% in 2012. The number of water connections is growing and 95% of them has installed meter. Electricity consumption for pumping of water has increased by 46% in 2012 (in money and in kWh).

Table 7: Basic data on CSE operations

		2010	2011	2012
CSE staff	no.	20	20	22
CSE staff water supply	no.	5	5	5
Population under responsibility of the utility	no.	7,673	7,673	7,870
Population under responsibility of the utility with access to water supply service	no.	3,481	3,481	3,650
Number of active water connections	no.	1,158	1,164	1,204
-number of connections to individual houses& appartments	no.	1,105	1,113	1,150
-number of non-residential connections	no.	49	49	50
Number of water connections with operating meter	no.	1,138	1,138	1,150
Total length of the distribution network (excluding transmission lines and service pipes)	km	25	25	25
Total number of water pipe breaks in the distribution network	no.	40	42	42
Percentage of residential customers who do not normally receive a 24h/day supply	%	40	40	40
Water produced	m3	118,800	133,500	157,220
Water billed (metered and unmetered)	m3	108,000	125,158	142,879
Water billed and metered	m3	105,840	123,048	140,769
Water billed to residential customers	m3	83,680	99,065	113,254
Water billed to residential customers through direct supplies	m3	83,680	99,065	114,254
Water billed to corporate customers	m3	9,200	9,993	11,425
Water billed to state or municipal institutions, including for water for fire-fighting, etc.	m3	15,120	16,100	18,200
Water connection charges	MKD	2,500	2,500	2,500
Water billed	MKD	2,767,725	2,998,035	3,427,437
Water billed to residential customers	MKD	2,103,471	2,278,506	2,604,852
Water billed to corporate customers	MKD	276,772	299,804	342,744
Water billed to state or municipal institutions, including for water for fire-fighting, etc.	MKD	387,482	419,725	479,841
Recivables (incl. water billings)	MKD	2,583,842	3,167,156	3,528,104
Total water operational expenses excluding depreciation and financing charges	MKD	1,696,148	1,945,850	2,808,426
Electricity consumption of water supply service	MKD	890,640	867,886	1,268,823
Electricity consumption of water supply service	kWh	148,468	146,535	214,562
Revenues received for all company services	MKD	4,463,309	5,303,414	5,982,118
Revenues received for water supply	MKD	2,020,440	2,218,546	2,570,580
- from households	MKD	1,535,534	1,686,094	1,953,639
- from companies	MKD	202,044	221,855	257,058
- from others	MKD	282,862	310,597	359,883
Collection rate on water supply services	*%*	*73*	*74*	*75*
- from households	*%*	*73*	*74*	*75*
- from companies	*%*	*73*	*74*	*75*
- from others	*%*	*73*	*74*	*75*

Source: CSE Topolka, IBNET questionnaire

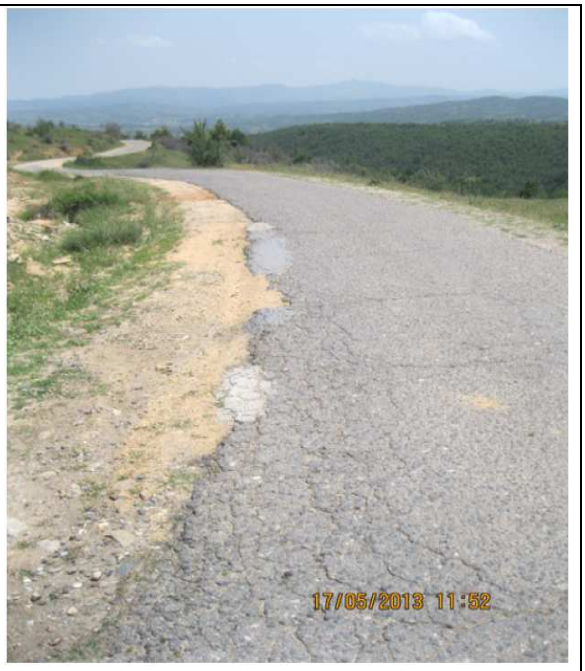
b) Network of local roads

Caska is rural municipality in which all settlements are connected with local roads. The total length of local roads in the municipality is 122 km, out of which 50.4km are already asphalted. The storm water management system exists only in Caska settlement.

Local road selected for reconstruction

The road selected for this project has not storm water system. There are neither water supply pipes nor sewage by the road. The road was asphalted 30 years ago and was not reconstructed since then. The surface is completely destroyed. This is the only access road to two villages Melnica and Golozinci. The road ends in Melnica village. The current situation is presented in the following pictures.

Figure 1: The present condition of the local road subject to this appraisal in Caska



Municipality is making systematic efforts to improve the road infrastructure and provide asphalting of new local roads, but its financial capacity is limited. Main activities in this respect for last two years are presented in table 8. Reconstruction of local roads is financed with own funds and transfers from Agency on State Roads.

Hence, the municipality spends substantial funds for local roads' maintenance, including local roads reconstruction and winter maintenance. The following amounts were spent: in 2010 2,392,000 MKD, in 2011 894,528 MKD, in 2012 2,050,000 MKD.

Table 8: Implemented infrastructure projects in Caska municipality

	Project name	Financing source
2011		
1.	Retaining wall in v.Izvor 25m	OF/ASR
2.	Construction of street in v.Bogomila 70m	OF/ASR
3.	Setting the concrete on street in v.Dolno Jabolciste	OF/ASR
4.	Setting the street Aco Sopov 50m	OF/ASR
5.	Retaining wall on Goce Delcev street in v.Caska 20m	OF/ASR
2012		
1.	Setting the concrete on Koco Racin street 187m	OF/ASR
2.	Setting the concrete on part of Aco Sapov street 183m	OF/ASR
3.	Setting the concrete on streets in v. Gorno Jabolciste	OF[1]

Abbreviations: OF – own funds, ASR – agency on state roads.

[1]Municipality provided construction materials, the population from the settlement implemented work.

2. Future situation

The new reservoir will be built and old one disconnected. As a result, the electricity costs will decrease, as well as water losses. Then, the population of two villages will have access to the

improved road infrastructure and will be able to use in everyday live good quality asphalted road. The reconstructed road will be mainly used by inhabitants of two villages: Golozinci (43 persons) and Melnica (743) – in total by 786 persons according to the 2002 Census data, which is over 10% of municipal population. Hence, water system in Izvor serves 480 persons (178 households) and 10 companies. Concluding, about 16.5% of municipal population will be direct beneficiaries of the project.

The number of indirect beneficiaries will be higher as the constructed road will be also used by other inhabitants visiting one of two villages located by the road. In Melnica many households are connected with their family members living abroad and transferring money to their Macedonian relatives. During summer holidays the population of Melnica increases significantly, as those emigrants regularly visit their families. Therefore, the final number of project beneficiary including those seasonal visitors will be much higher than regular population.

In Melnica one of 3 municipal primary schools is located hosting children from I to IX class. In total 115 children from Melnica city get education in this facility.

3. Strategic goals

In 2008 the municipality with assistance of USAID financed MLGA project has prepared the Strategic Plan on Local Economic Development of Caska municipality. In the process of strategic planning the municipality indentified the following goals:

1. To introduce measures to support economy and attract investments,
2. To create conditions to transfer the region into recognized tourist destination,
3. To create conditions for development of agriculture,
4. To promote multiethnic society,
5. To create condition for urban development.

In reference to 5th goal the sub-goals were identified:

Sub-goal 5.1: to improve communal infrastructure
Tasks: to analyze current status with water supply and sewage network, prioritize necessary projects, develop technical documentation and construct/reconstruct water supply/sewage systems
Sub-goal 5.2: to improve local and regional road network
Tasks: to analyze current status of local road network, prioritize necessary projects, develop technical documentation and construct reconstruct local road network

Construction of new reservoir and local road to Melnica were identified as priority tasks and technical documentation was prepared. Then, the municipality started to develop water supply system in Izvor village according to the available financial resources.

Selected project were also mentioned in the following strategic documents:

- LEAP (Local Environmental Action Plan) 2009-2015,
- Strategy on Rural Development in Caska municipality 2011-2015.

Therefore, one might claim that the project meets long run development municipal objectives. Based on these strategic documents the municipal Council made decision on project financing with MSIP loan.

II. SOCIAL IMPACT

The sociological study refers to five areas: social diversity and gender, institutions, rules and behavior, stakeholders, participation, social risk. It is based on meetings with relevant stakeholders. Face-to-face interviews were conducted with top municipal officials including mayor, president of the Council, representatives of the urban and financial department. Hence, the project idea was presented to the public in an open debate. Second, the project was presented to the Council and got its approval.

Demographic analysis presented in chapter I allows formulating the following conclusions:

- By territory the municipality is one of the biggest in the state,
- The relatively small population is distributed in 42 settlements, but many of them have very limited number of inhabitants,
- The municipality is rural,
- The number of population is slowly growing,
- The share of population over 65 years old is higher than Macedonian average (15% vs.11%) and these are mostly women,
- Male population is more numerous (52.4%),
- The municipality is ethnically diversified with Macedonians comprising 57.3%, Albanians 35.2% and Turks 5.1%,
- The number of businesses is very limited. The population is mostly occupied with agriculture.

The municipal needs in infrastructure are high, especially in investment in rural roads as less than half of local roads is asphalted. On the other hand the municipal capacity to finance such projects is limited by its financial capacity.

Analyzing the social impact of this project it is necessary to identify main stakeholders – organizations, groups or individuals who might have interest in success of the project, can contribute/ affect project implementation, or can directly or indirectly influence the design and implementation. The following stakeholders were identified: mayor, municipal administration, inhabitants, political parties, local social organizations like NGOs or media. The legal framework requires organization of consultations on any infrastructure projects proposed by the municipality. In line with those legal requirements the municipality organized public debate on the proposed project on June 17, 2013. The entrance was free to anyone interested, but invitations were sent via the local communities. There were 22 persons present mostly from the Melnica community covered by this sub-project, and from Vranovci, Caska and Gorno Jabolciste.

Representative of the local community from Melnica proposed for reconstruction local road Caska-Melnica. This road is strongly damaged and difficult to access especially during the winter time due to its mountainous location. The perception of the project was positive and other representatives agreed with selection of priorities. Municipal representative Goranco Ignov presented technical solution and financial conditions of the sub-loan and informed about the proposed timeframe of project implementation. The questions referred to the planned technical solution and activities. The citizens expressed their support for the project.

Based on the public debate on July 23, 2013 the municipal Council approved the projects and it financing with borrowing. The municipal Council comprises 11 councilors representing different political parties. On the session when decision was made on financing the project with MSIP funds

10 councilors were present and 9 voted in favor of the project (and one withheld). Representative from opposition parties voted in favor (one withheld).

Based on this public consultation and Council decision one may conclude that there is no resistance to the project and it has support of all citizens and their representatives.

Then, citizens are fully informed of the project, its goals, costs and consequences. All stakeholders had access to information and could influence scope of the project. There are no NGOs active at the municipal territory. Citizens' interests are mostly expressed by political parties, which are present in the municipal Council. Voting results indicate that in a democratic procedure the majority of Council members supported project implementation. Based on this support expressed by citizens in public debate and their representatives in Council voting one might conclude that there is no resistance to the project.

The project will not cause a feeling of inequality among the citizens. The Melnica village is populated by Turk community (378 out of 743 inhabitants). There are also Bosnians and Macedonians living in this settlement, thus the project contributes to improvements in living conditions of different ethnic communities. The project does not favor any social or ethnic group. The project was publicly consulted and approved by the majority of Councilors, therefore it is not expected that some group, organization or institution might cause some problems during implementation.

Citizens are not expected to participate directly in the project as all the costs will be covered with the loan.

This Project is not a subject to resettlement issues because it involves reconstruction of already existing local road. The new reservoir will be constructed close by the existing one, on the land which is state property. Technical design was prepared in accordance with urban plan, but also in line with local conditions. As a result, there are no property issues in this sub-project.

Concluding, the project does not carry any social risks. It is considered cost-effective over a long run and will contribute to improvement in community standards of living in Caska municipality in general, and specifically in Melnica, Izvor and Golozinci. The project is priority for the public administration and citizens. The population is not expected to contribute financially. The project is not subject to resettlement issues. No expropriation is expected to be raised during the implementation of the project.

Potential success of the project depends on its efficient implementation. The quality of constructed road is of the highest importance. The citizens will pay special attention to quality as the loan will have to be paid off during the next 13 years from the municipal budget. The project is designed in such a way that during the loan repayment there should not be incurred any additional maintenance costs, except regular ex-ante predicted. The quality of project implementation will be provided by supervision on the selected company employed by the municipality. However, to achieve high quality of provided works citizens involvement is necessary.

III. ENVIRONMENTAL IMPACT

Construction of a reservoir in the village Izvor

Currently, the village Izvor is supplied with drinking water from the water supply system built in 1976, with asbestos pipes, which were replaced with PE pipes in the reconstruction done in 2006. Due to lack of financial funds the old reservoir was not reconstructed. The municipality Caska currently uses the old damaged reservoir, there are loses of water and the pumps must work overtime to supplement the water loss.

The main project goal is to solve this problem with construction of a new reservoir in the village Izvor with a capacity of 100m^3, with two wet chambers and a dry chamber. All the construction elements are reinforced concrete class MB30 with additives for water tightness. Around the entire reservoir surfaces is envisaged hydro insulation. The new reservoir will replace the existing one with the same capacity, which is in sub-standard condition.

The reservoir is located on the west side of the village Izvor, at a distance of 780 meters south – west from the water spring 2 that is located immediately above the village in the area Geriz. The location of the water reservoir shown on Figure 1.

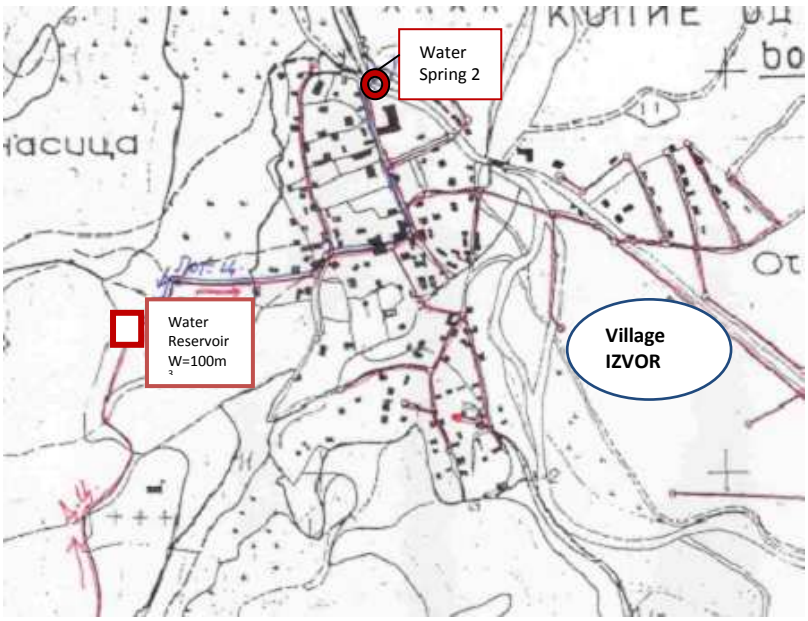


Figure 1 : Location of the water reservoir in village Izvor, Caska municipality

Near the location there are no houses or other sensitive locations so that the planned project is not expected to adversely affect environment (Figure 2).

The current state of the existing water reservoir is poor condition and a lot of leakages and loses of water are noted. The old reservoir does not serve its purpose and the pump works nonstop which results in high electricity consumption. Therefore the construction of the new reservoir with a capacity of 100m^3 is very important in order to achieve savings related to unnecessary water and energy losses.

Figure 2 : Location for the construction of a new reservoir, in the village Izvor

The main project activities will include: a) marking out the construction site and b) construction of the water reservoir and maintenance during operational phase. The construction works are mainly focused on: excavation of the trench, construction works, concrete works, laying the water pipelines, insulation works and installing the reinforced concrete manholes. The inlet pipe from the reservoir to the village has a length of 281m diameter ND 110 and NP working pressure 10 bar.

The construction of a reservoir envisages also mechanical excavation of the soil (Figure 2).
All the activities for construction of the reservoir are in the vicinity of the village Izvor and direct impacts on biodiversity and natural habitats are not expected.

Reconstruction of the local road section Golozinci – Melnica

The project assumes reconstruction of the local road section "***Golozinci – Melnica***" in the Caska municipality. The local road is 3.2m wide with two-sided shoulders of 80cm. There is an existing trench 20 to 30cm deep along the road alignment that collects the storm water and discharges the water through the existing culverts. The local road is with a length of 4,301m and connects the villages Golozinci and Melnica in Caska. The entire local road, in all length goes into mountain terrain (Figure 3).

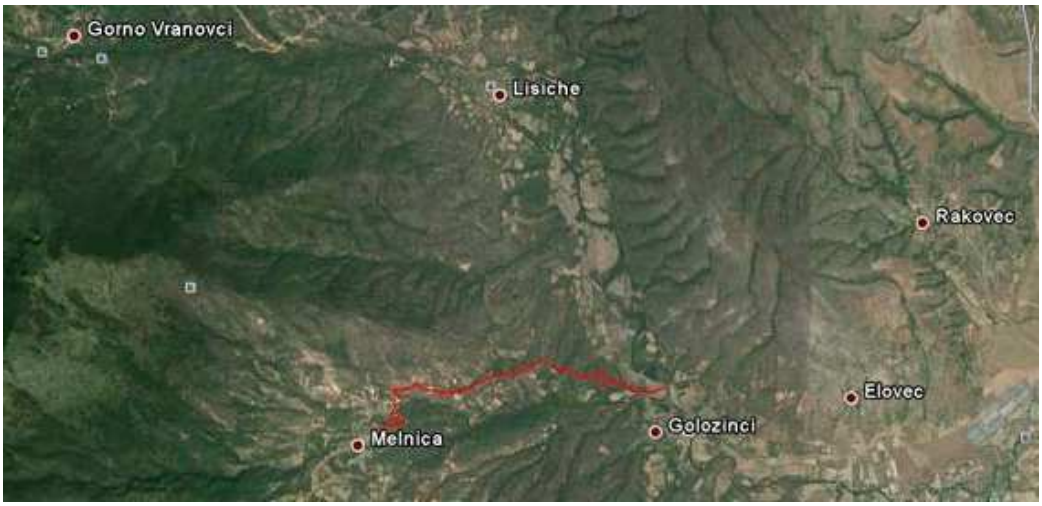


Figure 3 : Location of the local road Golozinci - Melnica in Caska municipality

The section of the local road goes to the center of Melnica is the main access road to the local school in the village Melnica and is thus a very important traffic communication for the inhabitants.

The road has status of local road categorized in 5th category. Taking this into account, the main elements for the road designing and projecting are: max radius for horizontal curves R_{min}=25m and maximal radius for vertical curves R_{min}=130m, Vr=30 km/h, traffic lanes width 3.5m, shoulders 2m, carriageway 5.5m. Carriageway structure consists of 25cm road base build of well compacted crushed stone material. The carriageway is planned to be with two lanes 2x1.75= 3.5m (30cm wider than the existing one).

The existing layer of BNS, 8cm thick will be used as a base for the new asphalt layer and at places where the road will be widened, a layer of crushed stone material 25cm thick will be installed and compacted. In order to attain constant thickness of 4cm of the wearing course AC11s, the design envisages a layer of BNS mixture that contains a small percent of bitumen for leveling. The storm water will be accepted in the existing open trench along the road and discharged through the existing RC culverts. The project envisages additional RC culvert and prefabricated RC channel b/h=35/30cm, length of 281m.

The main goal of the project is reconstruction of local road section "Golozinci – Melnica" including: construction of double lane road in a length of 4,301 m, construction of shoulders etc. The existing road is over 30 years old and it has not been reconstructed over a longer period of time. The road current condition is with significant deformations and visible degradation of the asphalt pavement. The aim of the project is to perform reconstruction of the roadway, widening of the road lanes and correction of the curves of the road.

The purpose of this project is complete reconstruction of the road with main activities focused on:

- Widening of the roadway - earthworks including digging and making embankments;
- Reconstruction on the upper layer on the road (cutting 30cm of the existing asphalt and removing together with the sub-base layer);
- Asphalting with new sub-base layer and additional bearing asphalt layer BNS 7cm thick;
- Building additional RC culvert F=600 at km 3+180, prefabricated RC channel;
- Construction of retaining wall from km 4+100 – km 5+115 of the road.

According the project documentation the project activities include: wide soil digging with the machine, soil compaction, back filling and installation of crushed stone material, compaction, cleaning of the site.

Environmental impacts

The environmental impacts from these two sub-projects are expected on short-term basis, during the construction period and the impacts will be with local significance. The good construction practice could cover several mitigation measures proposed mainly to overcome the OH&S risks that could appear as a result of surrounding of the construction site.

The major impacts for the project on rehabilitation and extension of the water supply system in the village Izvor are expected as a result of: a) community and worker's occupational health and safety aspects b) water pollution- River Melnicka is near the construction site c) improper waste management with different waste streams (concrete waste, inert waste, very small quantity of biodegradable waste, etc.) and d) traffic disturbance during the project implementation.

For the project on rreconstruction of the local road section Golozinci – Melnica, the major impacts are expected as a result of: a) improper waste management with different waste streams (asphalt, pieces of asphalt, road surfacing and inert waste with a very, small quantity of biodegradable waste), b) traffic disturbance during the project implementation.

There is a CSE "Topolka" – Caska, serving the citizens in Caska municipality with drinking water supply, collection, transportation and final disposal of municipal solid waste. The municipal CSE "Topolka" – Caska will be in charge to communicate with the contractor to ensure proper collection and transportation of the waste streams from the reconstruction area. The CSE needs to prepare the Annual Waste Report including the waste quantities and type of waste generated during this project implementation.

The construction mechanization for the two projects could cause ambient air pollution. All impacts are expected to be minor, with local significance.

In the projects area are not identified natural protected areas or cultural heritage sites.

Other mitigation measures refer to the OH&S for workers and community safety and need to be applied before and during construction activities, so they are included within the following Environmental Mitigation Plan. The main responsibility for implementation of the mitigation measures lay to the contractor and supervisor (nominated by the Municipality) on daily basis. Some of the measures (e.g. recording the waste quantities, announcement of the traffic regime) should be applied by the municipality staff and for some an excellent coordination is needed among contractor, supervisor and municipality staff. Good communication and regular meetings between contractor, municipality staff and supervisor are essential for smooth projects implementation and protection of environment and community health and safety.

In order to prevent the adverse environmental impact on traffic and to ensure regular transportation of goods and people during the reconstruction period, there is a need for development of Traffic Management Plan prior the start of the activities. The Plan should include the re-routing directions, time schedule and placement of horizontal and vertical signalization. The Plan should be communicate with the Ministry of internal affairs – Office in Caska or Veles as neighbor bigger municipality.

No major environmental risks are expected in the operational phase, only in the case of broken pipelines from the water supply system, the interventions of repairing the pipeline could occur and few environmental elements could be affected, but in very low intensity and minor significance.

According the national legislation (Law on environment – Official Gazette No. 53/05, 81/05, 24/07, 159/08, 83/09, 124/10, 51/11, 123/12, 93/13) and secondary legislation, the Project for construction of the local water reservoir belongs to the Annex I Chapter I – Agriculture, Forestry and Water Management, Part 6: Projects for collection, processing and water supply of local importance. The Project for reconstruction of the local roads belongs to the Annex I Chapter X – Infrastructural projects, Part 2: Projects for reconstruction of local roads. For these types of projects the EIA Report should be prepared and the Report should be adopted by the Mayor of the Municipality.

Two EIA Reports for the two sub-projects were prepared by "Akva Invest" Dooel Company from Skopje and submitted to the Caska municipality. The Decision for approval the EIA Report and mitigation measures proposed for the Project "Rehabilitation and extension of the water supply system in the village Izvor, Municipality of Caska" was issued on 15.02.2013, and for the project "Reconstruction of the local road section Golozinci – Melnica" the Decision was issued on 17.07.2013.

According the EIA Reports, the project activities will be limited on the project locations, the transportation vehicles will be temporary parked near the construction sites only several days and no oil will be changed on the site.

The location of the reservoir is municipal land, so the construction of the reservoir will not obstruct the agricultural activities.

The EIA Reports envisaged the construction and demolition wastes to be generated at the site that should be transported to the waste landfill in the vicinity of the village Rakovec, area of Glinishte.

According the Law on noise protection (Official Gazette No. 79/07, 124/10, 47/11) the locations for reconstruction belongs to rural area with third degree of noise protection and the maximum allowed noise level should be 55 dB for night and 60 dB for day and evening. The project activities are not envisaged during the evenings and nights.

The Monitoring Plan proposes tasks mainly dedicated to the supervisor and an environmental inspector who need to control the implementation of the mitigation measures by contractor.

ENVIRONMENTAL MITIGATION PLAN

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
Marking out the route for reconstruction of local road "*Golozinci – Melnica*" in Caska municipality	**Possible adverse social and health impacts to the community, drivers and workers due to:** - Lack of ensured safety measures at the start of reconstruction works - Injury passing near by the reconstruction sites - Not compliance with strict OH&S standards and work procedure - Inappropriate public access within the settlements	Local/within the street road "*Golozinci – Melnica*" in Caska municipality Short term during the reconstruction due to length (4,301 m) of the road	• Preparation of the Traffic Management Plan together with the municipal staff and Ministry of internal affairs • Setting the horizontal and vertical signalisation in front of the reconstruction site	• Contractor –Bidder • Supervisor • Municipality staff (Communal Inspector/Environmental Inspector/Traffic Engineer) • Ministry of internal affairs
			• Ensure the appropriate marking out the construction site • Marking out the construction material near the street • Warning tapes and signage need to be provided • Forbidden entrance of non-employed persons within the warning tapes • Community and worker's OH&S measures should be applied (first aid, protective clothes for the workers, appropriate machines and tools) • The street and surrounding area near the houses should be kept clean • Machines should be handled only by experienced and trained personnel, thus reducing the risk of accidents • Constant presence of fire fighting devices should be ensured in case of fire or other damage • Flammable liquids may be placed and kept exclusively in vessels constructed for that purpose • Larger quantities of flammable liquids should not be kept on the site along the construct street • All workers must be familiar with the fire hazards and fire protection measures and must be trained to handle fire	• Contractor –Bidder • Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
			extinguishers, hydrants and other devices used for extinguishing fires • Devices, equipment and fire extinguishers should be always functional, so in case of need they could be used rapidly and efficiently • The portable toilet should be placed on the construction site	
Marking out the location for water reservoir and construction site	Possible adverse social and health impacts to the citizens and traffic as well as for the workers due to: - Unsafely start of construction works - Injury passing near by the open trench and manholes - Not compliance with health and safety at work procedure - Inappropriate public access	**Local/within the village Izvor / short term/minor**	Application of good practice for marking out the construction site including: • Ensure the marking out the construction site • Forbidden entrance of non-employed persons within the fence • Adequate warning tapes and signage need to be provided • Health and Safety measures should be applied: a) Security measures like: perimeter fence, life jackets, use of proper protective clothing and equipment by employees, warning signs for the public around the construction site; b) maintain a good level of personal hygiene- have on site installations for washing, cleaning; c) health protection-fist aid kits and medical service on sites d) apply the emergency and normal first aid procedure for any injury if such occur through construction work • The roads should be kept clean	• Contractor –Bidder • Supervisor
Reconstruction of the road "*Golozinci – Melnica*" in Caska municipality and Rehabilitation and extension of the water supply system	**Possible impacts on landscape and visual aspects**	Local/within the road "*Golozinci – Melnica*" and village Izvor in Caska municipality short term /minor	• Minimization of the construction area as much as possible (carefully planning and design of the project activity according the Traffic Management Plan for a certain period of time) • Fully clean-up of the construction site immediately after accomplishment of reconstruction activities section by section • Collection of the generated waste on daily basis, selection of waste, transportation and final disposal on appropriate places (according the type of waste – more details under Waste management issue)	• Contractor –Bidder • Supervisor
	Possible emissions by transportation vehicles and impact on air quality due	Local/within the road "*Golozinci – Melnica*" and village Izvor in	• Reconstruction site, transportation routes and materials handling sites should be water-sprayed on dry and windy days • Construction materials should be stored in appropriate places	• Contractor –Bidder • Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
in the village Izvor include: - **cutting the asphalt of the road,** - **excavation of the soil,** - **asphalting the road,** - **constructio n of the reservoir,** - **to cover the pipelines with soil and sand,** - **install the manholes and** - **connection with the water supply system**	**to:** - gases emissions of dust-suspended particulates - emissions from the mobile sources (vehicles and construction machinery) of CO_2, NOx, PAH, SO_2	Caska municipality short term /minor	covered to minimize dust • Vehicles and construction machinery will be required to be properly maintained and to comply with relevant emission standards • Conduction of regular maintenance of the vehicles and construction machinery in order to reduce the leakages of motor oils, emissions and dispersion of pollution • Vehicle loads likely to emit dust need to be covered • Usage of protective masks for the workers if the dust seems to appear • Restriction of the vehicle speed within the construction location • Burning of debris from ground clearance not permitted	
	Possible noise disturbance as a result of outdoor equipment usage and transportation vehicles driving around the sites	Local/within the Caska municipality (villages *Golozinci, Melnica and Izvor*) short term /major	• As it is a rural area (outside of the residential area) the level of noise should not exceed more than 60 dB during the day and evening and below 55 dB during the night • The construction work should be not permitted during the nights, the operations on site shall be restricted to the hours 7.00 -19.00 • The workers should be provided with ear protective devices (ear muffs and/or ear plugs)	• Contractor –Bidder • Supervisor
	Possible adverse environmental impact and health effects could be occurred as a result of generation of the different waste streams The inappropriate waste management and not in time collection and transportation of waste	Local within the villages *Golozinci, Melnica* and Izvor short term/major	• Identification of the different waste types at the reconstruction site (soil, sand, asphalt, pieces of asphalt, road surfacing, bottles, food, parts of pipes, paper, broken concrete etc.) • Classification of waste according the national List of Waste (Official Gazette no.100/05) • The main waste would be classified under the Waste Chapter 17 "Construction and demolition wastes (including excavated soil)" with the waste code 17 01 – Waste from concrete, bricks, 17 05 04 – Excavated soil, 17 09 04 – Mixed waste from construction site, 17 03 - bituminous mixtures. • Small amount of solid municipal waste could be found (food, beverages), as well as packaging waste (paper, bottles, glass, etc.)	• Contractor –Bidder • Supervisor • CSE "Topolka" - Caska

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	streams		• Transportation and final disposal of the inert and communal waste by the CSE "Topolka" – Caska • The contract with the company for waste collection and transportation should be signed for collection and transport of waste to the landfill (in village Rakovec, area of Glinishte) • The construction waste should be promptly removed from the site, should be re-used if it is possible • The materials should be covered during the transportation to avoid waste dispersion • Burning of construction waste should be prohibited • Fulfilment of the Annual Report for non-hazardous waste management by the Mayor of Caska municipality and reporting to the Ministry of Environment and Physical Planning • Possible hazardous waste (motor oils, vehicle fuels) should be collected separately and authorized collector and transporter should be sub-contracted to transport and finally dispose the hazardous waste	• Municipality staff (Communal Inspector/ Environmental Inspector) • CSE "Topolka" – Caska
	Soil pollution The negligible impacts on soil arising from construction activities are expected. The compaction of soil can be expected due to vehicle movement, ground contamination from the spillage of materials such as vehicle fuel, motor oils, asphalt, inert waste, construction waste. Possible impact on soil and water and cause the erosion of the land as a result of loss	**Local/Villages Golozinci, Melnica and Izvor** **Short-term impact/** **Minor**	The possible mitigation measures for minimization of the soil pollution could be: • Transportation vehicles should be enclosed to avoid potential leakage • Promptly clean-up spills of transported material on public roads and construction sites • Proper positioning of the water drainage system on the construction site • All roads and asphalt surfaces should be maintained clean in order to prevent runoffs from them into the ground water and other water flows • Not to keep fuel, oil or lubricants along the alignment, especially not in the vicinity of draining structures	• Contractor –Bidder • Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	of upper soil layer due to erosion as a result of construction activities			
	Possible impact on water course – Melnicka river near the project site due to improper waste management	Local/ short term/minor	• Minimize storage or disposal of substances harmful to water – river Melnicka (e.g. fuels for construction machinery) on the construction site. Organize proper handling and storage. • The road should be kept clean and tidy to prevent the build-up of oil and dirt that may be washed into a watercourse or drain during heavy rainfall	• Contractor–Bidder • Supervisor
Operational phase	**In general no environmental risks are expected, but if any occurs several possible environmental impacts could appear**			
Repair the broken water pipeline	• **Water overflow** due to pipe breakage or blocked manholes			• Caska municipality • Contractor of authorized company for maintenance of water supply system • Environmental Inspector/Communal Inspector/ Traffic engineer
	• **Noise and vibration** created during the excavation of pipes for repair around the water reservoir			
	• **Traffic** due to vehicular movements of operational and maintenance staff			
	• **Solid waste** from the broken road surfacing and soil from pipeline repairs • **Water and soil pollution** as a result of possible oil leakages by the vehicles			

MONITORING PLAN

What Parameter is to be monitored?	**Where** Is the parameter to be monitored?	**How** Is the parameter to be monitored?	**When** Is the parameter to be monitored (frequency of measurement)?	**Why** Is the parameter to be monitored?	**Cost**		**Responsibility**	
					Constr.	Oper.	Reconstruction of the local road "*Golozinci – Melnica*" and construction of reservoir	Operations of the street
Project stage: Start-up of the Reconstruction of the local road "Golozinci – Melnica" and rehabilitation of the water supply system in the village Izvor in Caska municipality (marking out the reconstruction sites)								
Traffic Management Plan prepared	On the reconstruction site	Visual check and reporting to the Municipality staff	At the beginning of the project activities (before the works start)	To ensure safety and easy re-route of the traffic across around roads/access streets			Contractor - Bidder /Supervisor Communal inspector at the Caska municipality/ Traffic Engineer	
Information prepared and announced about the traffic redirection	At the municipality public relation office	Information/ Press release prepared and announced	At the beginning of the project activities (before the works start)	To inform the citizens of villages Golozinci, Melnica and Izvor about planned reconstruction works and re-routes			Municipality staff/ Communal inspector at the Caska municipality/Traffic Engineer	
Safety traffic flow within the local road "*Golozinci – Melnica*" and access road in village Izvor in	At the spot	Visual monitoring	During the project implementation	To ensure the coordinated traffic flow within villages Golozinci, Melnica and Izvor			Municipality staff/ Communal inspector at the Caska municipality/Traffic Engineer	

What Parameter is to be monitored?	**Where** Is the parameter to be monitored?	**How** Is the parameter to be monitored?	**When** Is the parameter to be monitored (frequency of measurement)?	**Why** Is the parameter to be monitored?	**Cost**		**Responsibility**	
					Constr.	Oper.	Reconstruction of the local road "*Golozinci – Melnica*" and construction of reservoir	Operations of the street
Caska municipality								
The safety protection measures applied for the residents of the villages Golozinci, Melnica and Izvor	On the reconstruction sites	Visual checks	At the beginning of the reconstruction work (first day) Every working day during the project activities	To prevent community health and safety risks – mechanical injuries			Contractor - Bidder /Supervisor Communal inspector at the Municipality of Caska/Environmental Inspector	
The occupational health and safety measures applied for the workers	On the reconstruction site	Visual check	Before start of the project activities and each of working day	To avoid occupational and safety risks (injuries)			Contractor - Bidder /Supervisor Communal /Environmental Inspector at the Municipality of Caska	
Project stage: Reconstruction of the local road section "Golozinci – Melnica" and Rehabilitation of the water supply system in the village Izvor in Caska municipality								
Separated hazardous and non-hazardous waste	On the construction site	Visual monitoring and reporting	During the project activities	To avoid disposal of hazardous waste on municipal landfill in village Rakovec, area of Glinishte (around 5 km from the			Contractor - Bidder /Supervisor Municipal staff (Communal inspector and Environmental	

What Parameter is to be monitored?	**Where** Is the parameter to be monitored?	**How** Is the parameter to be monitored?	**When** Is the parameter to be monitored (frequency of measurement)?	**Why** Is the parameter to be monitored?	**Cost**		**Responsibility**	
					Constr.	Oper.	Reconstruction of the local road "*Golozinci – Melnica*" and construction of reservoir	Operations of the street
				project location)			Inspector)	
Fulfilled Annual Report for transportation and disposal of waste	Local self-government administration	Review of documentation – Identification waste List	After the accomplishment the task of collection, transportation of waste on daily/monthly basis	To improve the waste management on local and national level To be in compliance with national legal requirements			Mayor /Director of Public Utility Enterprise "Topolka" – Caska	
Noise level	On the sites	Monitoring of the noise levels dB (A) with appropriate monitoring devices	On regularly basis during the work, through site visits, in accordance with the national legislation	To monitor if the noise level is above/or below the acceptance noise level for that type of area - III exposure area for noise protection as residential district (60 dB (A) during the day and evening time and 55 dB (A) during the night).			Contractor – Bidder Company authorized to performed noise levels measurements sub-contracted by the Contractor – Bidder	
Drinking water quality	Before the distribution through the pipelines	Laboratory equipment for physical-chemical and	Continuously according the Plan for drinking water quality analysis (short-	To ensure the distribution of high quality drinking water to the population minimizing the health risks			Mayor /Director of CSE "Topolka" – Caska	

What Parameter is to be monitored?	**Where** Is the parameter to be monitored?	**How** Is the parameter to be monitored?	**When** Is the parameter to be monitored (frequency of measurement)?	**Why** Is the parameter to be monitored?	**Cost**		**Responsibility**	
					Constr.	Oper.	Reconstruction of the local road "*Golozinci – Melnica*" and construction of reservoir	Operations of the street
	network The water sample should be analysed by the Authorized laboratory	microbiological water quality analysis	medium and long water quality analysis) especially the surplus of the residual chlorine	of waterborne diseases				

LOCAL ENVIRONMENTAL ACTION PLAN

The Local Environmental Action Plan (LEAP 2009 - 2015) for Caska municipality was prepared in 2009 in according the environmental legislation. The mayor of Caska municipality provided the initiative for the process of development of LEAP and it was adopted by the municipal council.

The development of the infrastructure in term of construction/ reconstruction of water supply systems and provision of good quality water to citizens was pointed out as a high priority beside other needs (waste management improvement, construction of waste water sewage systems throughout the municipal territory, etc.).

The implementation of the Project is in line with the LEAP and thus, it will contribute towards achieving the municipal goal for improving the infrastructure.

The LEAP is in line with the all strategic documents adopted on local, regional and national level.