Environmental Management Plan and Safety specifications for
Revitalization and amelioration of efficiency of Cas
Draining/pumping Station

Prepared by Center for Environmental Impact Assessment

Tirana, December 2011
Introduction
The Summarized Environmental Management Plan and safety specification is based on the technical reports and specifications as well as based on several field surveys done by the consultant in order to identify environmental characteristics, issues and impacts, and to propose guidelines on environmental management during construction and operation phase and safety procedures during rehabilitation and improvement works.

1.0 General description of Environment

The Cas draining/pumping station is situated in the hilly area, to the West of Shkodra city some 25 km away from the city itself, close to Velipoja Center (6 km) at its North-East, accessed by the road Velipoja-Shkoder. The draining/pumping station has a very important role in the control of flooding caused by excessive atmospheric precipitation. Emergency measures are planned to be taken to avoid or reduce effects of flooding in the flat areas. The Cas draining/pumping station helps in draining water from the Shkodra low land in the event of floods. The draining channel is rich with waters throughout all seasons, and farmers use this water for irrigation in the dry summer period. According to the farmers and draining station workers’ testimonies, in the period of floods, big fish (carp) are seen in the waters of the draining channel. The site is situated between agricultural lands, which are currently not being used by the farmers and are close to natural conditions. Surrounding hills have a natural green cover mostly composed of Mediterranean shrubs. In the lowlands in continuity of ex outlet channel are observed little heron (*Egretta Garzetta*), goldfinch (*Carduelis carduelis*) etc that have specific status “Threatened” in Albania. The channel is situated close to the Cas village and 50 m far from a house built in the hilly slope, at its West.

1.1 Cas Draining Station
The Cas draining station is about 50m far from the nearest house, which is located in the opposite direction from the village. The capacity of the built draining station was 15m³/s, but present efficiency is not more than 10m³/s. The intervention is focused on restoration of the draining station to the original capacity of 15 m³/s.

The village buildings, situated in the hilly top and slopes, are more than 200m far from the draining/pumping station. By opinions of the technicians of the draining/pumping station, the depth of the incoming channels was reduced from 3meters to 2meters within the past 5 years. In the summer of 2011 the inlet channel is dredged and cleaned to the shape as it was in original designs. The outlet channel, 50m far from the pumping station is blocked by canebrakes. As such the discharged waters in the atmospheric events are distributed in the lowlands down from the village. The pumping station is missing drinking and hygienic water supply, while water used in the toilet facilities on site is brought in canisters from the channel. There are bathing and washing facilities in this pumping station, but there are not working because missing of appropriate water quality. There is no data available on the physical-chemical and bacteriological status of the water in the Cas channel but, as far as this channel runs for miles between agricultural lands collecting surface waters, its quality doesn’t seems to have appropriate quality for bathing.
In the very small garden of the station, the staff has planted decorative species and maintains the naturally growing grass. In the entrance of the station, outside the enclosure, there is evidence of clandestine dumping of wastes by the pumping station staff.

An electric station is located at the draining station and is planned to furnish with energy, Viluni and Cas draining stations, but for years now it has been used for the supply of energy to households and other objects from Cas to Velipoja beach.

**Solid Waste**
The station is not equipped with the solid waste bins (solid waste containers). The main sort of solid wastes generated in draining station are those domestic origin, ex. papers, cans, glass and plastic bottles etc. generated by operational staff. Once a waste bin is placed in the premises of the pumping station it would be emptied and easily managed by the local waste collection utility in Velipoja Center. There are no activities that allow for separation and separate collection of recyclables in the area. There is a noted presence of local scavengers that collect glass, plastics and cans from the waste bins or from the disposal sites and sell them to small enterprises that reuse or recycle these. Outside the enclosure there are some small but appropriate places for car parking. During construction works this location and the garden can temporarily be used for storage of building materials or for demolition waste before it is collected and appropriately managed. The draining station has a toilet but not a bathroom. The station is not accessed with drinking water supply net of the Cas village.

**Waste waters**
There is a tank (not septic) supposed to be used for sewage generated by the draining station staff but usually the sewage is discharged directly into the channel. The draining station employs 9 permanent people/staff, as well as one staff member that works full time but alternates monthly between Viluni and Cas stations. There is no evidence of any other kind of solid wastes generated by the draining station staff, except those coming from dredged and channel cleaning activities during the years. It can be assumed that some quantities of oily wastes, included oiled metal spare parts can arise as waste during the regular maintenance activities of the station. The distance of draining station from the village and its importance for agricultural lands, favors a good climate of interaction of working staff and Cas population.

**2.0 Accessibility, infrastructure and economy**
The area is very close to the Cas village, and mostly a paved road is linking the bridge and draining/pumping station with the Cas centre. The Road from Cas to the Velipoja Center is also paved. By this road the draining/pumping station has a good accessibility with Shkodra City and Velipoja Beach (tourism area). The Cas village has a *Latitude*. 41.9238889° and *Longitude*. 19.4033333°. The village is about 3 km far from Buna river. The population of Cas is generally poor. The main income come from husbandry (poultry, sheep, cows etc), breeding and selling their products is a tradition for the area. Not more than two per cent of population is working in public services including workers
in draining station, electricians and post office etc. The trade is another supporting economical activity in Velipoja and Shkodra. Poverty is reflected in the lack of transport facilities, and use of transport animals like horses and donkeys. The surrounding wetland areas are used in dry period for animal grazing.

The embankment of Cas covered totally by waters in atmospheric events was not sufficient to control the flood effects in the villages of Cas, Luarze, Baks i Ri and Pentar. The main activity of the inhabitants of these areas is agriculture and farming. Animal husbandry remains the bases of economical and traditional activity of this area. During period of floods, the inhabitants of the area have problems to supply farm animals with food. During the last flood event in 2010 the Torovica (in the south of the area) embankment was under risk of collapsing and therefore threatened also the inhabitants of this area. In 2011 this embankment was reinforced.

3.0 Specific environments and biodiversity
This chapter describes the protected areas in vicinity of draining station, draining system that dries the lowlands in flood period and Velipoja Commune, part of it being the Cas village.

Protected Areas in vicinity of draining station
The Cas draining station is situated in the buffer zone of Shkodra Lake, Buna River, Velipoja Forest and Domi wetland Protected Area. Each of those area has the IV (fourth) IUCN category, Nature Managed Reserve, but the area in total, including also other surrounding territories has a V IUCN category, Protected Landscape. The construction works for draining pumping station rehabilitation and its operation/maintenance doesn’t impact any of specific sites described below.

3.1 Buna river is one of the most important rivers of the northern Albania. It flows from Drini River and Shkodra Lake to the Adriatic Sea (6km far from the draining station). On the southern outskirts of the city, the river receives its most important tributary, the Great Drin, the greater part of which became its tributary after changing course during a flood in 1858 and now brings ten times more water than the Buna itself (320 m³/s). After flowing around the Peak of Tarabosh, it passes through the villages of Zues, Bërdicë, Tarragiat, Oblika, Obot, Shirq, Dajc and Gorica.

3.1.1 River Buna and its watershed
The River Buna runs in the last south-west segment of the Albanian – Montenegrin border. The site is declared Protected Area together with Shkodra Lake, Velipoja Forest, Viluni lagoon and Domi wetland. This river springs from Lake of Skadar, quite close to the city of Shkoder, between the hill of “Rozafà” Castle and Taraboshi Mountain. Buna is the only emissary of the Skadar Lake. First, Buna runs to the south, alongside Taraboshi, further it snakes toward west and then it takes again the south direction, up to its mouth in Adriatic Sea. The Albanian – Montenegrin border traverses the River Buna from village
Samrish in Albania and Gorica in Montenegro, continuing up to the river mouth. The fields of Bregu i Bunës have a field Mediterranean climate, of 1600 – 1800 mm rainfall per year and an average temperature of the air of 16 – 18 °C, with the minimal absolute extreme of 0 °C up to – 4 °C. Buna is the only river with a real natural delta in Albania. In its delta is created Ada The water of River Buna in its beginning comes from the Skadar Lake, whose water is mostly provided from Moraça River, running from Montenegro, but with a branch called Cemi River, in Albania. In a distance of 1.3 km from its spring in Skadar Lake, Buna joins the River Drin, which has a length of 285 km. The main branches of Drin are Shala River in Albanian Alps, Valbona River in north-east of Albania, White Drin in Kosovo and Black Drin in Macedonia. The last one springs from Ohrid Lake, which provides its water from Prespa Lake. In the last part of Drin is jointed the River Kir which flows from Dukagjini highland. Obviously, the River Buna takes water from a hydrographic net very complex, which lies almost in the 1/5 of Balkan Peninsula, in Albania, Montenegro, Kosovo, Macedonia and Greece. Although Buna is a typical field river, known as a partially navigable river, it gathers waters from a very mountainous territory. The average altitude of this area is 909 m above see level. A high number of streams runs from Anamali side to Buna, whose the longest is the Stream of Milla, at a length of 25 km, and the second is the Stream of Megjureç at a length of 21.6 km. In Buna flows also the water from Lake of Shas in Montenegro, through Vija e Shëngjergjit. Along Buna sides there are 20 villages with a total population of 15.000 inhabitants. This area was populated mostly after the XV century and especially after the XVII century. But most intensively it was populated during the last five decades. These areas own irreplaceable natural values, which are an important factor for a sustainable development. Nowadays the economy is still based on agricultural and animal breeding products, whose main products are cereals, potatoes, bean, different vegetables, fruits, milk, eggs, for its own necessities of the population, but also for trade within the country. Fishing is not much developed. Tourism is in its first steps, because of the lack of tradition and infrastructure. In the recent years, there has been a substantial interest in using the river and its sides for tourism, increasing the agricultural and animal breeding products, transport and communication between populations in two sides of Buna, belonging to two countries.

3.1.2 Buna River biodiversity

The Buna river is rich in phytoplankton, micro-fauna, zoobenthos, and macrophyte vegetation. Its ichthiofauna is predominated by the Cyprinidae family. The abundance of phyto and zooplankton, fish and crabs, in the brackish water of the river mouth is considered an important factor that the area is under protection. Macrophyte vegetation of Buna is concentrated mostly in the river sides before joining Drin, in some water loops with relatively quiet water and also in the marshes near the delta. This kind of vegetation includes three group-associations of plants: submerged, floating and emergent. Especially spread is the reed Phragmites australis. The most interesting areas of forest vegetation can be found in Reserve of Velipoja and islands of Ada and Franz Joseph. These represent the remained areas of mixed and spontaneous forests which have covered all the area in the past. The predominated species belong to the genus Fraxinus, Quercus,
Alongside the river there are no important springs or underground water. Because of these conditions, there are not many ecological niches in Buna and it is not characterized as a river with a high diversity of invertebrates, as we can assume, for example, for Skadar Lake. 13 different species and subspecies of migratory fish pass through Buna river on towards the sea. In addition a part of fresh water fish which reproduce in Drin and its springs pass through Buna river. Buna enables the communication of Skadar Lake with the rest of the water bodies, including the other lakes mentioned above. This communication explains the presence of elements of Ohrid and Prespa in Buna and Skadar Lake, as well as the entry of new fish species from the north or east into this composition of water bodies. The sides of the river areas are very rich in wintering, nesting and migratory waterfowls. The total number of individual birds counted in Buna is about 8.000. The avifauna of this complex communicates closely with that of coastal lagoons of Vilun, Kune, Vain and further. All this area, albeit not large, has a bird capacity that can be considered as a record in European scale, surpassing the Danube delta and qualifying among the richest areas in Southern and Eastern Europe. These waters are also an important station in one of the migratory paths for the birds of Europe, the path which passes over Balkan. Buna, despite the lack of its own endemism, is a reserve for other endemic species and subspecies of larger areals. Among them are mentioned the endemic plants like *Quercus robur scutariensis* and *Trapa longicarpa scutariense* (= *Trapa natans*), the fish *Pachychilon pictum* and several others coming from Ohrid and Prespa lakes, as well as three endemic frogs of Balkan and several terrestrial reptiles.

### 3.2 The Shkodra Lake
(25 km far from Draining station), is declared as Natural Managed Reserve in 2007. This is a transboundary Protected Area shared by Albanian and Montenegro Countries. The Montenegro Part of the lake is designated as a RAMSAR site. The Shkodra Lake is the largest lake of Balkans with important specifics. It is an IBA (Important Bird Area) in Europe with about 40 waterfowls and other bird species. In the lake waters (also in Buna River from which Shkodra lakes discharges in the Adriatic Sea) are counted 45 fish species, among which the highly threatened specie of “*Acipenser sturio*”. The site has very characteristic vegetation, where threatened plant species occur, such as “*Nymphaea alba*”, “*Nyphar luteum*”, “*Nymphoides peltata*”, “*Trapa natans*” and others.

### 3.3 Velipoja Forest
The Velipoja forest, about 8km far from the draining station, is classified as Protected Landscape and also an IBA for Albania. The site is characterized by typical Mediterranean vegetation and an area of the nearly extinct species of oak (*Querqus robur*). In this areas can be found species of international importance like pigmy cormorant (*Phalacrocoras pygmeus*), Otter (*Lutra lutra*) and jackal (*Canis aureus*). Velipoja Forest, Velipoja Beach and Viluni lagoon are considered by planners and decision makers as a great opportunity for economical development in the local and national levels. Velipoja forest has a surface of 694 ha.
3.4 Velipoja/Pulaj Beach
This beach (10 km far from draining station) is considered the most important tourism site for North Albania, as thousands of visitors come to this site during the summer holidays. The beach, 370 ml long, is situated between Velipoja forest and Viluni Lagoon. For more details please refer to the map 2 of attachment 1. Currently, the beach of Velipoja (the official name of the village of Pulaj Bregdet) has a population of 1082 inhabitants, of which 50 per cent have arrived in the last 10 years. During the four months of the summer season the beach is visited by 10 thousand visitors who are alternated for periods of 14 days on the beach. An additional number of 15-20 thousand visitors commute to the beach daily. On Saturdays and Sundays the number of visitors exceeds 40,000 people. Given the fact that tourism is a growing business, a number of 100 hotels have been built with rooms ranging from 6-30 complete with other service facilities. In addition there are about 80 bars and restaurants all new constructions made on the preference and personal plans for growth with no coordination at all and without any development perspective for making Velipoja an area of quality tourism.

3.5 Viluni Lagoon
Viluni lagoon (12 km far from draining station) is a lagoon lying in the Adriatic belt, an Important Bird Area (IBA) in particular for wintering waterfowls and water birds, protected by the Bon Convention. As it is mentioned above this lagoon is about 400m far from the draining station. The littoral that separates the lagoon from the sea is already destroyed last year by sea wave activity. The Viluni lagoon has a surface of 390 ha.

Even though the surrounding areas are very sensitive, the type of intervention by the project doesn’t seem to have any important impact on any or each of such of the above listed specific areas. In addition, the rehabilitation activities to be conducted shall be conducted in line with adequate mitigation measures which shall not only render a minimal environmental disruption but shall also help improve the environmental management of the pumping station itself. As described further in text below, all activities are done in line with the Albanian legislation and provisions therein of what can be undertaken in the different levels of protected areas.

3.6 Drainage system
Drainage systems represents a necessity for ample harvesting in agriculture. Given the specificity of the conditions of the area of Velipoje drainage is not effective, nor is it expected to be, given that the lands are sandy, torphic and hilly. Regarding the amount of surplus flooding water locked in the land, the area of Velipoja has undergone drainage of water in the previous system. In the recent years, all that has been done is the cleaning of collectors and second tier canals; whereas the third tier canals have not been maintained at all. These canals have been blocked and not been cleaned for many years. The main draining canals are two: One covers the zone No. 1 and has a length of 4.1 km up to the Draining station of of Ças and canal 2 (collector 2) cover the zone No. 2 and has a length of 12, 7 km and connects to the Draining station of Vilun. Both canals together cover an area of 4.000 ha including agricultural and nonagricultural lands. There are 9 second tier canals (in a length of 14, 2 km) and 103 third tier canals (in a length of 7 km). These have been totally neglected for the last 20 years and the situation is critical as regards the
drainage of the land affected by this. The situation is such that it necessitates the carrying out of a new study since a part of the land is torphic (in the zone of Cas) and the last 10-15 years have seen a fall the quality of the land. The commune of Velipoje is located only slightly above the sea level and is surrounded by dams of about 20, 89 km length as follows:

- Dam of Vilun 6.9 km
- Dam of Pentar and Luarzi 6.8 km
- Dam of Reç-Pulaj 7 km
- Dam of Ças 1 km

3.7 Important inhabited sites

General Data On Velipoja Commune

The Cas village is part of commune of Velipoje which is part of the Shkodra Region and is located southwest of Shkodra city some 24 km. The town borders on the northwest with Montenegro along the Buna River, on the East with the Region of Lezha, on the North with the Commune of Dajc and on the South with the Adriatic Sea. The total surface of the commune is 72.4 km². The whole zone is a vast field surrounded by the hills of Baks, Ças, Shtiqen and Maja e Zezë. The commune has a vast spread along the Adriatic and a beach which dates back to about 300 years. The actual number of population in the entire commune of Velipoje is 8270 inhabitants. The tendency is for the population to grow at fast rate due to various factors such as internal migration, the desire to invest in tourism, etc. The commune is made up of 10 villages which are: Vulpine, Reç-Pulaj, Luarz, Gomsiqe e Re, Baks-Rrjoll, Pulaj-Plazh, Reç i Ri, Baks i Ri, Ças, Mali Kolaj. Velipoja is characterized by Mediterranean climate, with hot and dry summers, wet and mild winters. The wind of murrjan, which is very characteristic of the area, makes the winters harsh; whereas in the summer the wind of Shiroku brings humidity. The greatest part of the population is employed in the private sector as in agriculture, retail shops, construction sector, etc. However, very few apply to the employment offices for jobs and therefore the information is not available through the official channels.

A number of 247 households (12% of the population) receive economic aid of which 172 are eligible for disability benefits and 75 for unemployment benefits. of people increases substantially the consumption rate and therefore the amount of urban waste also increases far beyond the normal. If urban waste is estimated according to the average of daily visitors on the beach of Velipoja, 25,000 people are supposed to produce 25 ton of waste at an average rate of 1 kg of waste per person. For the entire duration of the season counting averagely 90 days, the amount of litter is 2250 ton without counting the waste from the restaurants, cafés and the inhabitants of the zone. Urban waste produced by the regular inhabitants is calculated at an average of 0.7kg/days X 8300 inhabitants = 5, 81 ton/days x 365 days = 2120, 65 ton/year. Therefore, it can be stated that the commune collects and transports an estimated 4370 tons of waste annually.

4.0 Local permit requirements

In the Law No 8756, dated on 26.03.2001, “On Civil emergencies”, in Article 4, “Types of Structures” is expressed that for planning and management of civil emergencies shall
be established temporary and permanent structures at the central and local level. In this law there is no mention of the need for an environmental permit. Nevertheless the WB policies and their framework respecting environmentally sound developments is conditioning preparation of a Summarized Environmental Management Plan as a key instrument for implementation of Environmental Friendly actions. So this study is also related to the basic environmental legal framework regarding permitting requirements in developments in the area is the Law “For Protected Area” no. 8906, dated on 06.06.2002, and the law “On Protected Areas”, No 9868, dated on 04.02.2008, for some additions and changes in the Law No 8906, dated on 06.06.2002, “For Protected Areas” and the law Nr. 10 440, dated 7.7. 2011 on “Environmental Impact Assessment”.

Following analyses were done to justify that this study is developed in respect of Albanian legislation related to Protected Area, environmental permits etc.

1. The revitalization of Cas Draining Station is defined only in works focused on rehabilitation, without changing the shape of existing station, damaging of any close by environments or territories etc.
2. This action tries to control negative effects of overflows in the area, reducing the environmental and health risks, specific site pollution etc.
3. To the other side the Cas Draining Station is situated in the buffer zone of the Protected Area Mentioned before (outside Core area). Please refer to the Maps of Attachment 1.
4. The rehabilitation works will also include mitigation measures for operation of the drainage station, which will in turn improve the environmental performance of the station.

In the chapter of “Environmental Impact Assessment Law”, at Article 8 and 9, is the projects that undergoes to the pre-assessment and profound EIA, respectively in point b and a is mentioned that Projects that undergo Impact Assessment on Environment are given at annexes 1 and 2 of this law. Referring to such annexes, it can be clearly concluded that the project in term doesn’t require profound or summarized EIA. In the Law No 8906, 06.06.2002, at article 10, Protected Landscapes, at the point 2, “Within a Protected Landscape is applied the fourth level of protection” are giving the prohibited activities when actions like rehabilitation of existing draining stations are not prohibited. In this paragraph, point 3 is referred that “Activities that changes the utilization of territory, constructions, use of chemicals and pesticides, treatment of sewage waters in farms, for areas larger than 2 ha, and any other activity which is not explicitly prohibited by the paragraph 2 of this article shall be performed only upon receipt an Environmental Permit and been approved by the Territory Adjustment Council of the Republic of Albania”. This point that looks clearly that doesn’t refer to the reconstruction or revitalization activities, the requirement for environmental permit is unclear. Considering that the Cas Draining Station is located between transition and buffer zones, outside the core area, we refer to the:

- Law “On Protected Areas”, No 9868, dated on 04.02.2008, for some additions and changes in the Law No 8906, dated on 06.06.2002, “For Protected Areas”, Act 4, point 2the category of Protected Areas, is expressed that “in surroundings of one Protected Area, can be declaimed the buffer zone. Nevertheless, we can understand that buffer zone, as in other international examples, is not considered a part of Core Protected area.
It should be underlined that all interventions has an indoor nature and doesn’t changes the forms and shapes of existing draining station, except the rehabilitation of the channels, the refers to restore the channel size at the same size when the channels was built.

Referring international framework and respecting Wetland Management Planning (WWF, Wetlands International, IUCN, RAMSAR), as well as at Protected Area management plans in Albania (Kune Vain case) we can add that activities prohibited in buffer zones can be considered following:

- Dredging and taking the sand in coastal bottom.
- Building solid breakwaters or any kind of solid structure without the approval of EIA.
- Taking of the biological and archeological/historical values found in the sea bottom, without the approval of environmental authorities.
- Researches and exploitation for oil resources or other ground natural resources.
- Illegal fishing (poisoning, explosive, electricity, wrong net and other illegal forms prohibited by law) and out of the fishing season.
- Discharges in sea water of any kind of chemical, industrial remains, solid wastes and remains and others mentioned in the Environmental Legislation.
- Using of the sea-motors in the mentioned belt, except those of fishery boats or emergency (safety) motorboats.
- Removing or changing of the position of the air-powered balls (border signs).
- Building or passing in the site bottom of any kind of lines (high tension lines, pipelines, etc)
- Building of any kind of solid structures.

By this analyze and referring Albanian legal framework it can be concluded that the intervention for revitalization of Cas draining station, upon national framework and international guides doesn’t requires environmental permit. This conclusion is supported also by the opinion of Regional Environmental Agency (REA) Shkodra in respect of other LAMP projects with similar characteristics (ref. to Storm waters, Dobrac and Bahcallek SEMPs)

5.0 GENERAL DESCRIPTION OF WORKS IN CAS DRAINING/PUMPING STATION

The works to be done in the Viluni draining station include a series of civil works and actual replacement of existing pumps with new ones. Most works are meant to improve the efficiency of the pumping station, including replacement of key equipment and reconstruction of the supporting infrastructure but without alterations to the original design capacity of the pumping station. The damages to infrastructure within the pumping station are caused by the age of the station, and by the recent flooding. The works will include replacement of equipment, demolition and small-scale construction works, replacement of doors, ladders or windows and occasional painting of metal components. For more details on the works please see Annex 4.
6.0 Positive impacts anticipated to be caused by project development

The investment shall tend to reduce and mitigate as much as possible the negative effects of floods, as well as control floods in the low-lying areas of Shkodra. The positive impacts of the Cas Draining-Pumping Station, and are listed and classified below in the following table:

<table>
<thead>
<tr>
<th>Types of Positive impacts</th>
<th>Construction phase</th>
<th>Operation phase</th>
<th>Spatial efficiency</th>
<th>Impact duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impacts to human safety and economy</td>
<td>Access with drinking water and sewage control</td>
<td>Controlling as much as possible negative effects of floods in surrounding areas</td>
<td>Control flood effects in Cas, Luarze, Baks i Ri and Pentar villages</td>
<td>Long term</td>
</tr>
<tr>
<td>Impacts to human health</td>
<td>Access with drinking water</td>
<td>Reducing of health risk by possible contamination that can be generated by using water channel for hygienic purposes. Provide the Draining station staff with drinking water supply</td>
<td>Positive effects to all lowland drained by Cas pumping station Increase safety efficiency by ensuring sanitary water</td>
<td>Long term</td>
</tr>
<tr>
<td>Impacts to local and national economy</td>
<td>Employments at local level – security of houses and business premises</td>
<td>Reducing expenditures for emergency measures like relocations, furniture with foods and other goods, cleaning actions etc in different sites flooded before Saving of farms, products, houses etc.</td>
<td>Positive effects to a good part of lowland drained by Cas pumping station</td>
<td>Long term in operation phase Short term in construction phase</td>
</tr>
<tr>
<td>Social/cultural impacts</td>
<td>Decreasing unemployment</td>
<td>Improve quality of life Reduce risks to homes and businesses from flooding Saving tradition and heritage on professions, plantations and breeding, cocking etc.</td>
<td>Saving important sites to be used for relocation Reducing risk for social complain</td>
<td>Long term in operation phase Short term in construction phase</td>
</tr>
<tr>
<td>Impacts on specific sites and impacts</td>
<td>No positive impacts</td>
<td>Safety of specific flora and fauna</td>
<td>Specific lowlands to be saved by</td>
<td>Long term</td>
</tr>
</tbody>
</table>
Table 1. Generalized positive impacts expected to be generated in construction and operation phase.

### 7.0 Possible Negative Environmental and Social Impact of Proposed Activities to be mitigated

Negative impacts are identified and classified in order to help develop the environmental management plan (mitigation measures and monitoring program). The interventions will be in an area that is related (discharges) to Viluni Lagoon. Also effects in its immediate surroundings are important. Nevertheless, the negative impacts and their effects can be generated mostly in the construction phase and in rare cases in operational phase. Furthermore, the project does not require additional land acquisition, does not go beyond the existing footprint of the pumping station and does not increase the project/design capacity of the pumping station, which therefore will not alter the existing water balances in the area. Following is the table of impact screening.

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<table>
<thead>
<tr>
<th>Impact sources</th>
<th>Type of possible impact</th>
<th>Project phase</th>
<th>Impact weight</th>
<th>Negative impact effects on the environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disposal, treatment of working materials and pavement in the interiors</td>
<td>Generation of dusts and noise in interior 'Noises and air pollution (p.m.(^{16})'</td>
<td>Construction phase</td>
<td>High</td>
<td>Health problem in workers, nuisance to neighboring buildings</td>
</tr>
<tr>
<td>Disposal of the construction materials</td>
<td>Pollution of soil, groundwater and surface water</td>
<td>Construction phase</td>
<td>Moderate</td>
<td>Damage of the green areas in surroundings. Damage of garden of draining station Increase sedimentation in the outlet channel</td>
</tr>
<tr>
<td>Works for accessing of drinking water supply pipeline with Draining pumping station</td>
<td>Temporary limitation of accessibility during elongation of drinking water pipeline from Cas village to Draining pumping station</td>
<td>Before/construction phase</td>
<td>Moderate</td>
<td>Temporary reducing of inhabitant access with draining pumping station and areas in its North.</td>
</tr>
<tr>
<td>Disposal of oily wastes and other hazardous materials</td>
<td>Pollution of soil, groundwater and surface water</td>
<td>Construction phase</td>
<td>High</td>
<td>Pollution of surface and ground water, pollution of soil</td>
</tr>
<tr>
<td>Treatment works of raw materials</td>
<td>Risk of contamination of</td>
<td>Construction phase</td>
<td>High</td>
<td>Disturbance and health problems to</td>
</tr>
<tr>
<td>Activity</td>
<td>Impact</td>
<td>Phase</td>
<td>Impact Analysis</td>
<td></td>
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<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Workers by polluted water of channel. Noise, vibration by compacting</td>
<td>Construction phase</td>
<td>High</td>
<td>1. Temporary negative impact. 2. Temporary decrease of transport way efficiency (not cumulative)</td>
<td></td>
</tr>
<tr>
<td>activities etc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport and supply of materials from the source area to the working</td>
<td>Air pollution, noise and particle matters, vibration by huge transport</td>
<td>Construction phase</td>
<td>Destruction of river bodies and specific habitats, inciting of erosion, artificial/man made erosion in coastal areas (cumulative impact)</td>
<td></td>
</tr>
<tr>
<td>place</td>
<td>vehicles. Increase of intensity of transport (risk of accidents)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road damage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploitation of raw material (gravel and sand) in source places</td>
<td>Overexploitation of river bottom or coastal areas</td>
<td>Construction phase</td>
<td>Accidental failure, crush by car movements or mismanage of equipments Accidents, loosing life or hurt by energy power</td>
<td></td>
</tr>
<tr>
<td>Accidents of workers during the works and in operation phase (accidents</td>
<td>Risk to life</td>
<td>Construction phase (construction activities) Operational phase</td>
<td></td>
<td></td>
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<tr>
<td>with electricity)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Un-controlled generation of solid wastes, un cleaned toilet, missing of</td>
<td>Risk of contamination and visual disturbance by remaining of work</td>
<td>Construction and</td>
<td>Visual disturbance, dispersion of contamination/ health risk</td>
<td></td>
</tr>
<tr>
<td>bath possibilities etc.</td>
<td>materials, used water dispersion, solid wastes generated by workers etc.</td>
<td>operation phases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accidental damage of infrastructure</td>
<td>Possible damaging of electric net in the village during the transport</td>
<td>Construction phase</td>
<td>Risk to life, interruption of energy at the village</td>
<td></td>
</tr>
<tr>
<td>Destruction of vegetation on site by disposing and in the outlet</td>
<td>Damaging or destruction of decorative trees and other decorative</td>
<td>Construction phase</td>
<td>Decreasing of visual elements. Reducing of water natural vegetation</td>
<td></td>
</tr>
<tr>
<td>channel by dredging</td>
<td>plants in the garden. Damage water vegetation by dredging the channels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contamination by paint and other</td>
<td>Risk of contamination by</td>
<td>Construction phase</td>
<td>Not contamination after painting</td>
<td></td>
</tr>
</tbody>
</table>
hazardous materials during improper use or storage

| Decrease the water channels depth by sediments or other solids generated during works | Low efficiency of investment and create artificial ponds in surroundings because of the blocking of channels | Operation phase | High | Reduce efficiency of investment
Create artificial habitats and risk for floods |

Table 2. Overall screening and categorization of negative impacts

1. In any case, if the community life and/or activity will be negatively affected by cleaning or draining of outlet channel the action will continue only after agreement with affected subjects, respecting compensation laws of Albanian Republic and WB guidelines on mitigation of Social impacts
2. In any case, for any reason, changes (also temporary) of channel direction or any other action that will change or impact the morphology of the sites out of the draining station territory firstly should be approved by the regional environmental authorities.

8.0 Environmental Mitigation Specifications – Environmental Evaluation

The Environmental Mitigation Plan of Cas draining station is an integral part of the project implementation and design documents. The EMP will be a part of the bidding and contractual documents for which the contractor hired will be responsible to implement and to ensure that all works are completely conducted in a manner which will not generate negative impacts to the environment. The works Supervisor will ensure compliance with the EMP listed measures and provide reports on compliance. The EMP is separated into two segments – one for the management plan for construction phase and the second for the impacts that orientation on management in operation phase.

Notification, Worker and Citizens Safety, are considered as very important issues to be considered to realize the public awareness, community support and traffic facilitation. General mitigation measures for construction and rehabilitation activities are considered also as very important. Water and land quality, waste management and traffic/road safety are taken into account for some general orientation of mitigation measures. All mitigation measures should be in respect with Albanian construction and environmental legislation in general and specifically with the Law No. 10 431, dated on 9.6.2011, “On Environmental Protection”.

In addition to technical design the implementation of the project will have some key activities conditioned by Environmental Management Plan.
• Analyzing of water quality (physic chemical and bacteriological quality) in the channel/draining station
• Define the exact cost of the dredging and transport, use or disposal of dredged material.
• Access Cas draining pumping station with drinking water.
• Plan the access with drinking water using indirect way, saving like that Cas automobilist road and Cas embankment. The deviation looks to increase on about 400-500m the pipeline length.
• Install qualitative flooring of Draining station nacelle and crypt.
• Ensure the security of the Draining Pumping station by installation of two new doors
• Building of an efficient and effective septic tank
## Issues upon phases and Mitigation measures

<table>
<thead>
<tr>
<th>Phase</th>
<th>Issue</th>
<th>Mitigating Measure</th>
<th>Associated Costs</th>
<th>Institutional Responsibility</th>
<th>Comments (e.g. secondary impacts)</th>
</tr>
</thead>
</table>
| Construction  | The overall worker safety, and risks of unauthorized access to construction site | • The inhabitants leaving close to draining station will be notified of the works, objectives and temporary expected negative impacts through appropriate communication, public meetings, etc.  
• All legally required permits will be acquired for construction and/or rehabilitation. Contractor formally agrees that all will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. Including organization of transport to minimize impacts on neighborhood, and washing of vehicle tires to minimize spreading of debris on the roads.  
• Workers will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses etc). Workers also will be contracted respecting Albanian legislation, and the developer should respect all hygienic and safety rules conditioned by Albanian legislation. Life insurance of workers etc will be provided by the employer.  
• Technical security measures will be provided by the employer.  
• Emergency safety kit should be placed close to the working place for intervention in case of accidents. Emergency contacts and numbers should be clearly posted on site.  
• In case of contact with polluted waters of channels or sediments the workers should have safety clothes.  
• Appropriate warning signposting of the working sites, visual barriers etc., will be used to prevent accidents.  
• Access the Cas draining station with drinking water supply net by building a 1000-1200m pipeline from Cas to draining pumping station | Provision of safety equipment, safety kits and signs is included in contractor operating costs  
Access with drinking water (to be defined by contractor) Approx. 5000 EURO for all pipeline and the study | Contractor 
Velipoja Commune/C as administration authority 
Water PIU | Supervised by Supervision company or engineer |
| Construction  | Use of raw materials may pose an additional stress on the natural environment | • Use raw materials (sand, gravel, stone) only from suppliers that have valid licenses issued by the Regional Environmental Agency of Shkodra or Environmental Ministry. | No additional costs incurred | Contractor | Supervised by Supervision company or engineer | Exploitation of Natural resources |
| Construction  | Noise generated during works may pose a threat and risk to the workers on site, animals and neighboring properties | • Construction noise will be limited to restricted times agreed to in the permit in respect with Albanian Environmental Legislation  
• During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed at station territory. | Covers for electric generators 200 EURO/unit | Contractor | Supervised by Supervision company or engineer |
| Construction  | Works done on site may damage or permanently remove vegetation | • Ensure no damage to vegetation occurs on site.  
• In case of unavoidable damage, re-plant same species on site.  
• Ensure visually the same appearance as before works started. | Depends on plant species. Proper planning can ensure plants are replaced rather than new ones bought | Contractor | Supervised by Supervision company or engineer | Temporary decrease of green cover efficiency |
## Issues upon phases and Mitigation measures

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<tr>
<th>Phase</th>
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<tbody>
<tr>
<td>Construction</td>
<td>Use of heavy-duty transport vehicles for materials on site can cause local traffic disturbances and damage the roads to be used for transport</td>
<td>- Ensure local community is aware of any major transport requirements and disruptions to the regular traffic pattern.&lt;br&gt;- Adequately manage traffic and use postings to warn others of possible congestion.&lt;br&gt;- Ensure local community is aware of any major transport difficulty and problems of access and inform them on the time and duration of problems&lt;br&gt;- Ensure the finalization of the works will be joined by rehabilitation of the roads at last to the same level as before starting the project</td>
<td>No additional costs incurred&lt;br&gt;To be defined and evaluated in the end of works</td>
<td>Contractor&lt;br&gt;Supervised by Supervision company or engineer</td>
<td>Temporary decrease the accessibility capacity</td>
</tr>
<tr>
<td>Construction</td>
<td>Dust emissions from the site may impact air quality and pose a health threat to workers and neighbors</td>
<td>- In case of disposal of dredged or excavated materials the debris shall be kept in controlled area and sprayed with water mist to reduce debris dust&lt;br&gt;- During pneumatic drilling/compaction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site&lt;br&gt;- The septic tank (in case of reconstruction of existing ones) installed at toilet should be enclosed in quite hermetic manner to avoid unpleasant smells.&lt;br&gt;- The surrounding environment (side walks, roads) shall be kept free of debris to minimize dust&lt;br&gt;- There will be no open burning of construction / waste material at the site&lt;br&gt;- There will be no excessive idling of construction vehicles at sites&lt;br&gt;- All materials will be supplied/transported in a manner which minimizes dust – including covered truck loads or closed off truck loads, with dust suppressing measures through water spraying</td>
<td>Cost of 1 m³ of clean water on site: 40 Euro&lt;br&gt;DCM on Tax of Drinking water, No. 203, dated on 08.05.1997</td>
<td>Contractor&lt;br&gt;Supervised by Supervision company or engineer</td>
<td>All such measures will be in respect with DCM No. 435, dated 12.09.2002, “Concerning the Approval of the Norms for discharges in the air and the implementation of these Norms”</td>
</tr>
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</table>
### Issues upon phases and Mitigation measures

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</thead>
</table>
| Construction | Improper waste management may cause pollution of soil and groundwater or cause scattering by wind/animals and pose a health risk | • Designated waste disposal areas will be allocated on site, including waste collection bins for smaller waste, and designated areas for bulkier waste  
• All waste, including construction debris and excavated materials will be regularly and timely transported off site and managed through an authorized agency or disposed of at a site that was officially designated by the local authorities – Shkodra or Municipality or Velipoja Commune  
• Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.  
• Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.  
• The records of waste disposal will be maintained as proof for proper management as designed.  
• Whenever feasible the contractor will reuse and recycle appropriate and viable materials  
• Removed vegetation may best be composted on site, at a designated and managed area.  
• All oily wastes will be separately collected, in bins which are leak-proof, and will be handled over to the authorized management and disposal company, receipts for which shall be kept.  
• Ensure installation of portative toilet in case that existing toilet will be destroyed during the construction works  
• Built a temporary but well isolated septic tank as far as the draining station is not part of a sewage system.  
• Clean, maintain and disinfect the septic tank upon hygienically legal framework is requested by Albanian hygienic and local Authorities.  
• Rebuilt the permanent toilet and a bathroom at the pumping station with a non-permeable septic tank. | Cost of waste management – per 1 truck to the designated site in compilation with other site disposals 70 Euro/Year Local Tax  
One container (bin) for solid municipal waste 130 EURO  
One container for hospital wastes 20 euro  
One portative toilet 200 EUR  
One septic tank 1500 EUR | Contractor  
Supervised by Supervision company or engineer  
Draining station management staff | Risk of contamination in case that septic tank is not well managed (maintained, cleaned and disinfected) |
<table>
<thead>
<tr>
<th>Phase</th>
<th>Issue</th>
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<th>Institutional Responsibility</th>
<th>Comments (e.g. secondary impacts)</th>
</tr>
</thead>
</table>
| Construction | Construction works on site may impact the quality of surface waters in the drainage channels and beyond and subsequently ground water | - The site will establish appropriate water and sediment control measures such as e.g. silt fences to prevent water sediment from moving off site and causing excessive turbidity in the channel.  
- Collectors will be provided to avoid surface water dispersion in case of watering of sand or gravel to control the dusts  
- The approach to handling sanitary wastes and wastewater from draining station (installation or reconstruction) must be approved by the local authorities  
- Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies, and will be adequately collected and managed  
- Before starting the painting activity, the bottom will be covered by plastic paper to ensure collection of colors drops in the soils. After finalization of work this plastic will be removed and disposed at places defined by local authorities. | Costs for collecting sanitary waters on site 1000 EURO  
Cost of plastic covers 50 EUR  
Cost of barriers in channel 50 EURO | Contractor  
Supervised by Supervision company or engineer | Costs for collecting sanitary waters on site 1000 EURO  
Cost of plastic covers 50 EUR  
Cost of barriers in channel 50 EURO | Contractor  
Supervised by Supervision company or engineer | No additional costs incurred | Project implementation delay | Temporary delay the Project implementation |
| Construction | Improper material storage and use may cause pollution of air, soil or water | - Store all materials in original containers in adequate locations, which allow for leak-proof storage  
- Do not dispose of paint and other waste containers except through adequate handling procedures  
- Ensure workers are familiar with safety regulations and storage requirements for each product. | No additional costs incurred | Contractor  
Supervised by Supervision company or engineer | No additional costs incurred | Contractor  
Supervised by Supervision company or engineer | Project implementation delay | |
| Construction | Excavation works may uncover archaeological or other significant findings | - Stop all works on site in case of chance finding and notify proper authorities. | No additional costs incurred | Contractor  
Supervised by Supervision company or engineer | No additional costs incurred | Contractor  
Supervised by Supervision company or engineer | Project implementation delay | |
| Construction | Accidents during construction works may cause unintentional damage to the local infrastructure or power supply net | - Ensure all adequate permits from local utilities have been obtained  
- Ensure familiarity with networks in the proximity of the site  
- In case of accidental disruption, immediately stop all works, notify proper authorities in Velipoja/Shkodra and emergency remediation of damaged network in line with the requirements of Law on civil emergencies No.8756, dated 26.3.2001 | No additional costs incurred | Contractor  
Supervised by Supervision company or engineer | No additional costs incurred | Contractor  
Supervised by Supervision company or engineer | Temporary delay the Project implementation | |
| Construction | Works in the channel may pose a health risk to the workers due to uncontrolled releases of sewage from neighboring land plots and property or if water and sediments are contaminated | - Ensure workers are equipped with protective equipment  
- Avoid direct contact with these waters | No additional costs incurred | Contractor  
Supervised by Supervision company or engineer | No additional costs incurred | Contractor  
Supervised by Supervision company or engineer | Temporary delay the Project implementation | |
### Issues upon phases and Mitigation measures

<table>
<thead>
<tr>
<th>Phase</th>
<th>Issue</th>
<th>Mitigating Measure</th>
<th>Associated Costs</th>
<th>Institutional Responsibility</th>
<th>Comments (e.g. secondary impacts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Health risk and hygienic un appropriate conditions for draining pumping station working staff</td>
<td>• Flooring of nacelle and crypt of the draining pumping station</td>
<td></td>
<td>Contractor</td>
<td>To be defined by consultant/contractor (Approx. 2000 EURO)</td>
</tr>
</tbody>
</table>
| Construction  | Changes in the draining station output from that of the designed may impact the downstream sensitive areas and recipients | • Not change on the design capacity of the draining station  
• The Regional Environmental Agency will be consulted on the proper operation and output of the draining station |                  | Contractor                    | Supervised by Supervision company or engineer |
| Operation     | Improper solid waste collection and management may pose a threat to soil and water quality | • Set up proper waste management procedures, including separation of waste into oily and hazardous waste, regular municipal and green waste which can be composted  
• Ensure sufficient waste collection bins are available on site and that regular collection of wastes is ensured | Costs of authorized waste collection per year 70 EURO | Operator of draining station with local waste collection utility |                              |
| Operation     | Not appropriate environmental indoor environmental conditions         | • Ensure iron nets and glasses for the windows at the ground floor.                  | 500 EURO         | Operator of draining station with local waste collection utility |                              |
| Operation     | Canal maintenance can retain proper efficiency of the draining station | • Regular canal maintenance  
• Collection and composting of vegetative matter removed from the canal  
• Ensure no protected species are removed from the canal by consulting local environmental authorities  
• Collection and proper disposal of municipal wastes from canals  
• Reusing or proper disposal of dredged material  
• Ensure works do not damage the specific flora or fauna in the canal | Costs of canal maintenance 2000 EURO/ YEAR | Operator of draining station in accordance with Shkodra REA and Water Bord of Shkodra | Accidental damage of natural water resistant plants |
| Operation     | Leaks and spills in station can pollute the surface water              | • Have in place leak control action plan  
• Provide leak proof bins for collection of oily wastes or equipment which can drip oil  
• Ensure waste is adequately managed | No additional costs | Operator of draining station and authorized company for management of such wastes |                              |
| Operation     | Management of oily wastes                                              | • All oily wastes will be separately collected in leak-proof containers and stored in leak-proof areas  
• All oily wastes will be handed over to the authorized agency for handling such wastes | | Operator of draining station and authorized company for management of such wastes |                              |
| Operation     | Contamination from waste waters                                       | • Ensure that the toilet bathroom is in appropriate conditions during times.  
• Maintain, clean and disinfect the well isolated septic tank to avoid dispersion of sewages in soils and waters, or at the channel. | No additional cost | Operator of draining station and authorized company for management of such wastes |                              |
Issues upon phases and Mitigation measures

<table>
<thead>
<tr>
<th>Phase</th>
<th>Issue</th>
<th>Mitigating Measure</th>
<th>Associated Costs</th>
<th>Institutional Responsibility</th>
<th>Comments (e.g. secondary impacts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>Unauthorized access with draining pumping station and missing of access efficiency with its territory</td>
<td>• Installing two new doors in both front entrance and exit parts of Draining pumping station</td>
<td>To be defined by consultant/contractor Approx 1000 EURO</td>
<td>Operator of draining station and authorized company</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>Reduced green cover and plants in the draining stations by construction activities</td>
<td>• Restore at last existing green cover before project starts with new autochthon plants</td>
<td>500 EURO</td>
<td>Operator of Draining Pumping station with Regional Environmental Agency of Shkodra</td>
<td></td>
</tr>
</tbody>
</table>

Table 3  Summarized Management Program
9.0 Monitoring program
The environmental monitoring program will be focused on following elements.

- Respecting of Management Plan
- Respecting of technical specifications
- Respecting of Albanian legislation for worker safety and health, insurance etc,
- Safeguard of workers and inhabitants, and
- Discharge norms in environment.

Monitoring process will be focused on the working space and surrounding territories as well as in the road that will be used for transport of materials from the sources to working space or from working space to disposal sites. Technical actions, environmental and safety specifications as well as other procedures defined running the implementation can be checked or justified by following table.

To ensure the proper way of use of channel waters and better define its quality, the implementer should analyze one water sample, before starting the implementation. The sampling station will be in the central part of the channel. Because of the origin of possible pollution the water will be analyzed for physical-chemical parameters including bacteriological ones ex. e-Coli. Three samples will be taken in one sampling place, one in the surface (20cm deep), the other in the half of the deep, and the last in the waters close to the bottom. The results of such analyses will help operator to held appropriate safety measures during operations on construction phase.

Additional monitoring action will be done in case that the implementer, environmental or health authorities, or in case of community complaints. The additional monitoring program should be approved by Regional Environmental Agency of Shkodra.
<table>
<thead>
<tr>
<th>Phase</th>
<th>What (Is the parameter to be monitored?)</th>
<th>Where (Is the parameter to be monitored?)</th>
<th>How (Is the parameter to be monitored?)</th>
<th>When (Define the frequency / or continuous?)</th>
<th>Why (Is the parameter being monitored?)</th>
<th>Cost (if not included in project budget)</th>
<th>Who (Is responsible for monitoring?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Construction</td>
<td>Channel water and soil quality</td>
<td>At the channel</td>
<td>Physic-chemical and bacteriological analyses of waters</td>
<td>Before starting the works</td>
<td>To define water channel quality</td>
<td>To be defined by the consultant/contractor Approx. 1000 EURO</td>
<td>Constructor to organize, specialized institutions to take samples and deliver the formal documentation</td>
</tr>
<tr>
<td>Before construction</td>
<td>Road and infrastructure quality</td>
<td>At the roads planned to be used for transport during the construction phase</td>
<td>Visual evaluation</td>
<td>Before starting the works</td>
<td>To ensure the quality of the roads and other infrastructure after the project implementation (work closure)</td>
<td>Should be included in costs for supervisor, no additional measurement costs envisaged</td>
<td>Supervisor to evaluate and report on</td>
</tr>
<tr>
<td>During construction</td>
<td>Notification, Worker and farmers safety and health</td>
<td>On construction site</td>
<td>Maintain a log of neighbor notification, all permits obtained, supervisor will provide regular reports on EMP compliance, worker safety, and on possible complaints Appropriate signs will be inspected visually</td>
<td>Continuously during construction works</td>
<td>To ensure works are conducted as per the utmost safety and environmental protection standards</td>
<td>Should be included in costs for supervisor, no additional measurement costs envisaged</td>
<td>Contractor to implement, Supervisor to review and report on</td>
</tr>
<tr>
<td>During construction</td>
<td>Air and Soil quality</td>
<td>On construction site and surrounding areas</td>
<td>Visually inspect dust generation and control. Inspect presence and if any smell is emitted from the septic tank on site. Visually inspect presence of clandestine waste on site and in</td>
<td>Continuously during construction works</td>
<td>To ensure works are conducted as per the utmost safety and environmental protection standards</td>
<td>Should be included in costs for supervisor, no additional measurement costs envisaged</td>
<td>Contractor to implement, Supervisor to review and report on</td>
</tr>
<tr>
<td>Phase</td>
<td>What (Is the parameter to be monitored?)</td>
<td>Where (Is the parameter to be monitored?)</td>
<td>How (Is the parameter to be monitored?)</td>
<td>When (Define the frequency / or continuous?)</td>
<td>Why (Is the parameter being monitored?)</td>
<td>Cost (if not included in project budget)</td>
<td>Who (Is responsible for monitoring?)</td>
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</tr>
<tr>
<td>During construction</td>
<td>Noise levels</td>
<td>On construction site and surrounding areas</td>
<td>Ensure compliance with permit as per Albanian law. Measurements on complaints from neighbors.</td>
<td>Continuously during construction works</td>
<td>To ensure noise levels do not exceed permissible</td>
<td>Should be included in costs for supervisor, no additional measurement costs envisaged – in case of complaints, set of noise measurement is approximately 500 Euro.</td>
<td>Contractor to implement, Supervisor to review and report on</td>
</tr>
<tr>
<td>During construction</td>
<td>Water Quality</td>
<td>On construction site and surrounding areas</td>
<td>Visually and upon complaints of increased turbidity, waste materials in canals, spills or leaks.</td>
<td>Continuously during construction works</td>
<td>To ensure there is no pollution caused to the waters</td>
<td>Should be included in costs for supervisor, no additional measurement costs envisaged</td>
<td>Contractor to implement, Supervisor to review and report on</td>
</tr>
<tr>
<td>During construction</td>
<td>Waste management</td>
<td>On construction site and surrounding areas</td>
<td>Visually for separation of wastes, review receipts from the collection company, or notification from the commune on the proper site of the disposal. Visually for operation of toilet and efficiency during construction, Un desired smells, and not appropriate conditions of</td>
<td>Continuously during construction works</td>
<td>To ensure there is no risk of environmental pollution caused by construction works</td>
<td>Should be included in costs for supervisor, no additional measurement costs envisaged</td>
<td>Contractor to implement, Supervisor to review and report on</td>
</tr>
<tr>
<td>Phase</td>
<td>What (Is the parameter to be monitored?)</td>
<td>Where (Is the parameter to be monitored?)</td>
<td>How (Is the parameter to be monitored?)</td>
<td>When (Define the frequency / or continuous?)</td>
<td>Why (Is the parameter being monitored?)</td>
<td>Cost (if not included in project budget)</td>
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<tr>
<td>During construction</td>
<td>Damage to vegetation</td>
<td>On construction site</td>
<td>Site log and visual inspection</td>
<td>Continuously during construction works</td>
<td>To ensure no damage to vegetation</td>
<td>Should be included in costs for supervisor, no additional measurement costs envisaged</td>
<td>Contractor to implement, Supervisor to review and report on</td>
</tr>
<tr>
<td></td>
<td>Storage of paint, oil or other hazardous materials</td>
<td>On site</td>
<td>Visually ensure proper storage, and no leaks or spills</td>
<td>Continuously during construction works</td>
<td>To minimize risks of pollution of hazardous materials</td>
<td>Should be included in costs for supervisor, no additional measurement costs envisaged</td>
<td>Contractor to implement, Supervisor to review and report on</td>
</tr>
<tr>
<td></td>
<td>Chance findings</td>
<td>On site</td>
<td>Through site log</td>
<td>Regularly through construction works</td>
<td>To ensure adequate management of chance findings</td>
<td>Should be included in costs for supervisor, no additional measurement costs envisaged</td>
<td>Contractor to implement, Supervisor to review and report on</td>
</tr>
<tr>
<td>During operation/maintenance</td>
<td>Solid waste and waste waters collection and management</td>
<td>On site- within draining station</td>
<td>Visually for separation of solid wastes, review receipts from the collection company, or notification from the commune on the proper site of the disposal Evaluation of the efficiency of the toilet/bath room and evaluation of isolation and collection efficiency of sewages generated from the</td>
<td>Continuously during construction works</td>
<td>To ensure there is no risk of environmental pollution from improper waste management</td>
<td>Should be included in responsibilities of hired staff</td>
<td>Draining station operator</td>
</tr>
<tr>
<td>Phase</td>
<td>What</td>
<td>Where</td>
<td>How</td>
<td>When</td>
<td>Why</td>
<td>Cost</td>
<td>Who</td>
</tr>
<tr>
<td>-----------------------------------</td>
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</tr>
<tr>
<td>During operation/maintenance</td>
<td>Canal maintenance – clearing and adequate disposal of wastes</td>
<td>On site- within draining station</td>
<td>Visually, or through measuring flow physical parameters, Chemical analyses for biochemical parameters</td>
<td>Continuously</td>
<td>To ensure proper working of the station and no collection of wastes in canal</td>
<td>Should be included in responsibilities of hired staff</td>
<td>Draining station operator</td>
</tr>
<tr>
<td></td>
<td>Leaks and spills in station</td>
<td>On site- within draining station</td>
<td>Visually, and ensure compliance with plan</td>
<td>Continuously</td>
<td>To ensure no leaks of oils or other materials pollute the environment</td>
<td>Should be included in responsibilities of hired staff</td>
<td>Draining station operator</td>
</tr>
</tbody>
</table>

Tab. 4. Monitoring program
10. ADDITIONAL SUGGESTIONS

Solid waste management should be an important obligation of the local administrators in the closed future. This management should be focused on the policies on reduction of solid municipal wastes, separation of the solid wastes at the collection bins (using separate bins), controlled and appropriate waste transport, selection of management ways like reusing, disposing, incineration for energy profit etc. as the studies and managers will decide. A compatible management of such wastes in the draining station will require a normal collection bin, with separated spaces, for organic materials (remains of foods etc.), plastics, glasses, wood and other materials with wood origin.

Also an immediate plan for waste water treatment plan should be prepared to avoid waste water discharges at the channels, lagoon etc. The capacity of water sources should calculate around of 90/l/d per person/staff in draining station. This calculation is made in similar way like in solid wastes. The drinking water/person is calculated at around 180/l/d (24 hours day with 16 active hours). On 8 hours, a person/staff member can use the half of this amount that goes to 90/l/day. Having into account of 10 person/staff/day are working in the draining station, it can be noted that the total of waste water generated by draining station staff will be around 900/l/day. For any case, as far as the waste water treatment plant and the Cas village waste water pipeline are not yet planned to be constructed, the construction of a temporary septic tank in the draining station should be an appropriate environmental protection measure. The cleaning of this septic tank should have a daily frequency (to avoid also the appropriate smells). Nevertheless, the planned frequency of the cleaning of septic tank, the tank should be at last with triple capacity to control any accidents by overflows and floods in atmospheric events. Both plans (waste water and solid waste management) should have into consideration at last a 20 year program.

For efficient project implementation will be very useful to incite the effectiveness of the investment. The opening/dredging and maintenance of the outlet channel seems to be a key factor to avoid floods of the area in incoming and out coming parts of the channel of the pumping station. These actions can ensure not only an effective draining system and facilitate draining station works efficiency, but also will control creation of artificial habitats in surroundings of draining station. In the future, such works should be considered by the authorities not only in surroundings of the Draining station but also during all line of draining channel till the coast of the beach. For the full efficiency of draining dredging of the outlet channel from the draining pumping station to the Cas swamp can be useful. Also opening of a draining channel from the village to the channel (parallel with embankment) will help to avoid floods in Cas village. From pre-evaluation of funds needed an amount of approximately 6000 EURO, can be useful. The analyses of sediments to be dredged, is very usefull to define their future use or disposal.
Enforcement and increasing of the attitude of the embankment in the North/East of Cas outlet channel, will ensure a better structure to manage waters in the extreme atmospheric events.

11. PUBLIC CONSULTATIONS INFORMATION

The Summarized Environmental Management Plans for the rehabilitation of Cas and Viluni Draining Pumping Station have been made available to the public through being placed in the Velipoja Commune with a designated contact person, and on the Web-site of the General Directorate of Water Supply and Sanitation: www.dpuk.gov.al as well as at Shkodra Municipality Web-site: www.shkodra.gov.al. Several meetings and round tables have been held amongst the environmental consultant and community representatives, environmental experts of Shkodra, engineers, owners of cafeterias, representatives of medias etc. Annex 2 summarizes the main fruitful minutes of meetings. The consultant and most interested representatives held an official public consultation meeting in the Velipoja Center at Commune Offices on December 12, 2011. Minutes of meeting and list of attendees is included in Annex 2.

The date and location of the public consultation was announced by “Panorama” newspaper (see Annex 2), including the location and web-sites where the interested subjects can obtain and view the summarized management plans.

During the consultations meeting, the environmental consultant explained to the participants the importance of the investment, its focus, the provisions and measures that would help mitigate any of the identified negative impacts from the project, including the World Bank requirements. After the presentation the consultant has opened the session to questions and comments. The overall feeling was of acceptance and very positive, with a friendly and open discussion that followed.

Some of the important issues raised were on channel dredging, paving and flooring of the channel, drinking water supply, outlet channel and the owners, embankments, land use at the outlet of the channel, need for a new channel parallel with the embankment, etc. There was very little comments or concerns related to the environmental management measures that were presented.

An issue that came up at this meeting was a few farmers that claimed to be the land owners at the outlet channel which they have inherited from their forefathers. Their claims were not supported by any formal document and proof of ownership, but nonetheless, they agreed to have the works done on the channel, which would clean and help open up the channel, as these works would have no impact on their inherited lands.

An impressive approach was also taken by the community representatives for agreeing on a new channel parallel to the embankment, where agreement was quickly reached by all parties that this channel be made as close to the existing embankment, in order to
decrease the area of land that would be taken. Everyone agreed that the drinking water supply for draining pumping station should be provided from the Cas village pipeline.

A very important issue was brought up from the Viluni representatives. They requested to drain the mouth of the draining channel that links the channel with the Viluni lagoon. Since this is not related to the rehabilitation works of the Project, the consultant has agreed to include this as a recommendation for future development projects, in the section of the SEMP.

The Environmental consultant have provided answers for any suggestion and comment, expressing that for all issues discussed regarding works for rehabilitation of draining pumping stations are already given as solutions in summarized management plan. For others, the consultant ensures the participants that these will be included at the Additional suggestion part, so that can be subject of other development projects.
Annex 1

MAP
Spatial Position of Cas Draining station related to Protected Area Management Zones
Map. I Porisicioni i stacionit të KuLLimit të Cas-it në lidhje me zonat e managjimit të Zones se Mbrojtur të Liqenit të Shkodres, Lumi Bura dhe Pyllit të Velipojës
(Spatial Position of Cas Draining Pumping Station related to Management Zones of Lake Shkodra, Buna River and Velipoja Forest Protected Areas)
### Annex 2 Public Consultation - Minutes of Meeting

<table>
<thead>
<tr>
<th>Name and position</th>
<th>Summarized questions and issues</th>
<th>Answers by Environmental consultant</th>
<th>Level of acceptance</th>
</tr>
</thead>
</table>
| Ndue Pellumbi, responsible for agricultural office in Velipoja Commune, Cas inhabitant | - Proposing options to get drinking water without touching the embankment  
- Need for enforcement of the embankment in outlet channel | - Already proposed in mitigation measures  
- Will be proposed as “additional suggestions” to be considered in other coming projects | Very good |
| Aleksander Pjetri, inhabitant in Velipoja beach, worker in Viluni draining station | - Opening of the discharge mouth of the Viluni channel to Viluni Lagoon, considering that now the social situation is changed and actions will not face oppositions  
- Increase safety parameters by installing of new handrails in the draining station bridge | - Should be object of another project but will be proposed as “Additional suggestion” chapter  
- Already included at mitigation measures | Very good |
| Marash Qyteza Cas inhabitant, worker at Cas draining pumping station | - Need to open the new channel parallel with embankment  
- Installing of windows iron net and glasses at both draining pumping stations | - Will be proposed as additional suggestions to be considered in other coming projects  
- Already included at Mitigation Measures | Very good |
| Gjon Nikolli Responsible for both draining pumping stations | - Importance of installing of new doors, drinking water and effective baths in two draining pumping station | - Already included at Mitigation Measures | Very good |
| Hilmi Sadiku Inhabitant of Cas, owner in the lands where was dredged the Cas outlet channel | - Importance for dredging of the outlet channel.  
- No objections from owners on works and function of outlet channel of Cas  
- Importance of draining of new channel parallel with Cas embankment | - Can be subject of another project, but to be added in additional suggestions | Very good |
REPkLiKA E SHoIPERSHE
DREJTORIA E Pergjitheshme E Ujesjelles Kanalizimeve
Njesia E Zbatimit Te Projekteve Te Ujite (Piu I Ujite) Tirane

Thirrje për pjesëmarrje ne komunikim me publikun
Konsultime me eksperte mjedisore.

Projekti i Menaxhimit dhe Administritimit te Ujërave,
Komponenti D- Ndërbyrjet emergjente ne Shkoder

Ne kuadër te investimeve te Qeverise Shqiptare për uljen e pasojave te
përmbjtteve ne Qytetin e Shkodres, Njesia e Zbatimi te Projekteve te
Ujërave pranë Drejtorisë se Pergjithshme te Ujesjellës Kanalizimeve, po
ndërmerr masà për rehabilitimin e hidrovoreve të kullimit ujërave te Cas-
it dhe Vilun-it, ne Qytetin e Shkodres. Investimi po kryhet ne kuadër te
projektit te mësipërmi, i cili financohet nga financuar ky nga Banka
Botërore dhe IBRD-ja.

Brenda këtit kuadri, ditën e Hënë date 12 Dhjetor 2011, ora 11.00, ne
zyrat e Komunës Qender Velipoje, do te kryhet takimi i eksperteve te
mjedisit për projektet ne fjale, përfaqësues te pushtetit lokal, stafit te
administritimit te hidrovoreve, banoreve te zonave ku po zhvillohet projekt,
shqërisë civile etj, për te përhershuar masat mjedisore qe janë propozuar
për evitimin e ndikimeve te mundshme negative, propozimeve për një
zhvillim te qëndrueshëm për te ardhmen etj qe janë propozuar ne Planeet e
Përmbledhura te Menaxhimit te cilat janë depozitur ne Bashkisë te
Shkodres. Personi i kontaktit qe mund t’ju veje ne dispozicion planet e
sipërpermendura është: z. Ndëre PELLUMB, pranë zyrës se Urbanistikës
se Komunës Velipoje Qender, tel. Cel. 0672687170.

Ne takim do te mirëpritën te gjitha vërejtjet apo sugjerimet tuaja për tu
përfshirë ne planet e sipërpermendura te menaxhimit.
ANNEX 3 – Photos from the Site

Fig 1. Incoming Channel – Cas Pumping Station

Fig 2 Outlet/discharge channel in Cas Pumping Station
Annex 4: General Description Of Works In Cas Draining/Pumping Station

(for more details please refer to technical specification)

Replacement of the two high capacity and the two low capacity pumps with new pumps of the same type, or other type (but of same capacity) if they fit to the existing structures will be decided by the Contractor after checking the dimensions of the existing structures. The new pumps should have the same characteristics and capacity as the existing ones and shall be of the same type, shaft type vertical and with adjustable impeller. The pumps parts should be non corrosive, as the drainage pumping stations is located near to the sea and water pumped has high salt and fine sand content. Replacement of the existing gantry with a new motorized one with same capacity and wildness. Installation of new motorized screen cleaning equipment is needed. The dimensions of this equipment will be fixed based on the operating bridge and on the height of the existing screen.

Civil Works

In order to stop the water filtration from the side and front walls of the pumps room it is foreseen to cover up the walls with metallic sheets 5 mm in thickness. The metallic sheets shall be welded to L profile with dimensions 150x100x10mm, which itself will be fixed with bolts 22mm in diameter to the walls. The welding seam between the metallic sheets and between profiles and metallic sheets will be continuous. In between the existing walls and metallic sheets shall be a space of 10 cm that shall be filled with concrete M 300 with three type of aggregates; sand (0-5) mm, fine ballast (5-10)mm, medium ballast (10-20)mm. The cement shall be anti- sulphonate M500. In order to have a good connection between the concrete and metallic sheets, steel bars 10mm in diameter each 25 cm shall be welded in metallic sheets and distribution bars 8mm each 20 cm. the steel bars and steel bolts will be steel bars C.5 (Albanian Standard) with a limit of fluency 3500 kg/cm². Before starting the concrete process shall be demolished all cement plastering of the inlet part and walls of pumps rooms, in order to have a good connection between new concrete and existing walls. This project also foresees demolition of the existing plastering with cement mortar of the walls of outlet parts.

After the covering with metallic sheets, all the walls surface that have no metallic sheets shall be plastered with cement mortar M 1:2. After the metallic sheets cover is finished, all the rust shall be cleaned from the metallic surface and all the surface shall be painted with two layers of primary painting and two layers against rust. Ladders and metallic bridge serving for operators shall be completely new with the same structure as the existing ones. The screens at the entry of the pumps room shall be completely replaced. The dimensioning and the structure shall be dimensioned by the Contractor based on dimensions and the technology of the cleaning equipment that shall be installed in this Drainage Pumping Station. The windows of the pump room, damaged form the last flooding, shall be new with aluminum with single glass panes and six sections, two of them to be open. The internal plastering shall be rehabilitated with mortar M.20, demolition previously the damaged plastering. The external plastering shall be rehabilitated with mortar M.25, demolition previously the damaged plastering. The floor of the motors room shall be new with floor tiles (gres type) laid using adhesive material and with a belt of wall tiles in connection of the walls with floors. Before starting the rehabilitation works the existing floor stratum shall be
demolished as it is extremely demolished. In the rehabilitation works are foreseen to be renovated all concrete stratum of the service bridge and the retaining walls made of concrete M.200. All the existing cement mortar floors of the electrical rooms and service bridges shall be renovated using cement mortar M 1:2, demolition the existing layers. The entire existing sidewalk shall be new (the existing are completely damaged). The new sidewalk shall be 80 cm wide and made of concrete M 200 and cement layer. For the operation of the screen cleaning equipment, in this project is foreseen to be built a new reinforced concrete structure. The dimensions and the steel bars shall be determined based on the actual characteristics of the cleaning equipment that shall be installed. The painting of the external and internal walls and ceiling shall be made of two plastic painting layers.
Figure 1 Cas Draining Station Plan