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IDA/R2016-0225/1

September 13, 2016

Closing Date: Friday, September 30, 2016 at 6 p.m.

FROM: Vice President and Corporate Secretary

Kosovo – Water Security and Canal Protection Project

Project Appraisal Document

Attached is the Project Appraisal Document regarding a proposed credit to Kosovo for a Water Security and Canal Protection Project (IDA/R2016-0225), which is being processed on an absence-of-objection basis.

Distribution:
Executive Directors and Alternates
President
Bank Group Senior Management
Vice Presidents, Bank, IFC and MIGA
Directors and Department Heads, Bank, IFC and MIGA

Document of
The World Bank

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Report No: PAD1236

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT
IN THE AMOUNT OF €22.00 MILLION
(US$24.53 MILLION EQUIVALENT)

TO THE

REPUBLIC OF KOSOVO

FOR A

WATER SECURITY AND CANAL PROTECTION PROJECT

September 9, 2016

Water Global Practice
Europe and Central Asia

CURRENCY EQUIVALENTS
(Exchange Rate Effective May 31, 2016)

Currency Unit	=	Euro
€1	=	US$1.1152

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

BFD	Budget and Finance Division
CBO	Community-based Organization
CPS	Country Partnership Strategy
CSQA	Construction Supervision and Quality Assurance
DA	Designated Account
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ENPV	Economic Net Present Value
EPP	Emergency Preparedness Plan
ERM	Emergency Reservoir of Mihaliq
ERR	Economic Rate of Return
ESIA	Environmental and Social Impact Assessment
ESIAF	Environmental and Social Impact Assessment Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
EU	European Union
FM	Financial Management
FMM	Financial Management Manual
FS	Feasibility Study
GDP	Gross Domestic Product
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
ICB	International Competitive Bidding
IFR	Internal Financial Reports
ILC	Ibër-Lepenc Company
IMWC	Inter-Ministerial Water Council
KRPP	Kosovo Regional Power Plant
M&E	Monitoring and Evaluation
M&I	Municipal and Industrial
MAFRD	Ministry of Agriculture, Forestry, and Rural Development
MoED	Ministry of Economic Development
MESP	Ministry of Environment and Spatial Planning
MoF	Ministry of Finance
NCB	National Competitive Bidding
NPV	Net Present Value

NTU	Nephelometric Turbidity Unit
O&M	Operation and Maintenance
PAD	Project Appraisal Document
PAP	Project-affected Person
PIU	Project Implementation Unit
POE	Panel of Experts
PP	Procurement Plan
PSC	Project Steering Committee
PY	Project Year
QCBS	Quality- and Cost-based Selection
RPF	Resettlement Policy Framework
SBD	Standard Bidding Document
SCADA	Supervisory Control and Data Acquisition
TA	Technical Assistance
ToR	Terms of Reference
UNDB	United Nations Development Business
WTP	Water Treatment Plant

Regional Vice President:	Cyril E. Muller
Country Director:	Ellen A. Goldstein
Senior Global Practice Director:	Jennifer J. Sara (Acting)
Practice Manager:	Steven N. Schonberger/ David Michaud
Task Team Leader:	Ahmed Shawky M. Abdel Ghany

REPUBLIC OF KOSOVO

Water Security and Canal Protection Project

Table of Contents

PAD DATA SHEET

Republic of Kosovo

Water Security and Canal Protection Project (P133829)

PROJECT APPRAISAL DOCUMENT

EUROPE AND CENTRAL ASIA

GWA03

Report No.: PAD1236

Basic Information			
Project ID P133829	EA Category B - Partial Assessment		Team Leader Ahmed Shawky M. Abdel Ghany
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ]		
	Financial Intermediaries [ ]		
	Series of Projects [ ]		
Project Implementation Start Date 30-September-2016	Project Implementation End Date 30-April-2022		
Expected Effectiveness Date 1-November-2016	Expected Closing Date 30-April-2022		
Joint IFC No			
Practice Manager Steven N. Schonberger/ David Michaud	Acting Senior Global Practice Director Jennifer J. Sara	Country Director Ellen A. Goldstein	Regional Vice President Cyril Muller

Borrower: Republic of Kosovo			
Responsible Agency: Hydro Economic Iber-Lepenc JSC (a joint stock company, registered in the Kosovo Business Registry, with the Government of the Republic of Kosovo as the sole shareholder)			
Contact:	Arberor Prekazi	Title:	Techncial Director
Telephone No.:	38138525006	Email:	arberor@hotmail.com
Responsible Agency: Ministry of Economic Development (MOED)			
Contact:	Blerand Stavileci	Title:	Minister
Telephone No.:	+381 (38) 200 215/05	Email:	mzhe.informimi@gmail.com

Project Financing Data(in Euro, millions)		
[ ] Loan	[ ] IDA Grant	[ ] Guarantee

[X]	Credit	[ ]	Grant	[ ]	Other

Total Project Cost:	22.00	Total Bank Financing:	22.00
Financing Gap:	0		

Financing Source	**Amount**
BORROWER/RECIPIENT	0.00
International Development Association (IDA)	22.00
Total	22.00

Expected Disbursements (in Euro, millions)

Fiscal Year	2017	2018	2019	2020	2021	2022				
Annual	1.00	4.00	6.00	6.00	4.00	1.00				
Cumulative	1.00	5.00	11.00	17.00	21.00	22.00				

Institutional Data

Practice Area / Cross Cutting Solution Area

Water

Cross Cutting Areas

[X] Climate Change

[ ] Fragile, Conflict & Violence

[X] Gender

[ ] Jobs

[ ] Public Private Partnership

Proposed Development Objective(s)

The objective of the Project is to contribute to restoring the Ibër Canal to its original capacity to improve water resource management for various canal water users in Central Kosovo.

Components

Component Name	**Cost (Euro millions)**
Component 1: Infrastructure Rehabilitation and Modernization	10.50
Component 2: Water Resources Protection and Management	9.80
Component 3: Project Management, Coordination, Monitoring and Evaluation	1.70

Systematic Operations Risk-Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate

3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	High
7. Environment and Social	Substantial
8. Stakeholders	Moderate
9. Other	
OVERALL	Substantial

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ] No [X]
Does the project require any waivers of Bank policies?	Yes [ ] No [X]
Have these been approved by Bank management?	Yes [ ] No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ] No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [ ] No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11		X
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37	X	
Projects on International Waterways OP/BP 7.50	X	
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**
Establishment of PIU and PSC		01-Dec-2016	

Description of Covenant

The Recipient shall establish by no later than one month after the Effective Date, a Project Implementation Unit ("PIU") within the Project Implementing Entity (PIE), responsible for Project implementation, management, monitoring and evaluation and a Project Steering Committee ("PSC") responsible for providing overall Project guidance and oversight.

Name	**Recurrent**	**Due Date**	**Frequency**

Financial Management Manual (FMM)	**X**		Yearly

Description of Covenant

The Recipient, through Ministry of Economic Development (MED), by no later than two months after the Effective Date, shall cause the PIE to prepare and adopt an FMM, and thereafter, furnish to the Association for its prior approval any proposed amendment to the provisions of the FMM.

Name	**Recurrent**	**Due Date**	**Frequency**
Subsidiary Agreement: proceeds and rights	**X**		Yearly

Description of Covenant

The Recipient shall make part of the proceeds of the Financing allocated from time to time to Category 2 available to the PIE under Subsidiary Agreement to facilitate the carrying out of the Project by the PIE, and shall exercise its rights under the Subsidiary Agreement in such manner as to protect the interests of the Recipient and the Association and to accomplish the purposes of the Financing.

Name	**Recurrent**	**Due Date**	**Frequency**
Environment and Involuntary Resettlement	**X**		Yearly

Description of Covenant

The Recipient shall ensure, and cause the PIE to ensure to carry out the Project in accordance with the ESMF and RPF

Name	**Recurrent**	**Due Date**	**Frequency**
Dam Safety: Dam Safety Experts	**X**		Yearly

Description of Covenant

The Recipient shall cause the PIE to establish and thereafter, maintain Dam Safety Experts responsible for (a) reviewing and evaluating the safety status of Gazivoda Dam and making recommendations for any remedial work or safety-related measures to an acceptable standard of safety; and (b) reviewing the adequacy of the design and construction procedures of the emergency reservoir and dam to be constructed in Mihaliq ("Mihaliq Dam") and Mihaliq Dam's associated structures and the start of its operation.

Name	**Recurrent**	**Due Date**	**Frequency**
Dam Safety: construction of the Mihaliq Dam	**X**		Yearly

Description of Covenant

The Recipient shall cause the PIE to carry out plan for construction supervision and quality assurance; instrumentation plan; operation and maintenance plan; and emergency preparedness plan; and finalize said plans taking into account the recommendations of the Dam Safety Experts regarding the adequacy of the dam design and construction procedures.

Name	**Recurrent**	**Due Date**	**Frequency**
Dam Safety: after the filling and start-up of the Mihaliq Dam	**X**		Yearly

Description of Covenant

The Recipient shall cause the PIE to have independent qualified professionals carry out periodic safety inspections of said dam after the filling and start-up of the Mihaliq Dam.

Name	Recurrent	Due Date	Frequency
Dam Safety: schedule and criteria for selection of an O&M entity of Mihaliq Dam		1-Nov-2017	

Description of Covenant

By no later than 12 months after the Project is declared effectiveness, the Recipient shall furnish to the Association, the proposed time bound schedule and criteria for selection of an entity or agency to be responsible for the operation and maintenance of Mihaliq Dam after its commissioning and promptly thereafter, make the selection according to such schedule and criteria taking into account the Association's comments thereon.

Name	Recurrent	Due Date	Frequency
Annual Work Plan and Budget	**X**		Yearly

Description of Covenant

The Recipient shall cause the PIE to prepare and furnish to the Association not later than September 15 of each year during the implementation of the Project, a proposed Annual Work Plan and Budget.

Conditions

Source Of Fund	Name	Type
IDA	Subsidiary Agreement	Effectiveness

Description of Condition

The Subsidiary Agreement has been executed by the Recipient and the PIE, is duly authorized or ratified by the Recipient and the PIE and is legally binding upon the Recipient and the PIE in accordance with its terms.

Source Of Fund	Name	Type
IDA	Withdrawal Period	Disbursement

Description of Condition

Notwithstanding the provisions of Part A of Section IV, no withdrawal shall be made for payments made prior to the date of Financing Agreement, except that withdrawals up to an aggregate amount not to exceed €250,000 may be made for payments made prior to this date but on or after the date, which is 12 months prior to the date of this Agreement, for Eligible Expenditure.

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Ahmed Shawky M. Abdel Ghany	Team Leader (ADM Responsible)	Sr Water Resources Spec.	Senior Water Resources Specialist	GWA03
Arben Maho	Procurement Specialist (ADM Responsible)	Procurement Specialist	Procurement Specialist	GGO03
Margaret Png	Counsel	Lead Counsel	Lead Counsel	LEGLE

Raymond Bourdeaux	Program Leader/PPP Expert	Program Leader	Program Leader/PPP Expert	ECCU4
Meeta Sehgal	Agricultural	Senior Agricultural Specialist	Senior Agricultural Specialist	GFAO9
Jonida Myftiu	Financial Management Specialist	Financial Management Specialist	Financial Management Specialist	GGO21
Jose Janeiro	Finance Officer	Senior Finance Officer	Disbursement	WFALA
Bekim Imeri	Safeguards Specialist	Senior Social Development Specialist	Senior Social Development Specialist	GSU03
Syeda Maheen Zehra	Team Member	Sr Water & Sanitation Spec.	Senior Water and Sanitation Specialist	GWASS
Mjellma Rrecaj	Team Member	Program Assistant	Program Assistant	ECCKO
Natasa Vetma	Safeguards Specialist	Senior Environmental Specialist	Senior Environmental Specialist	GEN03
Trandelina Baraku	Team Member	Consultant	Consultant	GWA09
Hiromi Yamaguchi	Team Member	Consultant	Operations Consultant	GFA03

Extended Team

Name	Title	Office Phone	Location
Kairat Nazhmidenov,	Investment Officer	36 1 461-2000	Budapest, Hungary
Alexandra Sokolova	Economist	390657055220	Rome, Italy
Herve Plusquellec	Senior Irrigation modernization consultant		Washington, DC
Ivana Ivicic	Environment consultant		Zagreb, Croatia

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Kosovo	Mitrovica	Mitrovica District	**X**		
Kosovo	Pristina	Pristina District	**X**		

Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required?	Consulting services as in the procurement plan and costab.

I. STRATEGIC CONTEXT

A. Country Context

1. The declaration of independence in February 2008 gave a new impetus to Kosovo's development agenda. The government launched a broad socioeconomic program to counter the legacies of socialism and the effects of the 1998–1999 war. As a potential candidate for the European Union (EU) membership, developmental reforms are driven by EU policies and requirements to a large extent. Over the past decade, Kosovo's overall economic growth has been generally positive, averaging about 4–5 percent annually, driven mostly by massive donor-funded reconstruction efforts as well as remittances from its diaspora. The country has successfully transitioned from a fragile, post-conflict, low-income country into a lower-middle-income nation with a partially functioning market economy.

2. Despite the positive trend in growth and relatively stable and resilient economy, Kosovo remains one of the poorest countries in Europe with a per capita gross domestic product (GDP) of about €2,900 in 2013. About 30 percent of its population of 1.8 million lives in poverty and roughly 10.2 percent in extreme poverty. Unemployment is widespread, estimated at about 30 percent in 2012, the highest in southeastern Europe. Unemployment rates are especially high among the youth, where it averages about 55 percent. Low domestic productivity and a narrow production base have left Kosovo with large trade and current account deficits. Maintaining the gains achieved and responding to current and future development needs pose significant challenges to Kosovo as foreign aid and remittances decline. Public sector investment, at historic levels of about 40 percent of total budgetary spending, is unsustainable and underscores the need for a more rational public expenditure program, shifting from the current focus on large, new capital investments to maintaining the existing stock and investing in human capital.

3. Kosovo's location, EU membership prospects, and market access to the EU and Central European Free Trade Agreement countries offer great opportunities for overall economic growth and advancement. The government is working to put in place the policies, institutions, and investments necessary to address the range of development challenges and has sought the World Bank's support to contribute to these efforts.

B. Sectoral and Institutional Context

4. Kosovo is a landlocked country, located in the southern region of the Balkans. The country has limited water resources, and water distribution remains largely unequal throughout the country. While the mountainous western and southern fringes are plentiful in water, the central/northern high-lying plateau that covers about half of the country's territory has limited water resources. Yet, it is precisely this area that holds the country's largest development potential because most of the mining, agricultural, and industrial activities are located here, including the Durres–Pristina–Belgrade industrial belt. This region has the highest population density in the country and is regarded as the commercial and administrative center of Kosovo. The country's two thermal power plants, Kosovo A and Kosovo B, the main energy production centers for all of Kosovo, are also located in this area (also an additional coal-fired generation plant is planned to be established in this region, possibly to replace Kosovo A).

5. **The Ibër-Lepenc (IL) Canal.** This region of Central Kosovo, including the capital Pristina, depends almost entirely on the IL Canal to meet its water needs. The IL Canal conveys water from the Ibër River, a transboundary river that originates in Montenegro and flows through Serbia before entering Kosovo in the northern municipality of Mitrovica. Flowing east through Mitrovica and Vushtrri, it eventually makes a sharp turn to the north and flows back into Serbia. The river is dammed in Kosovo by the Gazivoda storage dam, and the canal receives most of its water from the Gazivoda reservoir. The Gazivoda hydropower plant (33.3 MW capacity) discharges water into the Predvorica compensation reservoir, from where (a) water is diverted into the Ibër Canal; (b) an environmental flow of around 1.8 m^3/s is released to the Ibër River; and (c) water is released directly to the Ibër River through a sector gate when the Predvorica reservoir is full. The Ibër Canal runs south for about 49 km. The canal was designed with a telescopic capacity decreasing from 22 m^3/s at Predvorica to 6.45 m^3/s at the tail. It conveys bulk water by gravity through a succession of trapezoidal and closed canals, tunnels, aqueducts, and siphons. Only about half of the length of the canal is open air.[1]

6. **Uses of the canal.** The canal is a multipurpose water conveyance system, supplying water for energy production, mining, industrial, agricultural, and household uses. There are limited (in some cases none) secondary sources of water for the canal users so that an interruption of service would have a significant impact on the overall economy of Kosovo. It is the single source of drinking water supply to the populations of central Kosovo. The cooling water for the thermal power plants, Kosovo A and Kosovo B, is drawn from the canal (Kosovo A is only partially dependent on the canal, mostly during summer months). Irrigation in central Kosovo is also dependent upon the water supplied by the canal, although currently only about 2,000 ha out of the originally planned (equipped) 20,000 ha (15,000 ha) are being irrigated primarily due to low demand by farmers for the following reasons: (a) the excessive fragmentation of small farms in five to seven plots; (b) crop structure—mainly cereals that can be cultivated without irrigation; (c) labor shortage due to out-migration; (d) design of the pressurized distribution system imposing a rotational use of water and a coordinated organization of irrigation to avoid loss of pressure; (e) the inappropriateness of the portable sprinkler equipment for small farms divided in several plots; and (f) limited domestic markets primarily due to competition from imported agricultural products.

7. **Current status of the canal.** Built in the 1970s, the canal infrastructure has been deteriorating over the years. After 40 years of service, the concrete lining has been degrading, resulting in significant seepage losses (around 50 percent). During the last five years, the Ibër-Lepenc Company (ILC)[2], in charge of operating and maintaining the canal, has carried out repair works on the most seriously damaged sections by replacing the existing concrete and later by placing 12 cm reinforced concrete over the existing one. The works were executed at a slow pace

[1] The Ibër Canal together with the Gazivoda dam, the Predvorica compensation reservoir, and a pressurized irrigation system serving 20,000 ha was built in 1970–1980 under a Bank-supported operation (YU-777). The project was designed as a multipurpose system providing irrigation, municipal and industrial (M&I) water, and cooling water for coal power plants near Pristina.

[2] The exact title of the company is "Hydro Economic Iber-Lepenc JSC, a joint stock company, governed by the charter dated February 26, 2010, incorporated and registered in the Kosovo Business Registry with registration number 70465157 with the Government of the Republic of Kosovo as the sole shareholder. For simplification in the forthcoming PAD sections, the company is referred to as ILC.

by local contractors because it is not possible to close the canal for even one day. To be able to repair the lining, the canal cross-section is divided into two sections by installing a stop-log wall in the middle of the canal. Physical damage and pollution, as a result of landslides/mudslides, unstable soils, runoff from the surrounding farms and streets, garbage, and other debris, have affected the transit capacity of the canal now estimated at about 12 m^3/s as well as the quality of water. During rainy periods, sediment-loaded water discharges into the canal because of the absence of a collector ditch on the right bank of the canal and the deterioration of the drainage structures to cross the canal. The inefficiency of the water delivery has been compounded by the limited optimization of water resource management (balance between hydropower and water release). There are also some operational losses (demand-supply mismatch) primarily due to limited regulation and automation along the canal.

8. **Water demand.** With a declining delivery capacity along its run on the one hand and a growing demand for water on the other, water security for central Kosovo is a cause for concern. The region generally suffers from water scarcity during the summer months. This has resulted in regular episodes of water rationing that threatens future development opportunities. As the region's population expands and the government moves forward with its agenda of socioeconomic development, demand for water from the Ibër Canal is expected to intensify in the coming years to meet growing industrial, agricultural, and household needs.

9. Findings from the EU-Western Balkans Investment Framework financed feasibility study (FS) for the IL Canal indicate that the present water volume diverted into the Ibër Canal is about 113 million m^3, including losses estimated at 55 percent[3]. By 2035, the total water demand is estimated at 290 million m^3 comprising the following:

- **Hydropower use.** At present, the Gazivoda reservoir is operated to satisfy all the water needs on the Ibër Canal (taking into account some losses). Some additional releases are performed to produce more hydropower. A high level is maintained in the reservoir to guarantee a maximum head for optimizing the hydropower production and secure a sufficient volume of water to meet the needs during drought periods. Over the last 10 years, the reservoir has been used at less than 35 percent of its capacity. There are at present no difficulties to meet the current water demand.

- **Municipal uses including thermal power general.** The Gazivoda reservoir supplies raw water to the municipalities of Mitrovica, Skenderaj, Vushtrri, Drenas, and Gllogovc. A new water treatment plant (WTP) is under construction to supply water to the capital city of Pristina with a capacity of 700 l/s in the first phase and 500 l/s in the second phase. By 2025, the volume required for municipal uses is projected to be 82.5 million m^3.

- **Industrial uses.** Industrial water includes cooling water for electricity generation in the two existing thermal power plants and a new one to be under operation by 2020–2025. The three power plants will account for 96 percent of the power generation capacity of the country. Including water needs for metallurgic and mining industries, the total annual

[3] Present percentage of losses is high compared to present flow. At greater flows (demands) the losses percentage will decrease substantially (though the losses volume/annum could increase).

industrial water supply needs would be 65.05 million m^3, with an average peak demand of 2.077 m^3/s.

- **Irrigation uses.** Average water use at farm level ranges from 2,400 m^3/ha to 3,000 m^3/ha. At the 2025–2035 horizon, it is expected that water needs for irrigation of 10,000 ha would reach 43 million m^3 with a peak demand in July and August of 5.38 m^3/s (if the farming constraints summarized above in paragraph 6 would be tackled).

Table 1. Synthesis of Water Demand

Period	2014	2014–2025	2025–2035
Peak demand in m^3/sec	5.9	9.77	14.02
Annual volume in million m^3	113	219	290

Note: See annex 2 for a synoptic of flow projections along the canal.

10. **Government commitment to improving water resources availability.** Recognizing the critical role of the IL Canal to the overall economy of Kosovo, the government of Kosovo has requested the Bank's support to improve the functioning of the canal. Government commitment to improving water resource availability and quality is evidenced by the establishment of the Water Task Force under the aegis of the office of the prime minister. In its policy statement on water resources development and protection, it is explicitly stated that the government will support, through the Ministry of Environment and Spatial Planning (MESP), directly or through donor input, a needs assessment for developing new water resources and will nominate such areas of 'national interest'. It has already nominated five dams as areas of national interest, and from among the five, the Gazivoda dam has been designated as the foremost, with the Gazivoda reservoir declared 'the most important reservoir'. The government has attached priority to water management as lack of water security is proving to be a hurdle for both public and private investments. The policy paper states that the "Government aims to attain water security in order to achieve sustainable development, growth, and poverty reduction, and commits itself to the development of appropriate water institutions and proper infrastructure management that will support growth."

11. The Bank has supported the government in identifying priority measures, structural and nonstructural, for the water sector broadly to achieve its socioeconomic development objectives linked to availability of adequate and quality water. The study, *Water Security for Central Kosovo* (World Bank, 2011/2012), assessed the existing structural integrity and construction quality of the bulk water conveyance systems, and in particular of the IL Canal. It concluded that, out of several alternatives, the set of measures to improve water security in the IL Canal basin proved to be economically, institutionally, and technically the most preferable. The proposed project is being designed in response to the outcomes of this study.

C. Higher Level Objectives to which the Project Contributes

12. The proposed project is in line with the objectives of the Country Partnership Strategy (CPS) FY2012–15 (Report Number 66877, Board Meeting Date May 29, 2012) that seeks to support Kosovo to (a) accelerate broad-based economic growth and employment generation and (b) improve environmental management. These objectives are embedded within the overall context of assisting the government move toward EU-compliant standards and requirements.

13. The CPS specifically states that given the limited and insufficient water resources in the country, water is expected to be a limiting factor for economic and social development in the future. The CPS identifies water availability and quality as key areas of attention. The proposed project, by seeking to improve the reliability and quality of water to central Kosovo, is a central effort in the government's overall strategy to promote socioeconomic development and protect its natural resource base.

14. Bank twin goals: The project contributes to the World Bank Group's strategic twin goals of eliminating extreme poverty and promoting shared prosperity, in a sustainable manner. Ensuring the reliability and the quality of the Ibër Canal's bulk water supply will support shared benefits among populations, both, urban and rural, residing in central Kosovo, through improvements in multiple sectors, including energy, agriculture, industry, and municipal water supply for domestic consumption. The local population sees the canal as a natural hydrographic flow rather than an engineering work. The ILC runs mainly through a rural area, where the main sources of income are provided by farming activities and other resources. The land is fertile, enabling residents of this area or these settlements to generate sufficient income for living. Property in the whole of Kosovo is highly fragmented. This has consistently caused the weakening of agricultural households, with an estimated agricultural land per capita of 0.15 ha. According to the United Nations Development Programme report on human development (2012), the poverty rate in Kosovo is controversial. There is 34 to 48% of absolute poverty and 12 to 18% of extreme poverty. The poverty rate has continued to grow, mainly in rural areas and mainly among children, female-headed households and members of the Roma minority[4]. About 33% of rural households of the municipalities located in the project area do not have access to the public sewage system, while 9% do not have sanitation. Only 22% have private sewage systems, of which 33% are connected to a regular public sewage system. Thus, some private sewage systems are discharged directly into surface watercourses. Fortunately since the time of that census, significant investment has been made to install municipal services throughout the area. Nevertheless, the situation has not completely improved as there are also new constructions developed since then as a result of settlement expansions. Thus, some households still discharge their wastes and wastewater into the Iber canal, use the canal illegally for watering small gardens, or use it for swimming (mainly children) at the risk of drowning. The project will help in managing the future interests of those low-income households living within the canal area in terms of: (i) restoring the canal capacity to ensure reliable supply at the demand peaks for irrigation and other purposes (especially for canal tail-enders); and (ii) protecting the canal from the illegal and hazardous uses, including through fencing the canal stretches which pass through inhabited villages.

15. Project contribution to adaptation to climate change: It is estimated that by 2025-2050 climate change could result in reducing precipitation by 3% to 7% annually and by 9% to 23% in summer (source: IPA website). The aforementioned Bank-supported study, *Water Security for Central Kosovo* (March 2011), assessed that climate change that could result in a 25% to 50 % decrease in the runoff and inflow in reservoirs in Central Kosovo during very dry years, including Gazivoda reservoir. If Iber canal is rehabilitated and losses are reduced below 30% of its discharge, Gazivoda reservoir would respond better to a sequence of very dry years for the 2025-2035. A regulation system implemented on the canal can reduce operational losses to 10-15%. A Supervisory Control and Data Acquisition (SCADA) system can provide ILC with a tool to

[4] UNDP, human development report in Kosovo 2012, p 11, Prishtina 2012, Alb.

monitor water levels at Gazivoda and provide a time series. This would assist the Government/ILC in managing the water levels during very dry years.

II. PROJECT DEVELOPMENT OBJECTIVE (PDO)

16. The objective of the Project is to contribute to restoring the Ibër Canal to its original capacity to improve water resource management for various canal water users in Central Kosovo.

A. Project Beneficiaries

17. The proposed project will include beneficiaries across multiple sectors. Direct beneficiaries include the ILC and its clients: (a) regional water companies; (b) thermal power plants—Kosovo A and Kosovo B (and the forthcoming additional coal-fired generation plant); (c) industries in the region; and (d) farmers involved in irrigation within the canal basin.

18. By improving the reliability and quality of water supplied to the thermal power plants (that generate energy for about 90 percent of the country), water companies, and irrigation farmers, the project will benefit a large swath of rural and urban households, businesses, and industries. It is estimated that overall, the project will benefit approximately 500,000 people residing in the IL Canal basin.

19. On-lending the International Development Association (IDA) credit from the Ministry of Finance (MoF) to the ILC (for all project investments except the new reservoir) will set an example for improving the autonomy of such state-owned service utilities in Kosovo.

20. As for vulnerable groups and gender, the socioeconomic studies under the Environmental and Social Impact Assessment Framework (ESIAF) and Environmental and Social Management Framework (ESMF) will include the identification of any vulnerable groups, including internally displaced people or refugees, ethnic groups such as Roma, and landless laborers, and focus on the rights of female household heads and women in common-law unions. The public consultation and grievance procedure under the project will comprise measures ensuring that such vulnerable groups are consulted during project (and subproject) design and implementation.

B. PDO Level Results Indicators

21. The PDO indicators are as follows:

(a) Increased canal-flow capacity at project completion (m^3/s) (as a measure of increasing the canal transit efficiency, through reducing its seepage and operational losses).

(b) The maximum continuous duration in days for closing the canal after constructing new water storage for preventive maintenance or for repair amid having an extreme event (indicator: number) (or the total number of intermittent days when the canal can be closed during a year) (as a measure of improved reliability of bulk water supply).

III. PROJECT DESCRIPTION

A. Project Components

22. The project consists of two main areas of intervention: (a) canal infrastructure rehabilitation and modernization (by re-establishing the canal transit capacity, enabling closure of the canal for maintenance, strengthening the canal structural safety against extreme events, and enhancing dam safety) and (b) water resources protection and management (by increasing the Gazivoda-Ibër system operational efficiency and protecting the canal ambient water quality). The project will rehabilitate the open-air sections of the Ibër Canal. However, rehabilitation works on the closed sections will not be possible without constructing the new Emergency Reservoir of Mihaliq (ERM). See annex 2 for further details on the subcomponents.

23. **Component 1: Infrastructure Rehabilitation and Modernization (Categories: Civil Works; 10.5 million Euro)**

This component includes financing works for re-establishing the Iber canal transit capacity, enabling closure of the canal for maintenance, strengthening the canal structural safety against extreme events, and enhancing Gazivoda dam safety. This component will mainly rehabilitate the open-air sections of the canal (e.g. through canal lining, treatment of joints, repair of abutments, cuttings, aqueducts, culverts). In addition, by constructing a new balancing-and-emergency reservoir in Mihaliq area, the project will enable the ILC to: (i) cut the canal flow whenever needed to rehabilitate the canal's closed sections or amid extreme events and (ii) balance water demand and supply over the 2035 horizon. The Gazivoda/Ujman dam and Iber canal are owned by the ILC and the ILC is solely owned by the Government.

24. **Component 2: Water Resources Protection and Management (Categories: Civil Works and Equipment; 9.8 million Euro)**

This component includes financing works for water resources protection and management, to increase the Gazivoda-Ibër system operational efficiency and to protect the canal ambient water quality (against renewed or accidental pollution and other man-made disruptions). The works include selective fencing and covering of certain canal sections. A relatively advanced SCADA will be installed given the importance of the canal, including instrumentation for optimized operational schedule of the Gazivoda reservoir and its downstream balancing reservoir in Pridvorica, integrated with the canal SCADA (to help in balancing the releases for hydropower with the releases for the Ibër canal).

25. **Component 3: Project Management, Coordination, Monitoring, and Evaluation (Categories: Consultants, Training, and Incremental Operating Costs; 1.7 million Euro)**

This component will cover overall project management as well as coordination among the different ministries/agencies involved in water management as related to the IL Canal. The Project Implementation Unit (PIU) to be located within the ILC will be responsible for the day-to-day management of project activities and will work with relevant staff in other ministries such as the MESP on the project's safeguard aspects (ESIAF and ESMF), and Resettlement Policy Framework (RPF), as well as on monitoring and evaluation (M&E). The M&E activity will include monitoring

and reporting (in the project progress report) on two indicators of citizen's engagement (see paragraphs 61 to 70 below): (1) response to grievances (reported monthly) and (2) satisfaction of the Community-Based Organizations (CBOs) on the project procurement and contract-management process (reported annually). The activities financed by this component include capacity building of ILC including competitively-selected consultants for procurement, detailed design and supervision, M&E, dams Panel of Experts (PoE), and tailor-made training courses on canal technology and water management. [In addition, training of ILC staff on using the introduced SCADA will be financed as part of the SCADA contract under component 2].

26. The project will establish a Project Steering Committee (PSC), comprising high-level officials from the various ministries engaged in the water sector (the MESP, Ministry of Economic Development [MoED], Water Task Force, Ministry of Agriculture, Forestry, and Rural Development [MAFRD]), who will work together to provide advice and oversight for project activities. Given the multi-sectoral nature of water use, the committee will be charged with reaching agreements as necessary in the efficient management and distribution of water from the Ibër Canal.

27. **Additional Bank support on institutional aspects.** After project approval, a small trust fund grant (for example, Water Partnership Program) will be sought to help improve the capacity of the ILC on the utility management aspects (of managing the capacity restored/water saved by the project).

B. Project Financing

Project Cost and Financing

28. The total project costs, including physical and price contingencies, are estimated at €22 million. The physical and price contingencies are estimated at the amount of €1.01 million and €0.52 million, respectively.

29. The IDA Credit in the amount of €22.00 million will finance 100 percent of the total project costs. There are no tax and duty exemptions envisaged for the project.

Table 2. Cost Summary of Project Components

Kosovo
Kosovo Water Security and Canal Protection Project
Components Project Cost Summary

	(EUR '000)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total		
Component 1: Infrastructure Rehabilitation and Modernization	7,582.6	2,224.8	9,807.5	22	47
Component 2: Water Resources Protection and Management	5,353.4	3,622.0	8,975.4	40	40
Component 3: Project Management	1,049.1	641.1	1,690.1	32	8
Total BASELINE COSTS	14,185.1	6,487.9	20,473.0	31	100
Physical Contingencies	606.8	400.9	1,007.7	40	5
Price Contingencies	261.1	257.3	518.4	50	2
Total PROJECT COSTS	14,833.0	7,176.1	22,009.1	32	107

30. IDA will have a Financing Agreement with the MoF and a Project Agreement with the ILC. The exact size and cost of the new water storage/reservoir at Mehiliq will be determined during the first project year after completing its detailed designs and site-specific safeguards studies. The MoF (through MoED) will service the debt for the reservoir, around 7 million Euro[5] because it is a long-term, multisector public good, whereas all other project investments along the canal will be on-lent to the ILC (governed by an internal subsidiary/on-lending agreement between the MoF and ILC, following the same IDA-credit grace and maturation terms). This is a step forward on increasing the financial autonomy of the ILC. The IDA proceeds for the entire project including the reservoir will be passed to ILC, since ILC will implement the entire project.

C. Lessons Learned

31. The Bank has a long and highly successful experience in the rehabilitation and modernization of large conveyance-canal systems. The Bank's experience in canal lining using modern lining technologies and geosynthetic materials (to reduce seepage losses and improve canal safety) dates back to the mid-1970s in the Middle East (Syria) and later in Pakistan and China. The Bank-financed Tarim II Project in China in the early 2000s is still the largest operation in canal rehabilitation. The Bank has also provided assistance in the modernization of the management of large canals such as in the Vietnam Water Resources Project in the 2000s. Experience indicates that changes in management and institutions should accompany the modernization of water-control infrastructure to achieve sustainable improvement in service. Improved management or modern infrastructure alone does not yield sustainable results. With modernizing civil works and equipment, improved operation will require intensive training of all stakeholders: managers, designers, contractors, operators, and users. Managers and operators are usually resistive to change, and designers are hesitant to challenge design standards. Therefore, intensive training at all levels is essential. The proposed project will comprise the construction of a basic SCADA, as well as the construction of emergency and balancing water storage facility, which will have multiple functions, including providing storage at night, improving security of water delivery for canal repairs, and maintenance. The SCADA supply-and-installation contract will task the supplier to also provide maintenance and training services for at least two years after the installation.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

32. The main implementing agency will be the ILC, overseen by the MoED that oversees all such state-owned service utilities.

[5] This 7 million Euro estimate excludes 1.98 million Euro for a 2 km pipeline (from location DN1200 toward DO2) for emergency water supply from Mehiliq to the new Pristina water supply treatment plant; which was dropped at project negotiations since MoED/Pristina Water Supply Utility could finance it in the future outside the project. Without this pipeline the amount to be repaid by MoED is around 7 million Euro, including the dam, pump station, a small balancing tank at Obliq, and the associated consulting services and contingencies.

33. **Mandate and financial status of the ILC.** The Hydro Economic Iber-Lepenc JSC (abbreviated for simplification as "ILC" in this document) is a joint stock company, governed by the charter dated February 26, 2010, incorporated and registered in the Kosovo Business Registry with the Government of Kosovo as the sole shareholder. The ILC was originally established in 1967 to be responsible for the operation and maintenance (O&M) of the canal and its control, structures, and facilities. The canal structural assets are owned by the state (through the ILC), whereas the management/protection of the water resource entering the canal, seeping from the canal, or discharged from the canal to Sitnica and Ibër Rivers is all under the mandate of the MESP.

34. **The project is a step toward improved financial autonomy of the ILC.** The ILC is a state-owned semiautonomous agency overseen by the MoED. The ILC turnover is around €3 million per year, and in the recent two to three years, the ILC has become nearly autonomous with regard to its recurrent costs (routine operation and maintenance, but not for major rehabilitation or capital investments). Around 60 percent of ILC revenues come from supplying hydropower to the power agency KEK, 35 percent from serving the M&I water uses, and only 5 percent from irrigation. On a socioeconomic basis, the government regulator restricts the ILC from freely raising the M&I end-user fees. The ILC provides water for irrigation; however, due to economies of scale (of the canal subsystem equipped for irrigation) and the lack of irrigation users (only 1,500 ha) compared to the past when this system was constructed (20,000 ha), the ILC now incurs financial losses in serving the irrigators. This financial loss will turn to profit if the irrigated area is restored in the future (to 15,000 ha). The government/MoED's goal is that the ILC, being a state-owned revenue-making utility, will become fully autonomous at least on its recurrent expenditure, routine maintenance, and small system-replacement costs. The project is a step forward toward this goal because the ILC will be servicing much of the debt related to project investment costs (except for the new reservoir which will be serviced directly by MoF through MoED). See further description of the ILC financial/autonomy status in annex 5.

35. **Project implementation setup.** A PIU will be established within the ILC, comprising a core group of specialists responsible for project management and M&E as well as environmental specialist. An assessment of the ILC's technical and fiduciary capacity was undertaken as part of project preparation and concluded that the ILC is capable of implementing the project. The ILC is well staffed with technical specialists that have experience with canal rehabilitation works and canal O&M. The ILC has also demonstrated a reasonably good record with collecting fees from water users. However, the ILC will hire an international procurement expert as part of the PIU, because this is the first Bank-supported project with the ILC and includes procuring unconventional civil works (new reservoir) and equipment (SCADA).

36. While the ILC will be responsible for implementing all project components, the ILC will work jointly with (a) the Inter-Ministerial Water Council (IMWC) regarding the national/multi-sectoral aspects of newly introduced water storage and (b) the MESP in relation to Subcomponent 2(a), where the MESP has the mandate for water resources management and quality protection (the water department of the MESP) and in relation to Component 3, where the MESP comprises other departments tasked with reviewing/approving project environmental and social impact assessments (ESIA) reports, environmental and social management plans (ESMPs), and Resettlement Action Plans, with previous experience in Bank safeguards requirements.

37. A PSC will be established at a higher level to provide overall project guidance and oversight. The recently established IMWC (formerly, the Water Task Force) will assume a key part of this steering role. The PSC will thus include the IMWC member ministries (the MESP, MoF, MoED, and Ministry of Local Development); the MAFRD; and the respective mayor depending on the exact location of the reservoir. See the implementation organogram in annex 3.

38. *Postconstruction O&M for the New Reservoir:* By project approval, the Bank and the government will agree on selection criteria toward deciding on the entity that will operate and maintain the new reservoir post the construction. Annex 3 provides some indicative options, which include seeking a Build-Operate-Transfer/Public-private Partnership contract under the project, as a transitional and learning endeavor that may help the government to eventually decide on the entity that is most capable of (benefiting from) taking over the O&M.

B. Results M&E

39. The M&E consultants will be hired by the ILC-PIU. The project budget includes budget for M&E consultants, M&E incremental costs, and some water monitoring equipment as part of the SCADA. An intensive baseline survey is not needed because the PDO and outcome baseline indicators are simple (either zero or estimated from the analysis performed by the FS). The project semiannual progress report will include an M&E chapter informed by undertaking (a) independent land and beneficiary surveys (including on gender engagement and female beneficiaries) and (b) water modeling/desk-based estimates and in situ measurements.

C. Sustainability

40. The infrastructure introduced by the project is publicly owned, and the government/ILC is entrusted with its O&M. A socioeconomic assessment was conducted during the project preparation, involving interviews and consultations with local stakeholders, and people's perceptions were elicited on: (a) the problems aimed to be tackled by the subprojects; (b) expected socioeconomic benefits; and (c) alternative or supplementary projects and strategies that can tackle these problems. The stakeholders' perception is that the project will generate substantial social benefits because the beneficiaries are both urban and rural communities dependent on water for their livelihood. The government/ILC has the mandate and the capacity to undertake O&M at that system level. Ensuring modern canal designs and quality construction will help in sustaining the assets and in systemizing their O&M, and the introduced SCADA will help the ILC to make informed decisions as to the O&M. As the project improves the ILC capacity to provide more reliable water supply to various users, the O&M cost recovery from end user fees is expected to increase and the ILC will be more financially capable of undertaking the O&M.

41. The social and gender aspects of the project have been covered by the RPF, and by the social development part of the ESIAF and ESMF, to ensure having tangible additional mechanisms for engaging the beneficiaries including women during project implementation. Environmental aspects have been addressed in ESIAF and ESMF and foreseen ESIA for Mihaliq dam and EMP Checklist for IL canal and Gazivoda rehabilitation.

V. KEY RISKS AND MITIGATION MEASURES

A. Overall Risk Rating and Explanation of Key Risks

Table 3. Risk Rating by Category

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	High
7. Environment and Social	Substantial
8. Stakeholders	Moderate
Overall	Substantial

42. The overall risk is rated substantial due to potential risks that may arise with operating the newly introduced SCADA system, dam safety, land acquisition, and institutional capacity in the field of integrated canal water management, particularly as this project is the first Bank-supported operation in Kosovo's water sector.

43. *Risks in Technical Design and in Institutional Capacity for Implementation and Sustainability:* These capacity-related risks are substantial due to the need for several agencies to cooperate to approve the detailed design, and to implement these designs sustainably, as is the case with many multisector bulk-water investment projects worldwide. However, the government commitment to the project, and hence to address these risks, is considered to be strong. The main implementing agency, the ILC, has considerable experience with executing canal civil works and with coordinating with the pertinent agencies.

44. *Fiduciary Risk:* While the capacity assessment for the ILC rates as substantial, the financial management (FM) and disbursement risks aremoderate, the assessment rates the procurement and post-procurement contract management risk as high. Thus, the resultant Fiduciary risk is rated high. The high risk in procurement and contract management is attributed to (a) procuring new unconventional equipment/works, namely the SCADA and the new emergency storage facilities (for example, a small reservoir) and (b) the need for the implementing agency, the ILC, to cooperate with other agencies (mainly the MESP and IMWC) on procuring/implementing the emergency water storage under Component 1 and the water resource protection measures under Component 2, and to cooperate with the municipalities in the north. The high Fiduciary risk can be reduced to substantial after adopting the procurement and FM mitigation measures (see annex 3).

45. *Environment and Social Risk:* The environment and social risk is substantial due to (a) the perceived risk of having safeguards issues with concurrent and future investments in the power or irrigations sectors that, to the public's perception, may be perceived as linked with the project and (b) substantial but manageable risks arising from dam safety and land acquisition in the case of building a new emergency reservoir (see section VI-B below).

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

46. The economic analysis assesses the benefits of the project to the domestic, industrial (including hydropower), and irrigation sectors (fefer to annex 5) The benefits include (a) reduction of drinking water production costs; (b) water loss prevention due to extreme natural events; (c) reduction of industrial production costs due to improved water quality; (d) increase of hydroelectricity production; and (e) improved irrigation benefits from more reliable water supply. The base case economic rate of return (ERR) is estimated at 10.1 percent. The base case economic net present value (ENPV) of the project's net benefit stream, discounted at six percent, is around €6.9 million in economic terms. In relative terms, the project ERR is equally sensitive to changes in costs and in benefits. In absolute terms, these changes do not have a significant impact on the ERR, and the economic viability is not undermined by either a 20 percent decline in benefits or by a 20 percent increase in costs.

47. The financial analysis shows that because the project will improve services to end users, the ILC will be able to raise relatively end user tariffs; thereby the financial internal rate of return will be three percent. This compares favorably with the regional norms of three to five percent, bearing in mind that the project focuses mainly on system rehabilitation and not system development.

B. Technical

Water Balance Study Undertaken for Project Preparation

48. The results of the water balance study indicated that if major investments are made to strengthen the canal structures and improve the canal efficiency, the water resources of the Gazivoda-IL Canal system can meet all the industrial, municipal, industrial, thermal power generation, and irrigation uses even when these demands will have reached full development by 2035. See the water balance summary in annex 2.

49. The total water demand at the 2035 horizon including losses of 15 percent (13.5 m^3/s) in the canal will exceed the capacity of the canal at the head (about 12 m^3/s). All the water needs cannot be met at the 2035 horizon if the entire canal system (including tunnels and closed canal sections and siphons) is not rehabilitated. This capacity can be reached only if the roughness (Strickler) coefficient of the whole canal (including tunnels and galleries) is increased, leading to a conveyance capacity of 16 m^3/s at the intake. These works cannot be carried out without the construction of a small balancing/emergency reservoir as part of the key O&M structures of the Ibër system which, after completion of the project, will enable further rehabilitation works on the tunnels, galleries, and siphons.

Managing the Water Resources Base

50. **Improve operational efficiency (matching supply and demand).** The water balance projected until 2035 indicates that the Gazivoda reservoir can meet all the domestic, industrial, hydropower, and irrigation demands as projected at 2035, with a small (three to four percent) reduction in hydropower compared to the present hydropower production level. Improving the canal operation efficiency, including through introducing the SCADA, can help optimize the water allocation across these sectors, thus eliminating all the shortages.

51. **Improving canal water quality.** The project will also help maintain the excellent quality of the water running through the Ibër Canal by constructing works avoiding high sediment content water to flow into the canal after high rainfall. Pollution prevention and mitigation works will include constructing retaining walls, sections of lined ditches along the right bank of the canal, crossing structures to reject rain water on the left bank, and septic tanks and a closed cover across a 400 m long section of the Zubin Potok Village.

Improving Canal Infrastructure and Services

52. **Transit (conveyance) capacity.** The project will increase the transit capacity of the canal through measures such as improved lining to meet the demands of all the industrial and municipal water users and the demand for irrigation water of the 10,000 ha.

53. **Reliability against supply interruption amid extreme events.** An interruption of the canal service could have a critical impact on the economy of Kosovo. The project will strengthen the canal and its associated structures to eliminate all reasonable causes of disruption of service to all users and improve the reliability of canal water supply.

C. Financial Management

54. As part of project preparation, an FM assessment was carried out to determine the FM implementation risk and establish adequate FM arrangements for the proposed operation. Bank policies and procedures on FM and disbursement require that the borrower and the project implementing entities maintain FM systems—including accounting, financial reporting, staffing and internal controls, budgeting and planning, flow of funds, and auditing systems—adequate to ensure that they can provide the Bank with accurate and timely information regarding project resources and expenditures. Areas that require further strengthening were identified and recommendations and complementary actions were agreed to ensure that minimum requirements are met, namely (a) the need to hire/appoint a qualified FM specialist (full time) to support the ILC's finance divisions during project implementation; and service in the same way MoED for the component 1(b); (b) documenting FM procedures, including internal controls in the Financial Management Manual (FMM), in a form satisfactory to the Bank (adopted within two months from project effectiveness); and (c) training of the ILC's FM budget and finance staff on Bank fiduciary and disbursement rules.

55. The credit proceeds will be disbursed on the basis of the regular Investment Project Financing disbursement mechanism using traditional disbursement methods such as reimbursement, advance, direct payments, and special commitments. Direct payment and special commitment will be used for the sizable remunerations for contractors and suppliers, especially

large works contracts. For category 1, the advance method will not be used. For this category the project expenditure will be either pre-financed from the MoED budget or made directly available to the contractor through direct payment or special commitments. The advance method, and consequently the use of Designated Account (DA) will be allowed only for category 2. Credit proceeds for category 2 may be drawn down in the form of advances into a designated account (DA) managed by the ILC for financing smaller-value eligible expenditures.

56. Quarterly cash basis IFRs covering all project activities will be submitted for the Bank's review within 45 days from the end of the quarter. The annual audit reports for the project financial statements will be provided to the Bank within six months after the end of each fiscal year. The audit reports will be made publicly available in line with the Bank's policy on access to information. In addition, audited financial statements of ILC prepared in accordance with IFRS shall be submitted within six months from the end of the year.

D. Procurement

57. Procurement for the project will be carried out in accordance with the Bank procurement guidelines. Specifically, procurement will be carried out in accordance with 'Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers', published in January 2011 and revised July 2014; 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers", published in January 2011 and revised July 2014; and the provisions of the Credit Agreement for the project. The World Bank Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credit and Grants, dated October 15, 2006 and revised in January 2011, will also apply to this project. Procurement will be conducted following implementation arrangements described in the Project Appraisal Document (PAD) and using the latest version of the Bank's Standard Bidding Documents (SBDs) for goods and non-consulting services and Standard Request for Proposals for consulting assignments available on the Bank's website.

58. The procurement capacity assessment of the implementing agency found out that while the ILC has procurement staff with more than five years of experience in public procurement, they have no experience in Bank-funded procurement procedures. Under such circumstances and considering the relatively complex nature of the project, as well as the general country public procurement environment, the overall project risk for procurement is high. Most of the high-value contracts financed from the project will be prior reviewed by the Bank's procurement specialist. A draft 18-month Procurement Plan (PP) was developed during appraisal; the plan was agreed upon between the government and the Bank during negotiations. Details on project procurement arrangements are presented in annex 3.

Implementation Readiness and Advance Procurement

59. To be ready for implementation once the project is approved, the SCADA system under Component 2 has been designed up to the detailed design level, and its bidding document has been prepared (equipment and associated training and operation services), to be implemented in the project year (PY) 1.

60. The ILC will hire an international procurement expert on the PIU through retroactive financing (before project approval) because this is the first Bank-supported project under the ILC, which includes procuring unconventional contracts, including civil works (new reservoir), equipment (SCADA), and consultants (dams Panel of Experts [PoE] and a project implementation consortium).

E. Social (including Safeguards, Citizen Engagement, and Gender)

61. **Rationale for Preparing Framework-level ESIAF and RPF.** The SCADA detailed design and tender documents became available before appraisal as the SCADA will be executed in PY1. For all other civil works, a good preliminary design is available, while the detailed design and site-specific ESIA/ESMP will be undertaken in PY1 for these civil works to be executed in PY2. Therefore, the technical-level ESIAF and RPF have been prepared with smaller process-oriented ESMF sections, that is, reflecting the FS findings and component-level preliminary designs that became available before appraisal.

62. **Involuntary Resettlement OP 4.12.** OP 4.12 is triggered because the area through which the canal passes is densely populated; hence, the proposed reservoir and some of the protection measures (for example, fences along canal banks) will require some land acquisition though not expected to require significant physical relocation. An RPF has been prepared and disclosed on February 10, 2016 governing the entire project works, whereas site-specific Resettlement Action Plans will be prepared during implementation based on the detailed designs.

63. **Public Consultation under OP4.01.** Public consultations for the RPF and the ESMF were organized on February 24, 25 and 26, 2016) in Vushtrri, Mitrovica and Pristina. There are community interests in the project, given the expected benefits, the proximity of the residents to the canal at some sections, and the proposed ERM. Although Public consultations for the preparation of RPF and ESMF were carried out, the nature of the project warrants effective, transparent, and sustained citizen engagement. The project will undertake the following interventions during project planning and implementation of the project to ensure meaningful citizen engagement. To ensure implementation of these activities, a comprehensive technical assistance program will be developed to build clients' capacity both at the conceptual and operational levels. See annex 3 for further information.

64. **Gender.** Gender integration will be an important aspect of this project. It will be important to engage women from an early stage because households near the canal tap into the canal and use canal water for watering gardens, washing furniture and carpets, and other uses. Women are therefore an important group of stakeholders in the project. The project will undertake consultations on the change in canal water use patterns.

65. In this regard, a comprehensive gender assessment will be carried out early during the subproject design process. See annex 3 for further information. On the basis of the findings, a detailed work program will be developed to ensure gender mainstreaming in the project. In addition, gender sensitization workshops will be organized for project staff, the advisory committee, and any locally established community institution, to ensure sustainability of programs initiated by the project for women.

66. **Citizens Engagement.** Given that a grievance mechanism will be channeled through a community-grievance approach, which will facilitate inputs from the individuals and communities, it is expected that that the communities and individuals/beneficiaries will be proactive towards the ILC role. The Grievance Committees will be formed with participants from communities, local government and the PIU. The committee will have a defined protocol with standard response time and will maintain logs for the complaints/ideas/issues which will be recorded and reported in the project progress reports. The terms of operation of the grievance committee (facilitation committee) will be written after project approval. The grievance mechanism will be funded under the M&E activity under component 3. See further information in annex 3.

F. Environment (including Safeguards)

67. The project triggers OP/BP 4.01 - Environmental Assessment and has been classified as a category B project. This indicates that some degree of adverse environmental impact will occur as a result of project implementation in construction and/or operation phase. However, the expected impacts will not be significant, unprecedented or unpredictable. The foreseen project impacts are mostly related to implementation of activities under Component 1, encompassing rehabilitation works on IL Canal, safety improvements on the Gazivoda dam (Subcomponent 1(a)), construction of Mihaliq dam for emergency reservoir (Subcomponent 1(b)), and some small construction activities like fencing under Component 2.

68. In line with the triggered policy, the Environmental and Social Impact Assessment Framework (ESIAF) with the Environmental and Social Management Framework (ESMF) was prepared before the appraisal. The ESIAF with the ESMF covers all project components, reflecting the level of information available in the FS. The ESIAF provides baseline information and project description for all components and predicts impacts to the level possible depending on the level of design. Mitigation measures are also proposed as part of the ESIAF, based on identified impacts and description of works. The ESIAF especially serves as preliminary Environmental and Social Impact Assessment (ESIA) for dam and reservoir because a full ESIA will be prepared later during the project implementation. It also identifies site investigation and monitoring that needs to be done for the full ESIA and proposes terms of reference (ToR) for the ESIA.

69. The impacts of the Mihaliq reservoir will be assessed in detail through a full ESIA prepared during project implementation. The ESIAF however recognizes the following: the main potential impacts of the Mihaliq reservoir will result from filling in the emergency reservoir. In association with this main impact will be the change in regime from a highly oxygenated river stream to a lake with calm water and a risk of accumulation of nutrients such as phosphorus and nitrogen. The Mihaliq dam is deemed a large dam (due to terrain steep slopes) with the reservoir capacity around 3.7 million m^3 and the dam 20–25 m high. Besides the height of the proposed dam and nearby downstream settlement (1 km away), no other particular environmental risk factors have been identified relating to the new reservoir (no impact on natural habitats, physical cultural objects, physical relocation of population, and so on).

70. At this stage, the full scope of reservoir utilization is not determined because in the long term, it can have many beneficial purposes. The use and modus operandi will be determined during project implementation, most probably during the first year of implementation. The initial plan entailed the following three purposes: (a) balancing reservoir for irrigation peak hours; (b) closing

of Ibër Canal to allow the rehabilitation of the canal and tunnels upstream of node DO2 (division object 2); and (c) bridging turbidity peaks. While the balancing reservoir will serve all the water users of the Ibër Canal, including the thermal power plants, these users are not dependent upon the construction of the reservoir. If the proposed jointly accessible reservoir was not built, other users would continue to access water from the canal and would likely construct their own buffer reservoirs (users are reluctant to do so, since water supply is the mandate of ILC). The ESIA prepared for the dam and reservoir will have a special focus on the use of the reservoir and associated impacts.

71. The impacts related with the canal rehabilitation and Gazivoda dam are small scale, temporary, and site specific, in a way typical for infrastructure rehabilitation works (noise, waste, resource materials, and so on) and therefore will be easily mitigated through implementation of respective site-specific ESMPs (Environmental and Social Management Plans).

72. The complementary ESMF to ESIAF serves as a process-oriented framework and defines the type of environmental due diligence documents that need to be prepared, disclosed, and consulted for different project components/activities. For small rehabilitation works, the ESMF provides a template EMP checklist, prepared based on the impacts and mitigation measures identified in the ESIAF. ToRs and description of other types of due diligence documents are also provided.

73. Once finalized, the ESIAF was disclosed on February 10, 2016, before the project appraisal on the ILC website in English, Albanian, and Serbian, and hard copies were available at the ILC, Zubin Potok, and Vushtrri Municipality premises for two weeks. At the same time, a call for the public consultation meetings was issued (through the website and direct mails dispatched to different stakeholders), and the date and venue of the meetings were set. The ILC requested written comments and provided both the postal and email address for sending comments and suggestions on the ESIAF. The public consultations on the ESIAF were held on February 24, 2016, in Vushtrri, February 25 in Mitrovica, and February 26 in Pristina.

74. **Dam Safety (OP 4.37)** is triggered because of the construction of the new ERM and also because the project performance relies upon the Gazivoda dam, for which some urgent rehabilitation will be performed. Preselection of a PoE for the development of Mihaliq dam and rehabilitation of the Gazivoda dam is being undertaken. The PoE was appointed in due time to review all dam safety documents after the appraisal. The following documents were prepared before appraisal: (a) for the existing Gazivoda dam, a framework for the O&M plan, framework for the Instrumentation Plan, framework for the Emergency Preparedness Plan (EPP), and a Construction Supervision and Quality Assurance (CSQA) plan and (b) for the ERM, a draft CSQA plan, framework for the O&M plan, and framework for the EPP. The full-scale ESIA (to be prepared before constructing the dam, in parallel with the design), as well as dam safety documents, will pay attention to impacts and risks identified in the ESIAF and will address the impact on the village situated 1 km downstream of the ERM.

G. Other Safeguards Policies

75. Projects on International Waterways (OP 7.50). OP7.50 is triggered because the Iber Canal draws water from the transboundary Iber River which is shared with Montenegro and Serbia. As

provided for under OP 7.50, an exception from the requirement to notify other Iber River riparians was processed and approved by the World Bank Regional Vice President. This approval was on the basis that the project will finance rehabilitation and modernization of existing infrastructure, as well as the conclusion in the FS/ESIAF that there would be no appreciable harm to the riparians, because: (i) quantity wise, the Mehaliq Compensation and Emergency Reservoir (ERM) is an "operation reservoir" with limited buffer capacity (maximum one percent the size of the Gazivoda reservoir), pumping from and returning to the canal; and (ii) quality wise, the canal return-water quality would improve due to decreasing turbidity.

76. *Transboundary water quantity*: The mean annual flow of the Iber River is 13.06 m^3/s corresponding to an annual volume of around 412 Mm^3 while the capacity of the Gazivoda reservoir is 370 Mm^3. When constructed, the ERM, with its reservoir's size of around 3.7 million m^3 would only amount to about one percent of the source Gazivoda reservoir. It would work only as an operation (compensation and emergency) basin with limited storage for a maximum ten days, thus without undermining the transboundary and environmental flows. Canal operators are aware that the river flows required by Serbia need to be maintained, including the minimum legally-mandated environmental flow for the Iber/Sitnica river, estimated at 0.50 m^3/sec in monthly average or 1.5 m^3/sec in monthly peak, which can be met given that the project would largely restore the as-built canal flow capacity (e.g. at around 15 m^3/sec at intake).

77. *Transboundary water quality*. The project immediate investments will help improve water quality, particularly as the ERM will also help bridge turbidity resulting from runoff and sediments during heavy rains. Also for long term, the project will help enable the repairs of the IL closed sections (which is currently not possible), the project will generally help improve the instream water quality including for the transboundary environmental flows.

78. Projects in Disputed Areas (OP7.60). OP 7.60 is not applicable to the project given the location of the proposed activities. The Gazivoda dam and part of the Iber Canal are located in Northern Kosovo which has its own municipal administration which oversees local government functions. Taking these separate municipal administration arrangements, some risks associated with project implementation have been recognized along with mitigation measures. .

Contemporaneous/Related Activities

79. According to the FS, the present water volume entering the canal is around 97 million m^3 to account for current demands including losses. The projected average demand from all uses (drinking, industrial, energy, irrigation, and environment) by 2035 is 290 million m^3, with a peak canal flow of 14 m3/s, and hence will be still within the original design flow of the canal. The projected increase in water consumption for all users, if it occurs, will come from autonomous developments/investments independent of the project. The project will not finance works that increase these water consumptions (for example, no irrigation expansion investments under the project). In short, water use in central Kosovo is expected to occur whether or not the canal is rehabilitated. Conversely, even in the absence of additional water uses the canal rehabilitation would be needed to improve reliability of the currently-existing canal-water supply (particularly amid having extreme events or when major canal repairs are required).

80. Given its relation to Kosovo A and B power plants (and any proposed new power plant), the team considered the application of paragraph 4 of OP4.12 to the Project, specifically whether resettlement that took place as a result of coal-mining related to Kosovo A and Kosovo B was: (a) directly and significantly related to the current proposed Project; (b) necessary to achieve the objectives of the proposed Project; and (c) carried out, or planned to be carried out, contemporaneously with the proposed Project. The Project PDO is "to contribute to restoring the Ibër Canal to its original capacity to improve water resource management for various canal water users in Central Kosovo." The resettlement that took place as a result of coal-mining for Kosovo A and B power plants was not necessary to achieve the objectives of the proposed Project (OP4.12, 4(b)), that is, resettlement for the purposes of mining the coal was not necessary to restore the Ibër Canal to its original capacity to improve water resource management for various canal water users, including the power plants. Hence, there is no 'link' by virtue of OP4.12 paragraph 4 between the resettlement that took place as a result of coal-mining for Kosovo A and B power plants and the proposed Project. Given however that a 'significant' amount of the water conveyed through the canal (over 50%) is for industrial uses, including cooling of Kosovo A and B power plants (and any future power plant), there remains potential reputational risk from the public perception of a linkage between the project and the past and contemporaneous power sector investments

H. World Bank Grievance Redress

81. Communities and individuals who believe that they are adversely affected by a Bank-supported project may submit complaints to existing project-level grievance redress mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project-affected communities and individuals may submit their complaint to the Bank's independent Inspection Panel, which determines whether harm occurred, or can occur, as a result of Bank noncompliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the Bank's attention and Bank management has been given an opportunity to respond. For information on how to submit complaints to the Bank's corporate GRS, please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's Inspection Panel, please visit www.inspectionpanel.org.

Annex 1: Results Framework and Monitoring

Country: Kosovo

Water Security and Canal Protection Project: (133829)

Results Framework

Project Development Objectives

PDO Statement

The development objective of the project is to contribute to restoring the Ibër Canal to its original capacity to improve water resource management for various canal water users in Central Kosovo.

Project Development Objective Indicators

Indicator Name	Baseline[6]	Cumulative Target Values				
		YR1	YR2	YR3	YR4	End Target
Increased canal-flow capacity, averaged over the bottleneck points along the canal. (m^3/s increment)	0	0	0	0	1	1.5
Maximum continuous duration in days for closing the canal after constructing new water storage for preventative maintenance or for repair amid having an extreme event (number of days)	0	0	0	0	8	8

Intermediate Results Indicators

Indicator Name	Baseline	Cumulative Target Values				
		YR1	YR2	YR3	YR4	End Target
Direct project beneficiaries (number) - (Core indicator)	0	0	100,000	200,000	400,000	500,000
Supplemental:	50	50	50	50	50	50

6 For some indicators the baselines are set at zero due to the spatial and temporal variations which characterize the canal performance indicators (along the canal length and throughout the water-delivery seasons; see Figures 2.1 to 2.6 in Annex 2). Hence to simplify the presentation of the results, the above summary table of Annex 1 would report on the (spatial or temporal) average value of the incremental improvements, rather than report on the absolute values.

Females (percentage)						
The Gazivoda dam safety plans prepared and adopted (No/Yes)	No	No	Yes	Yes	Yes	Yes
Length of the canal sections with improved lining (km)	0	0	4	9	9	9
Improved canal water quality with regard to turbidity (NTU percentage reduction)	0	0	0	0	50	100
Grievances responded and/or resolved within stipulated service standards for response (percentage)	0	50	100	100	100	100
Number of government staff trained efficiently on using SCADA (number)	0	TBD after project approval based on exact number of SCADA points	TBD	TBD	TBD	TBD

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition and so on)	Frequency	Data Source/Methodology	Responsibility for Data Collection
Increased canal-flow capacity (m^3/s), averaged over the bottleneck points along the canal.	Increased transit capacity of the canal at peak demands (August 2035), averaged over the demand-supply bottleneck points along the canal, particularly at the intake and downstream of kilometer 20, expressed in flow increment in m3/s. This is a measure of increasing the canal transit efficiency, through reducing its seepage and operational losses.	Annual.	Input-output method (or desk-based estimates extrapolated to 2035)	PMU and M&E consultant
Maximum continuous duration in days for closing the canal after constructing new water storage for preventative maintenance or for repair amid having an extreme event	Maximum continuous duration in days for closing the canal after constructing new hydraulic storage (for example, ERM reservoir or several micro storages along the canal) for preventative maintenance or for repair amid having an extreme event, expressed in number of days. This is a measure of improving the water supply reliability.	Annual	NA	PMU and M&E consultant

Intermediate Results Indicators

Indicator Name	Description (indicator definition and so on)	Frequency	Data Source/Methodology	Responsibility for Data Collection
Direct project beneficiaries	This indicator measures the absolute actual number of people with access to improved water sources in project areas. [People with improved wellbeing due to improving the reliability of canal water supply]. Supplemental: percentage of females	Annual	Cross-sector surveys	PMU and M&E consultant
The Gazivoda dam safety plans prepared and adopted (No/Yes)	The Gazivoda dam safety plans prepared and adopted in accordance with OP/BP 4.37. These include a CSQA plan, O&M and instrumentation plan, and an EPP.	Annual	PoE reporting	PMU, PoE, and M&E consultant
Length of the canal sections with improved lining (km)	This indicator will mainly capture the length of the lined sections of the canal as the other rehabilitation investments will be fragmented along the canal length (that is, will not be as monitorable). The project envisages new lining (12 cm reinforced concrete layer) on top of the damaged lining along a length of 5,107 m, in the upstream half of the canal, the most damaged. In the downstream half, the condition is better as the damages are mainly concentrated at construction joints (joints suffer from growth of vegetation and the effect of frost/defrost cycles). Project will rehabilitate construction joints along around 4,911 m, by bridging the existing joints with a hot spray polyuria membrane. Alternatively this solution can be replaced by a bituminous geomembrane covering the canal surface.	Semiannual	Regular semiannual progress reports	PMU and M&E consultant
Improved canal water quality with regard to turbidity (NTU percentage reduction)	Reduced turbidity at key canal water intakes, particularly the intakes for domestic water supply and for the power stations (in seasonal average of the NTU). After project approval it will be decided (if measuring NTU proves	Semiannual	Regular water quality samples (to inform the project progress reports)	PMU and M&E consultant. MESP

	difficult) to use a proxy for this indicator, being the reduced number of days/annum when water treatment plants, industries and power plants would need to shut off their intakes from the canal due to high turbidity.			
Grievances responded and/or resolved within stipulated service standards for response (percentage)	Grievances either related to access to project benefits or to avoidance of project negative impacts	Monthly	Regular semiannual project progress report, including monitoring plans from the ESIAF and RPF	PMU and M&E consultant.
Number of government staff trained efficiently on using SCADA	Number of government staff (mainly ILC staff) trained efficiently on using SCADA	Annual	n.a.	PMU and M&E consultant

Note: PMU = Project Management Unit; n.a. = Not applicable.

Annex 2: Detailed Project Description

KOSOVO: Water Security and Canal Protection Project

Status of the Canal Conveyance Capacity and Operation Efficiency

1. The Ibër Canal, together with the Gazivoda dam, the Predvorica compensation reservoir, and a pressurized irrigation system serving 20,000 ha, was built in the 1970–1980s under a Bank loan (YU-777). The project was designed as a multipurpose system providing irrigation, M&I water, and cooling water for coal power plants near Pristina. The irrigated area sharply declined to less than 1,000 ha during the war, is slowly increasing, and was around 2,000 ha in 2012. The water use for M&I uses has also progressed far less than anticipated because of the war.

2. The 107.5 m high Gazivoda earth-rock filled dam was built on the Ibër River with an average inflow of 13.06 m^3/s to create a multiyear regulation reservoir with a total storage of 370 million m^3. A medium-size hydropower plant with a 33.3 MW installed capacity consisting of two 18 m^3/s turbines generates energy during peak-hours demand. The power plant discharges water into a small re-regulating Predvorica reservoir with an active capacity of 480,000 m^3. The Ibër Canal diverts water from this reservoir through a manually operated gate.

3. The Ibër Canal was designed with a telescopic capacity decreasing from 22 m^3/s at Predvorica to 6.45 m^3/s at the tail. Out of a total length of 49.2 km, only half (24.5 km) is open concrete-lined canal sections, the other half consisting of 11 siphons, 20 aqueducts, 14 tunnels, and only three control structures. Over time, the transit capacity of the Ibër Canal has decreased because of the accumulation of sediments in the hydraulic section and the deterioration of the concrete panels. Through on-site flow measurements, it was estimated that the present maximum capacity is about 11 m^3/s. Irrigation water is delivered through a network of branch canals (85 km) and pressurized pipes. Water is delivered to farm hydrants through gravity pressure or pumping stations and applied through portable sprinkler equipment. This equipment is provided by the ILC to farmers on an annual basis through service contracts.

4. The trapezoidal canal sections originally had an 8 cm thick unreinforced concrete lining. After 40 years of service, the lining has degraded, resulting in important seepage losses. During the last five years, the ILC has carried out repair works on the most seriously damaged sections by replacing the existing concrete and later by placing a 12 cm reinforced concrete over the existing one. The works are executed at a slow pace by local contractors because it is not possible to close the canal for even one day. The canal cross-section is divided into two sections by installing a stop-log wall in the middle of the canal. During rainy periods, sediment-loaded water discharges into the canal because of the absence of a collector ditch on the right bank of the canal and the deterioration of the drainage structures to cross the canal.

5. The FS estimated that only 10,000 ha out of the remaining 15,250 ha will be irrigated by 2035 because of a number of constraining factors, mainly

(a) the excessive fragmentation of small farms in five to seven plots;

(b) crop structure—mainly cereals that can be cultivated without irrigation;

(c) labor shortage due to migration of population;

(d) design of the pressurized distribution system imposing a rotational use of water and a coordinated organization of irrigation to avoid loss of pressure;

(e) the inappropriateness of the portable sprinkler equipment for small farms divided in several plots; and

(f) the competition from imported agricultural products.

Future Water Demand and Climate Change

6. The present water volume diverted into the Ibër Canal is about 113 million m^3, including losses estimated at 55 percent. The total water demand is estimated at 290 million m^3 by the year 2035 comprising the following:

- **Municipal uses.** The Gazivoda reservoir supplies raw water to the municipalities of Mitrovica, Skenderaj, Vushtrri, Drenas, and Gllogovc. A new treatment plant is under construction to supply water to the capital city of Pristina with a capacity of 700 l/s in a first phase and 500 l/s in a second phase. By 2025, the volume required for municipal uses will be 82.5 million m^3.

- **Industrial uses.** Industrial water includes cooling water for electricity generation of two existing thermal power plants (Kosovo A and Kosovo B) and a new one to be under operation by 2020 (KRPP). These three power plants will account for 96 percent of the power generation capacity of the country. Including water needs for metallurgic and mining industries, the total annual water supply will be 65.05 million m^3 with an average peak demand of 2.077 m^3/s.

- **Irrigation uses.** Average water use at farm level ranges from 2,400 to 3,000 m^3/ha. During 2025–2035, it is expected that water needs for irrigation of 10,000 ha will reach 43 million m^3 with a peak demand in July and August of 5.38 m^3/s.

Table 2.1. Synthesis of Water Demand**

Period	2014	2014–2025	2025–2035
Peak demand m^3/sec	5.9	9.77	14.02
Annual volume (million m^3)	113	219	291

Note: ** Includes 55 percent losses of total discharge in 2014 and 15 percent losses for the scenarios 2025 and 2035.

- **Water resources.** The water balance studies were performed using the 25-year series of hydrological years, which is the only series with reliable data. The results of the water balance studies indicate that the bulk-water resources regulated from the Gazivoda reservoir can meet all the industrial, municipal, thermal power generation, and irrigation demands even when these demands will have reached full development by 2035. The annual average power generation at the Gazivoda power plant will be hardly affected by the increase in water demand because it will be decreased only from 105 to 102 GWh per year between 2014 and 2035. Refer to Figure 2.1–Figure 2.3.

Figure 2.1. Water Demands for Ibër Canal for Three Horizon Scenarios Distinguishing Water Demand and Losses

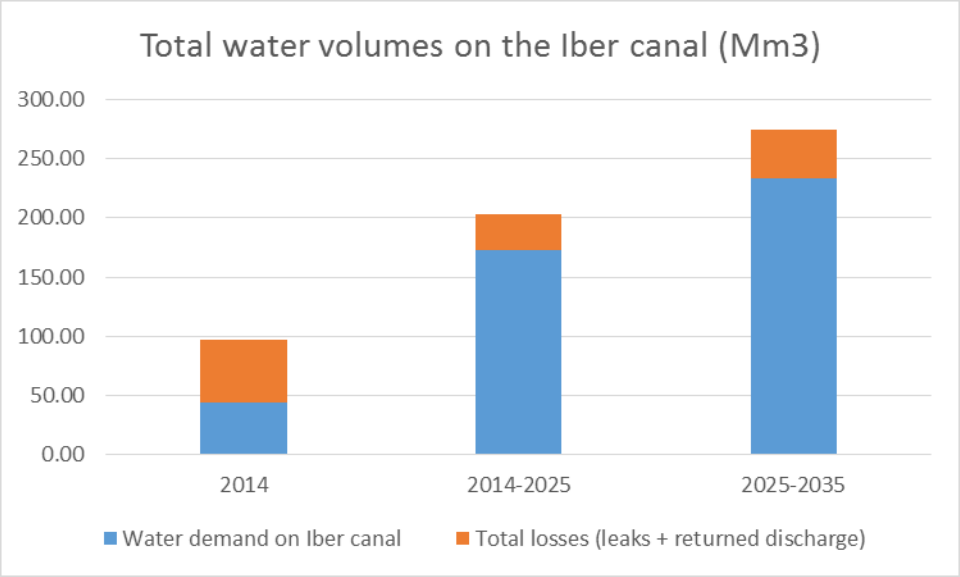


Figure 2.2. Monthly Hydropower Production (GWh) for Scenario 3 at 2035 (Brown Bar) Compared to the Baseline Actual Production (Grey Bar)

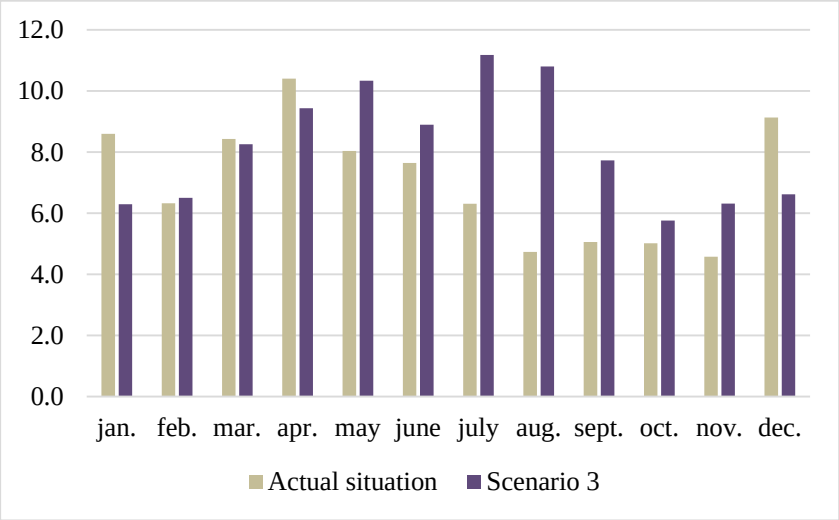
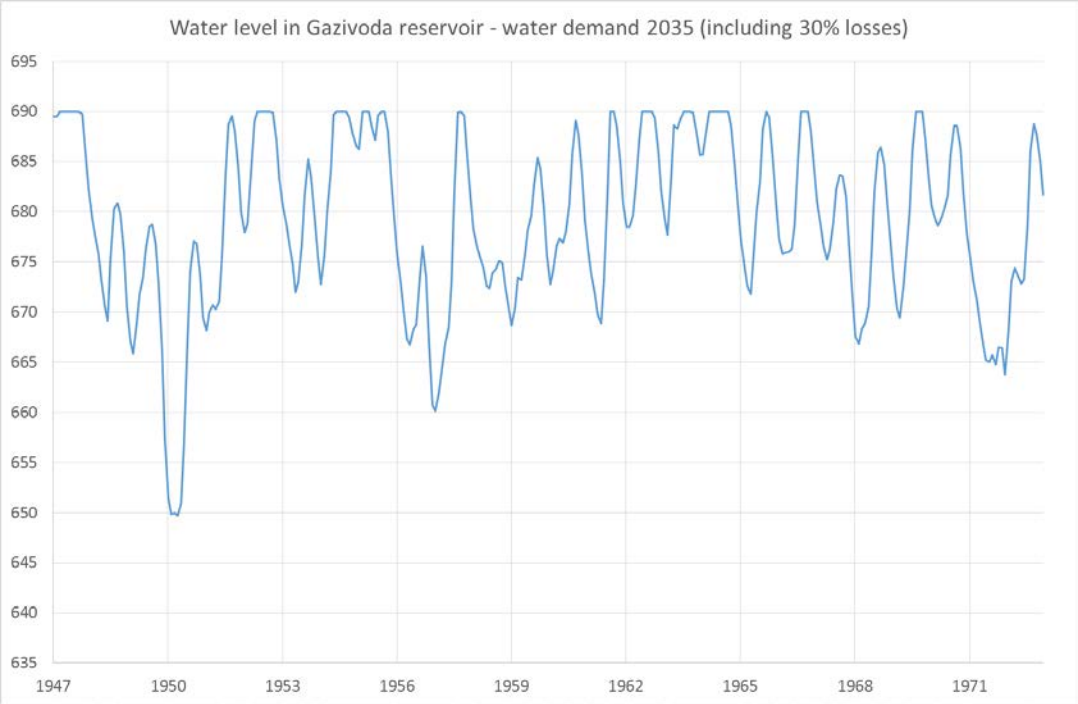


Figure 2.3. Water Levels in the Gazivoda Dam at Full/Competing Demands by 2035



Analysis of Future Water Demand vs. Canal Supply Capacity - The Importance of the Water Compensation and Emergency Reservoir - Mihaliq

7. The maximum demand flow is estimated at 9.77 m^3/s and 14.02 m^3/s at the head of the canal during the months of July and August under the scenario 2025 and 2035, respectively. A simulation study of the Ibër Canal indicates that, assuming minimal level of losses (Figure 2.5), the canal capacity after first-level rehabilitation (of the open sections) is more or less sufficient to meet the estimated demand, except between at Mihaliq (station 40,152) and Hamidi (station 44,956) structures. In this reach, some minor works on the closed sections of the canal to increase the freeboard could raise the capacity to the demand level.

8. Including losses of 15 percent in the canal (being the realistically achievable losses level), the total water demand in 2035 in the canal (14.02 m^3/s) would exceed the capacity of the canal at the head (about 12 m^3/s). All the water needs cannot be met in 2035 if the entire canal system (including tunnels and closed canal sections and siphons) is not rehabilitated (Figure 2.6). This capacity can be reached only if the roughness (Strickler) coefficient of the whole canal (including tunnels and galleries) is increased to 55 IS that leads to a conveyance capacity of 16 m^3/s at the intake. These works cannot be carried out without the construction of the Mihaliq reservoir that will be a key structure for O&M of the Ibër system, which, after completion of the project, will enable further rehabilitation works on the tunnels, galleries, and siphons.

Figure 2.4. Water Line at Maximum Discharge before Project

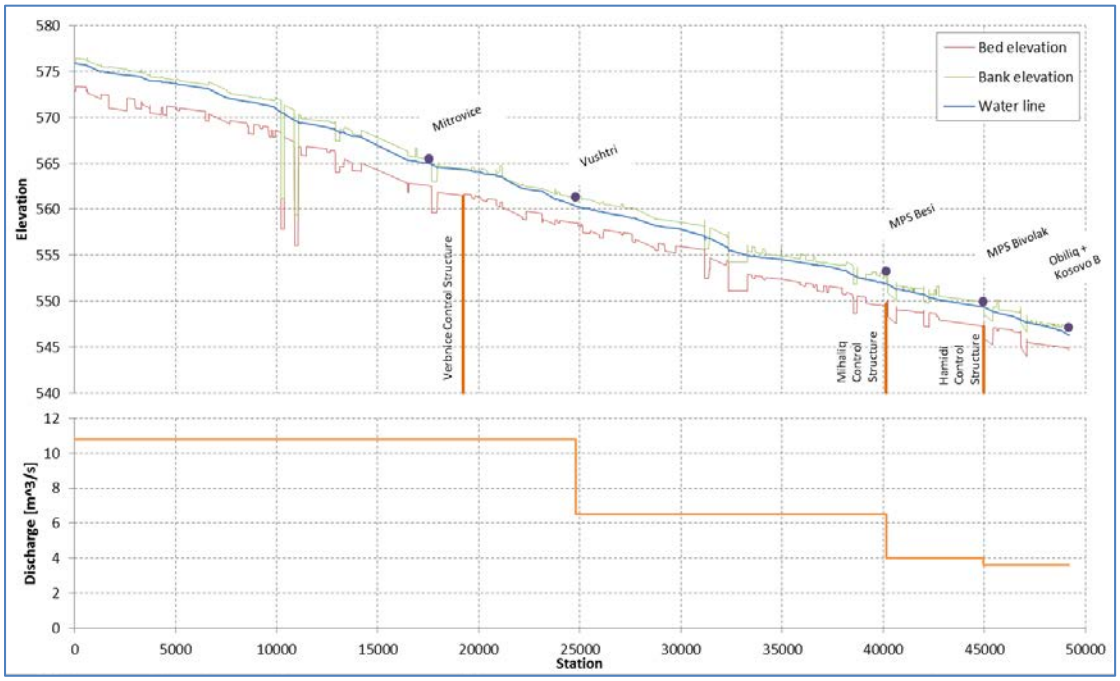


Figure 2.5. Comparison between Canal Capacity (with Rehabilitation of Open Sections Only) and Demand in 2035 with Minimal Losses in the Ibër Canal

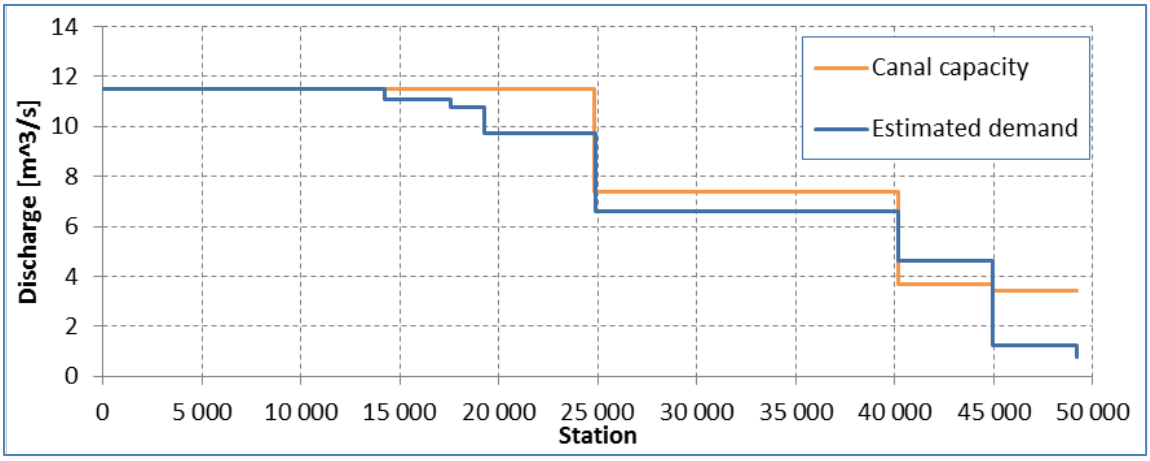
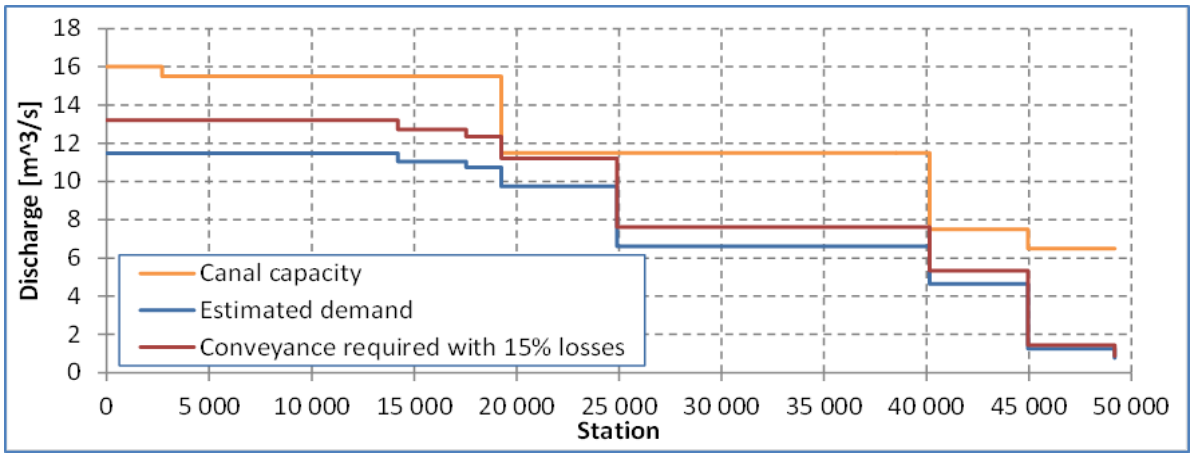


Figure 2.6. Comparison at 2035 between Canal Capacity (with Full Rehabilitation), Water Demand at the Ibër Canal Intake, and the Conveyance Required including 15 Percent Losses by Leaks



9. An additional constraint to the operation of Ibër Canal is that irrigation will be limited to 10–12 hours during the day because irrigation stops at night. The excess of discharge that still remains inside the main canal can be conveyed through the Mihaliq reservoir only in the case of full rehabilitation; otherwise, spillage will occur because of the very low capacity of the canal. The compensation reservoir (Mihaliq) will be needed to store the water delivered at night. The water will be pumped by about 20 m above the canal during the night and will be released during irrigation time. It is also established that the estimated demand is given with regard to mean discharge to comply with the monthly needs, but depending on the way the distribution network will be operated (modulating the flow), the canal should be able to provide more discharge than the average daily discharge. Only a full rehabilitation could ensure conveying this excess of flow down to the Mihaliq reservoir, which will operate as a compensation reservoir.

10. The Mihaliq reservoir should also be able to compensate for the inevitable deviations between demand and release and the errors caused by the inaccuracy of measuring devices. The reservoir will provide water to M&I uses when the turbidity of water after heavy rain is not compatible with the requirements of the operators. The reservoir will also play a role by allowing closure of the canal for short periods for regular and emergency maintenance.

Pollution

Algae and Moss

11. The canal suffers from the development of algae and moss. Algae have intensively developed in the aqueducts and will be removed during their rehabilitation.

Waste Deposits

12. Several waste deposits are present along the Ibër Canal and originate from private deposits. In addition, building rubble and other debris were observed inside the canal.

13. The reason is the absence of waste collection in the rural areas. Waste in and alongside the Ibër Canal leads brings organic and inorganic harmful material and severely affects the water quality.

14. During the inventory survey, it was found that uncontrolled private waste deposits are more concentrated in the northern section of the Ibër Canal. To tackle this issue, it is indispensable to promote awareness campaigns.

Domestic Wastewater Discharged into the Canal

15. Another pollution source is sewerage discharged into the canal by private houses. Along the canal, sewerage discharge pipes pouring directly into the canal and contaminating the water have been identified in four places. This issue should be addressed by the ILC through the local authorities. Another source of wastewater infiltration was found next to Bridge 19. A pipe discharges wastewater from an adjacent livestock shed into the IL Canal. This presents a serious threat to the water quality of the IL Canal.

16. The project activities will be executed under three project components.

Component 1: Infrastructure Rehabilitation and Modernization

17. This component will focus on physical improvements to the deteriorated sections of the canal and its structures as well as improved hydraulic operations. Works under this component include the following:

- *Subcomponent 1(a).* Small works for the Gazivoda dam safety, canal repair, and increased stability for protection against renewed physical damage from landslides and unstable soils (through lining, treatment of joints between concrete panels, abutments, foundations, cuttings, aqueducts, culverts, and tile drains to control uplift pressure). Application of bituminous geomembrane is another technical option.

- *Subcomponent 1(b).* Developing an emergency and balancing reservoir along the canal (for short-term storage along the canal to bridge peak water demand and to enable temporary outages for repair purposes).

Component 2: Water Resources Protection and Management

18. The project will also cover related water resources management options in the Ibër River basin (as related to the water balance of the Ibër basin), including the following:

- *Subcomponent 2(a).* Protection of the canal against renewed pollution, accidental pollution and other threats and man-made disruptions (through fencing, selective covers, or parallel interceptor drains with vegetative beds). This will help address the ambient water quality in the canal, particularly to meet the inflow quality requirements for the power plants and for the new Pristina WTP.

- *Subcomponent 2(b).* Equipment for better management of gates and regulation of water flows, water monitoring (for the main Ibër Canal and for its secondary delivery

system), including provisions for remote monitoring and controlling of related structures. A relatively advanced SCADA will be installed given the importance of the canal. The equipment will also include instrumentation for optimized operational schedule of the Gazivoda reservoir and its downstream balancing reservoir in Pridvorica, integrated with the proposed canal SCADA (to balance the releases for hydropower with the releases for the Ibër Canal).

Component 3: Project Management, Coordination, Monitoring, and Evaluation

19. This component will cover overall project management as well as coordination among the different ministries/agencies involved in water management as related to the IL Canal. The PIU to be located within the ILC will be responsible for the day-to-day management of project activities and will work with relevant staff in other ministries such as the MESP on Subcomponent 2(a), the safeguard aspects of the project (ESIAF, ESMF, and RPF), and M&E.

An Irrigation Demonstration Subcomponent at the Canal-Farm Interface

20. At project appraisal, the Bank and MAFRD teams explored the possibility of adding a small demonstration-level subcomponent on the ILC branch canals, at the interface with the irrigating farmers, aiming to optimize the irrigation-water conveyance and distribution to the farm gate.

Key Structural Project Description

A. IL Canal

Canal Section Rehabilitation

- New concrete lining: 5,107 m in 15 sections
- Rehabilitation of joints through a total length of canals of 4,911 m
- Rehabilitation of 19 aqueducts (through application of plastic waterproofing materials)

Structures

Bridges and Roads

- Access road along the canal, including rehabilitation and construction of new sections
- Bridge rehabilitation with new drainage crossing: 18
- Bridge rehabilitation: 6
- New bridge: 1
- Walkway bridges: 7

- Covering slabs across Zubin Potok Village : 400 ml

Works to Protect the Canal from Turbidity and Pollution

- Crossing channels above the canal: 32
- Crossings under the canal: 21
- Retaining walls upstream and downstream of the canal section: 9,341 and 851 ml
- Stormwater culvert: 21,500 ml

Other Minor Works

- Water distribution boxes: 21
- Tunnel metal grids: 13
- Clearing of vegetation: 32,000 m^2
- Fence: 2,408 ml
- Septic tanks

21. **Of the total project costs, an estimated 4.796 million Euro of works[7] would be located in the north, including small dam-safety work at Gazivoda dam (0.25 million Euro), and excluding the SCADA which will be installed along the canal including the north.**

B. Mehiliq reservoir

22. The construction of a 600 m long and 25 m high earth dike across a wide creek above the Ibër Canal creating a compensation reservoir of about 3.7 million m^3, a pumping station to lift water from the Ibër Canal to the reservoir, and a pipeline of 2 km to supply the Pristina municipal regional water company presently under construction during periods of high turbidity of the canal water. There will be no resettlement of people from the reservoir area. The left bank of the creek is mostly government lands, and the opposite side is owned by private owners.

C. Small reservoir at Obliq

23. The construction of a small compensation reservoir with a capacity of about 4,000 m^3 at the tail end of the Ibër Canal where the intake for supplying cooling water to the new thermal plant is located. This reservoir will absorb the deviations between supply and demand between the control structure DO2 and the tail end.

[7] Canal rehab 2.1 million Euro, aqueduct rehab 0.5 million Euro, retaining walls 0.618 million Euro, slab cover at Zopin Potok 0.573 million Euro, and Gazivoda safety 0.25 million Euro.

D. SCADA

24. A SCADA system will be installed to optimize the operation of the Ibër Canal. The SCADA system will include (a) remote monitoring of all the diversion and control structures of the Ibër system, including the Predvorica intake, 10 irrigation pumping stations, three municipal stations, and the three diversion structures and (b) automated local control of the key structures, of which the most important one will be the canal intake at the Predvorica reservoir.

Table 2.2. Indicative Project Costs

Key Structures	Amount in €
1. Project management	€1,500,000.00
2. Civil works (improvement along the main canal)	€5,500,000.00
3. Concrete lining rehabilitation	€6,000,000.00
4. SCADA and electromechanical equipment	€800,000.00
5. Water storage and hydraulic improvements	€6,900,000.00
6. Gazivoda dam remedial work	€300,000.00
7. Physical contingencies	€1,000,000.00
Total	€22,000,000.00

Figure 2.7. Implementation Schedule

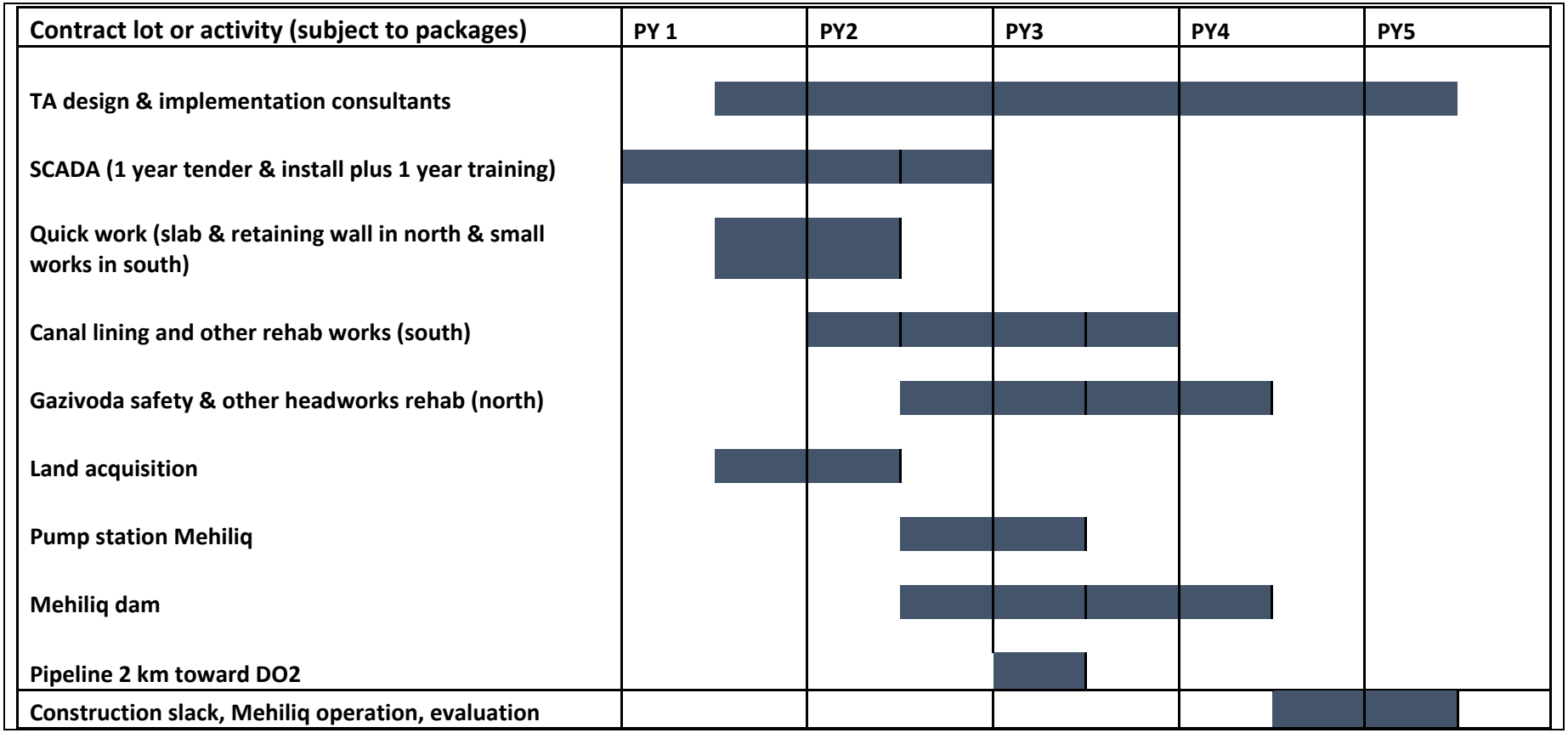


Figure 2.8. Location of Ibër River Catchment

Figure 2.9. The Concept of the System - IL

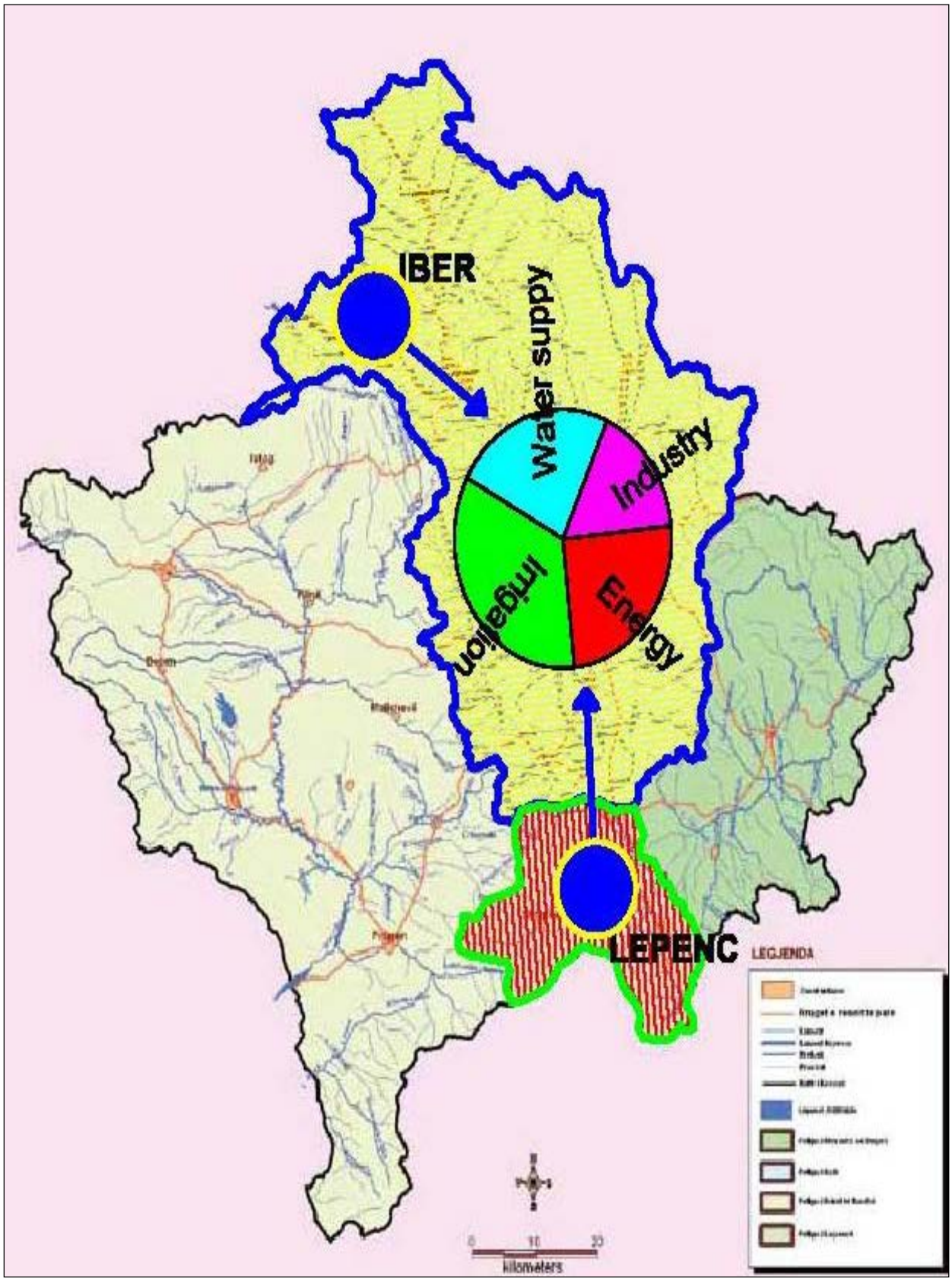
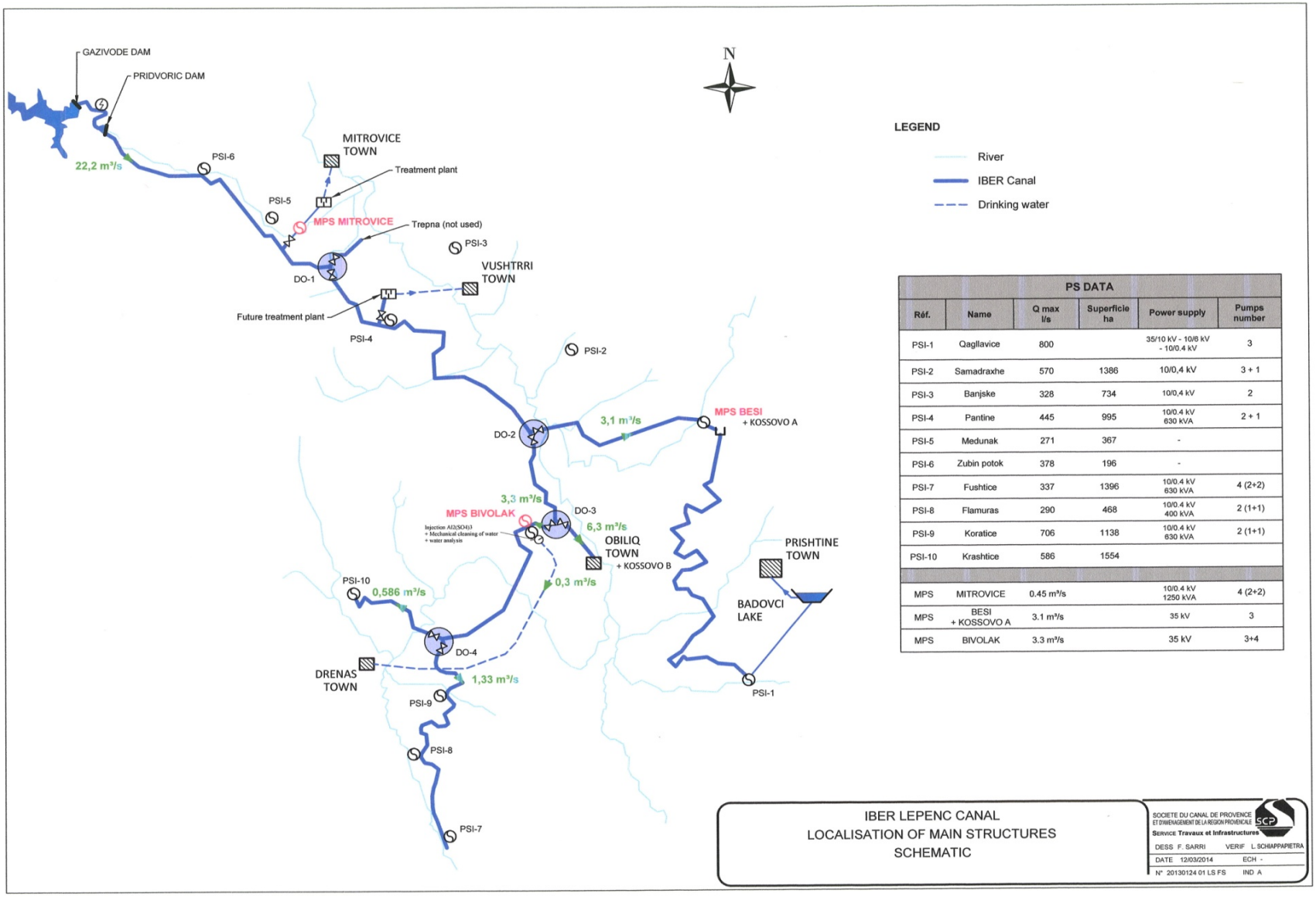


Figure 2.10. IL Canal - Localization of Main Structures Schematic



PS DATA

Réf.	Name	Q max l/s	Superficie ha	Power supply	Pumps number
PSI-1	Qagllavice	800		35/10 kV - 10/8 kV - 10/0.4 kV	3
PSI-2	Samadraxhe	570	1386	10/0,4 kV	3 + 1
PSI-3	Banjske	328	734	10/0,4 kV	2
PSI-4	Pantine	445	995	10/0.4 kV 630 kVA	2 + 1
PSI-5	Medunak	271	367	-	
PSI-6	Zubin potok	378	196	-	
PSI-7	Fushtice	337	1396	10/0.4 kV 630 kVA	4 (2+2)
PSI-8	Flamuras	290	468	10/0.4 kV 400 kVA	2 (1+1)
PSI-9	Koratice	706	1138	10/0.4 kV 630 kVA	2 (1+1)
PSI-10	Krashtice	586	1554		
MPS	MITROVICE	0.45 m³/s		10/0.4 kV 1250 kVA	4 (2+2)
MPS	BESI + KOSSOVO A	3.1 m³/s		35 kV	3
MPS	BIVOLAK	3.3 m³/s		35 kV	3+4

Figure 2.11. Proposed Dam in Mihaliq - General Layout Drawing

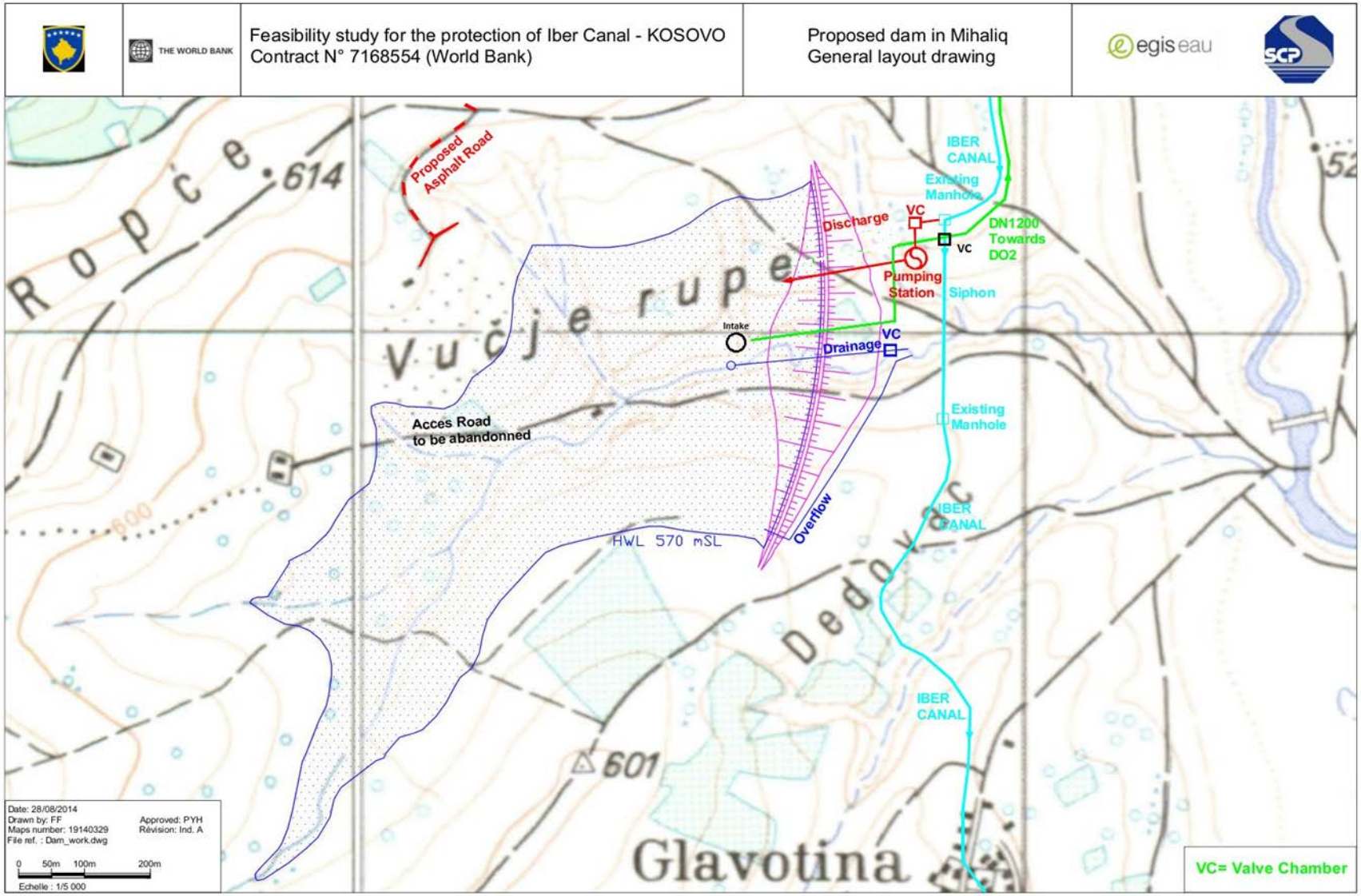
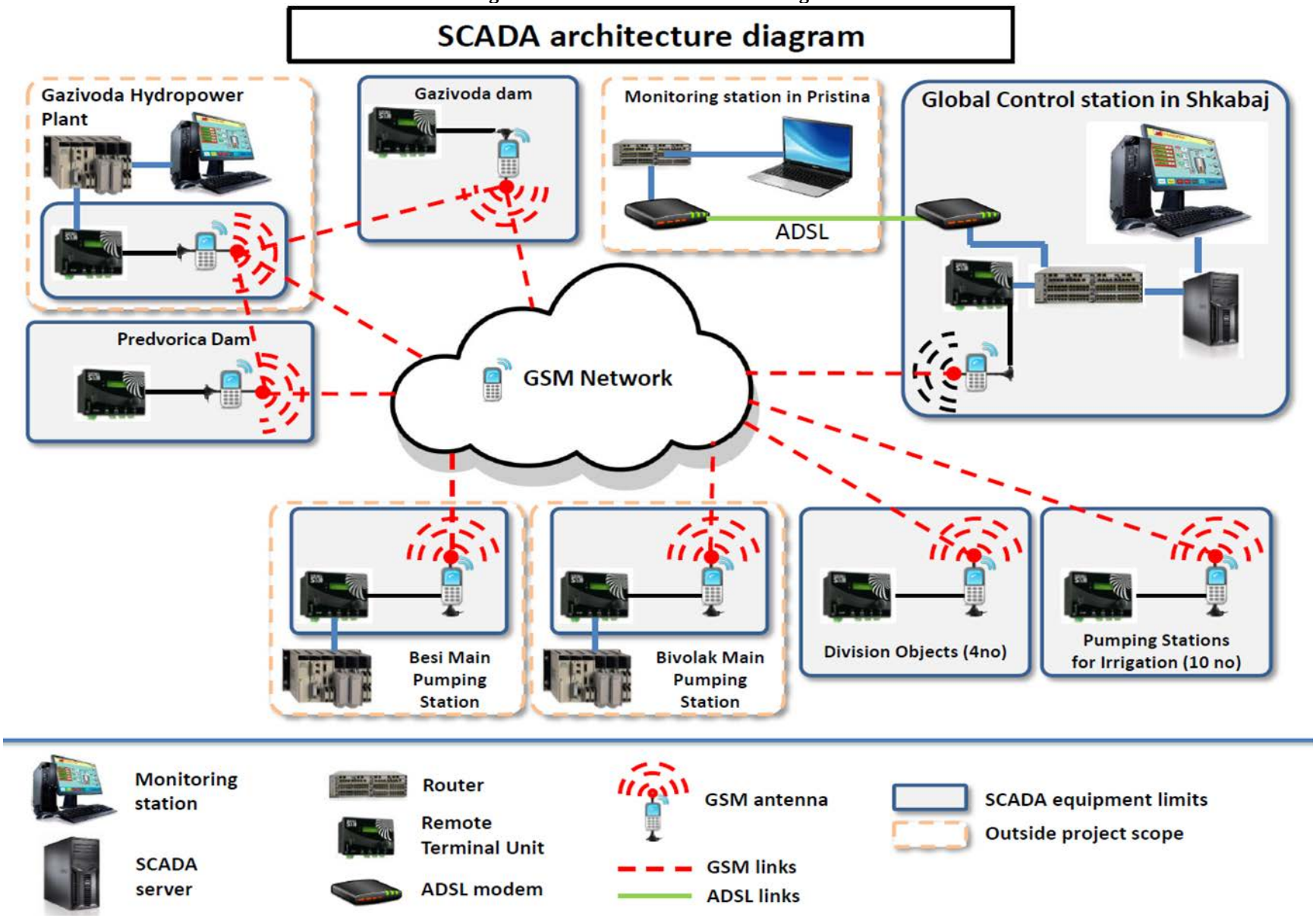


Figure 2.12. SCADA Architecture Diagram



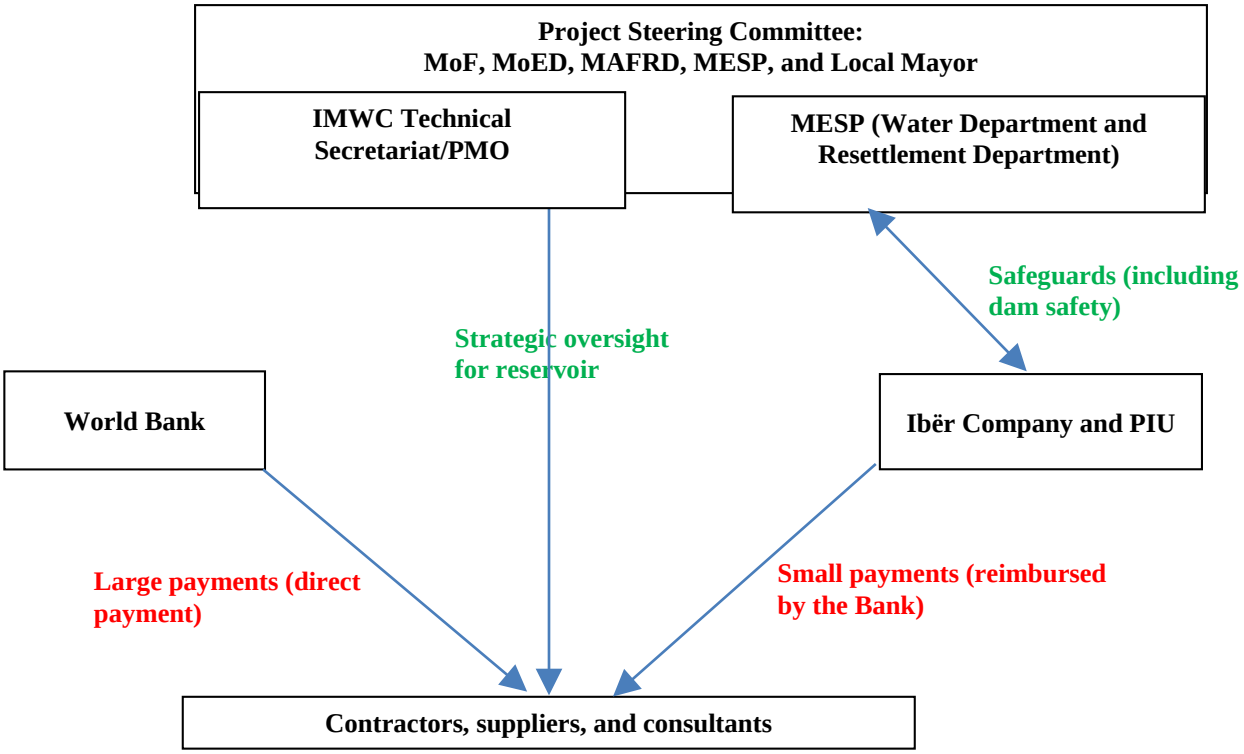
Annex 3: Implementation Arrangements

KOSOVO: Water Security and Canal Protection Project

Project Institutional and Implementation Arrangements

1. The main implementing agency will be the ILC, affiliated with the MoED, which oversees such state-owned service utilities, and is responsible for the O&M of the canal and its control structures and facilities. Hence, the ILC will be responsible for implementing all project components, albeit jointly with (a) the IMWC with regard to the national/multisectoral aspects of the newly introduced water storage and (b) the MESP in relation to Subcomponent 2(a), where the MESP has the mandate for water resources management and quality protection (the water department of the MESP), and in relation to Component 3, where the MESP comprises other departments tasked with reviewing/approving project ESIAs and ESMPs, with previous experience in Bank safeguards requirements. The PSC will include the IMWC member ministries (the MESP, MoF, MoED, and Ministry of Local Development); MAFRD; and the respective mayor, depending on the exact location of the reservoir.

Figure 3.1. Implementation Organogram



2. A PIU will be established within the ILC, comprising a core group of specialists responsible for project management, coordination, and M&E. The PIU will work closely with key personnel within the MESP related to implementation of the ESMF and Resettlement Action Plan. The ILC was established in 1967 and has been actively engaged with the O&M of the canal. It is well staffed with technical specialists who have experience with canal rehabilitation works and

canal O&M. The ILC has also demonstrated a reasonably good record with collecting fees from water users.

Post-construction O&M of the New Emergency Water Storage and Ancillary Facilities

3. One pending issue that needs to be addressed (selection criteria was agreed at project negotiations) is which agency will manage the O&M of the reservoir after project completion. The ILC turnover is €3 million per year, while the O&M cost for this reservoir cum its ancillary facilities is estimated at €0.25 million to €0.3 million per year, a significant recurrent cost for the ILC. The operator could be the ILC or the Pristina Water Supply Company if these utilities could make some near-term revenues from the reservoir. One source for generating near-term revenues from the emergency reservoir is that the KRPP BOO investor, the KEK Power Agency, and all such revenue-making bulk-water users will possibly be paying less for insurances on their businesses thanks to this new reservoir. Hence, the operator (ILC) may charge an insurance premium from those bulk-water users, lower than the insurance costs that they would have paid in the without-reservoir case.

4. Another option is to seek a Build-Operate-Transfer contract, whereby the International Competitive Bidding (ICB) consortium that will build the reservoir will also operate it for a few years (thus using the IDA Credit in smoothing out the burden from the postconstruction O&M cost), then transfer it to the appropriate government of Kosovo agency. The following paragraphs present are early thoughts on this Build-Operate-Transfer option (extended construction and operation contract):

5. The construction contract for the reservoir could perhaps be structured in a way that, rather than the contractor being paid over a (say) two-year construction period, it could be paid over (say) a six-year period, with the four years postconstruction payments being a mix of retention money (from the construction contract) and O&M.

6. Assuming that the reservoir contract is 7 to 8 million US$/€ and that the retention money is (say 30 percent) US$2.4 million and stretched over four years (or US$0.6 million per year), the flow of money to be paid will look as follows:

Table 3.1. Yearwise Flow of Money

Year	Amount Euro
1	2.7 million
2	2.7 million
3 to 6	0.6 + 0.25 = 0.85 million per year

7. Contractually, the construction and short-term O&M could be wrapped under a single contract, where the payments start with progression milestones payments related to construction, and then are a mix of O&M costs added with retention money. This will require structuring (a) whether some of the O&M costs can be fixed in advance as part of the bidding or whether they should be somehow passed through; (b) the risk allocation during construction, commissioning, and operation; and (c) the impact of the risk sharing on payments. The bidding criteria will be the NPV of all cash flows.

8. Under this scenario, the key questions for any contractor undertaking the construction added with O&M will include the following:

- Who will be responsible for the payment of the construction money, the retention money, and the O&M money
- Whether there will be appetite to enter into a six-year contract for this size of work
- What will be the total cost (presuming that the contractor is willing to carry over 30 percent for another four years, they will want to include financing cost in that).

9. Another issue that needs to be looked into is how complicated it will be to form a consortium for this and whether the type of skills required will need to be provided by very different firms that will make a proposal by a consortium difficult. If a consortium was requiring construction expertise and O&M expertise from different firms, will the construction firm be interested in having its money at risk depending on the O&M firm performance and vice versa?

Financial Management, Disbursements, and Procurement

Financial Management

10. An FM assessment was carried out to determine the FM implementation risk and help establish adequate FM arrangements for the proposed operation. The overall FM risk at this stage of project preparation is considered moderate.

11. FM capacity in the ILC and Ministry of Economic Development (MoED) was assessed during the project preparation phase. Bank policies and procedures on FM and disbursement require that the borrower and the project implementing entities maintain FM systems—including accounting, financial reporting, staffing and internal controls, budgeting and planning, flow of funds, and auditing systems—adequate to ensure that they can provide the Bank with accurate and timely information regarding project resources and expenditures. Recommendations and complementary actions were provided and agreed to ensure that project FM arrangements meet minimum requirements, such as (a) the need to hire/appoint a qualified FM specialist (full time) to support the ILC's and MoED's BFD division during the project implementation; (b) preparation and adoption of the Financial Management Manual satisfactory to the Bank that will include details of the fiduciary arrangements; and (c) training of FM budget and finance staff on Bank fiduciary and disbursement rules.

12. **Staffing.** The ILC's Budget and Finance Division (BFD) will be responsible for financial management of the project activities, other than component 1(b). Authorized signatories will remain with the ILC's chief executive officer and chief finance officer. An FM specialist, qualified and having experience with donor financed operations (full time), will be hired when the project will become effective to support the BFD. The FM specialist will work closely with the BFD for planning and budgeting project activities to ensure funds are available for financing project expenditures, ex ante controls in payment of project expenditures, preparation of quarterly Interim Financial Reports (IFRs), communication with the Bank with respect to FM, and disbursement reporting and follow up. In addition, the FM specialist will prepare and submit for approval

withdrawal applications, including supporting documentation. Training on Bank FM and disbursement policies and procedures will be required for the ILC's finance division and FM specialist. In addition the FM specialist will assist in the same way the BFD of the MoED with respect to the component 1(b). While the component will be managed by ILC's technical resources, the authorized signatories for the component 1(b), category 1, will remain with MoED authorized officials. The institutional arrangements and roles and responsibilities will be described with clarity in the Financial Management Manual (FMM).

13. **Budgeting.** The project spending forecast for activities other than component 1(b) will be consolidated in the company's budget. The approved Procurement Plan (PP) will be the basis for the preparation of the initial draft of the forecast. The budgets and forecasts will reflect technical inputs from the procurement specialist, project coordinator, and technical departments. Final project budgets will be approved by the chief executive officer and the company's Board of Directors. With respect to the component 1(b), the investment cost of the reservoir and the expected work schedule plan will be included in the MoED annual budget and medium-term forecast and indicated separately. These budgets will form the basis for allocating funds to the project activities and, when expenditures are paid, for requesting funds from the Bank. Therefore, the MoED should include this activity in the annual budget and medium-term budget forecast reflecting expected implementation schedule, for such activity to be funded in the future.

14. **Internal controls.** General government regulations for processing transactions and approving contracts exist and are applied by the ILC as well. The existing internal control framework ensures that expenditures are properly verified and authorized; supporting documents are maintained; and project assets, including cash, are safeguarded. An FMM will be prepared and will depict the FM, disbursement, and internal controls policies and procedures and is intended to guide staff and minimize the risk of errors and omissions, as well as delays in recording and reporting. These written standards also clarify segregation of duties and responsibilities, including level of authority and clear control over funds and assets, and it ensures timely and accurate financial reporting. The FMM prepared in a form satisfactory to the Bank, will be adopted within two months from project effectiveness.

15. **Accounting system.** The existing accounting software used by the company was developed in 2003 by an EU-funded project on irrigation companies. It is based on an old technology and therefore, it is not anymore maintained by their vendors. The software is capable of maintaining the company's financial records, however considering the old technology, the management of the company plans to update the software in the medium term. The project expenditure other than component 1(b) will be recorded in the existing accounting on an accrual basis for the purpose of recording the increase in work ILC's assets. The software does not support project reporting (cash basis) and contract monitoring. For project purposes, it will be required to maintain a parallel spreadsheet based reporting system that will provide financial information on the sources and uses of funds, by category and activity, as well as contract monitoring. With respect to the component 1(b) (new reservoir) that will be retained by the MoED, the ministry will be required to record related project transactions in the Kosovo Financial Monitoring Information System based on the source evidence. For project financial reporting purposes to be submitted to the Bank, the financial information with respect to the reservoir contract will be consolidated with the financial information on other project activities and will be identified separately. These reports

will be reconciled on regular basis with and complemented by the financial information ILC's accounting system and Kosovo Financial Management Information System.

16. **Financial reporting.** The ILC's BFD, supported by the project FM specialist, will prepare project financial information on a quarterly basis and submit it through the Interim Financial Reports (IFRs), containing at least (a) a Statement of Sources and Uses of Funds (with expenditure classified by component and disbursement category); and (b) contract monitoring. In addition, supporting financial information generated from the ILC's accounting system and KFMIS will be required. The IFRs will provide financial information on all project components including component 1(b) (new reservoir). The IFRs will be submitted for the Bank's review within 45 days from the end of the quarter. The annual project financial statements will be prepared based on International Public Sector Accounting Standards cash basis. The report will cover the fiscal year that coincides with the calendar year. The functional and reporting currency will be the Euro. The format of IFRs and annual project financial statements will be described in the FMM.

17. **Audit.** Pursuant to the legislation in force on accounting financial reporting and audit in Kosovo, ILC is defined as a large business organization and is required as such to prepare financial statements based on the IFRS. The ILC's financial statements are audited annually and submitted to the supervisory bodies – MOED, Financial Reporting Board Ministry of Finance, and Tax administration. The most recent ILC audit report has been given a true and fair opinion, with no significant matters reported in the management letter. In addition to the audited project's financial statements, the audited ILC's financial statements requested for submission to the Bank. The audit will be conducted annually by independent auditors acceptable to the Bank based on ToR acceptable to the Bank. As of date of this report there is no overdue audit report from the implementing entities (ILC's and MoED). The project's audited financial statements will be made publicly available within two months from their receipt. The company (ILC) audited financial statements will serve as a tool for enhancing the capacity of the company's finance department and improvement of the quality of financial reporting.

Disbursements

18. The credit proceeds will be disbursed on the basis of the regular Investment Project Financing disbursement mechanism using traditional disbursement methods: reimbursement, advance, direct payments, and special commitments. Direct payment and special commitments will be used for the sizable remunerations for contractors and suppliers, especially large works contracts. For category 1, advance method will not be used. For this category, the project expenditure will be either pre-financed from the MoED budget or made directly available to the contractor through direct payment or special commitments. The advance method, and consequently the use of Designated Account (DA) will be allowed only for category 2. Credit proceeds for category 2 may be drawn down in the form of advances into a DA managed by the ILC, for financing smaller-value eligible expenditures. The DA will be maintained in a second-level commercial bank, acceptable to the Bank, and denominated in Euro. The Bank will require either copies of the original documents evidencing eligible expenditures (Records) or summary reports of expenditure (Summary Reports) in such form and substance as specified in the Disbursement Letter. Records include documents such as invoices and receipts or a statement of expenditure summarizing eligible expenditures paid during a stated period.

19. **Retroactive financing.** To facilitate prompt execution of project preparation, retroactive financing of up to €0.25 million will be provided to finance agreed-upon eligible project expenditures incurred within 12 months before the proposed project signing date and will follow the Bank Procurement Guidelines. These prefinanced funds will be provided by the ILC from its own resources and reimbursed to the ILC after the project becomes effective. Retroactive financing will finance the remuneration of the PIU's international procurement specialist and the dams PoE and possibly key PIU staff.

Procurement

20. Procurement for the project will be carried out in accordance with the Bank's 'Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers', published in January 2011, revised July 2014; 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers', published in January 2011, revised July 2014; and as stipulated in the Credit Agreement for the project. The Bank's Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, dated October 15, 2006 and revised in January 2011, will also apply. A General Procurement Notice covering the project procurement activities will be prepared and published on the Bank's external website and United Nations Development Business (UNDB) online after negotiations. Specific Procurement Notices will be published for all ICB and National Competitive Bidding (NCB) procurement, as well as all consulting services contracts as required under the respective guidelines.

21. The procurement activities will be carried out by the PIU established within the ILC. The conclusions of the procurement risk assessment, conducted through PRAMS, show that the procurement risk identified during the review is 'High' and after the mitigation measures will be "Substantial". The following risks are identified:

(a) The project will include the SCADA system procurement as well as other civil works. While the specifications (and draft bidding documents) for the SCADA system are under preparation, the civil works financed under the project may need collaboration among the ILC technical departments in the preparation of the bidding documents and also in the evaluation of the bids. The ILC PIU will also carry out procurement activities under Component 2 for the MESP. There is a potential risk of delays in the procurement activities due to inadequate coordination among the different ILC departments and the PIU as well as between the MESP and the PIU.

(b) The ILC may need expert services for highly specialized areas for some of the procurements. There is a potential risk of delaying procurement and contract implementation activities in case no such support is received on time.

(c) There is a risk of improper procurement implementation due to unfamiliarity of the ILC staff on the Bank's Procurement and Consultant Guidelines and latest relevant SBDs.

22. The above risks will be mitigated through the following measures:

(a) Hiring of an international procurement specialist having experience with Bank procurement policies and procedures, who will assist the PIU and provide on-the-job training to the PIU staff for the first 18–24 months of the project. This expert shall be hired before project effectiveness, to accelerate the selection process for the SCADA system, for the design and implementation technical assistance (TA) consultant, and so on. The Procurement Department of the ILC will appoint one of its procurement staff with knowledge of English, who will work together with the international procurement expert and be trained by him/her through on-the-job training, so that the local PIU procurement staff will take over and carry out the procurement activities after the departure of the international procurement expert.

(b) Draft the procurement plan (PP) for at least the first 18 months of the project

(c) The Bank's procurement specialist to work closely with the ILC PIU, including organizing procurement session as part of the project launch workshop, procurement trainings for PIU staff whenever needed, specialized trainings on information technology procurement when offered in Europe and Central Asia region for PIU staff, and so on.

(d) ILC to hire consultants to assist in the preparation of bidding documents/technical specifications, bid evaluation reports, and contract management for specialized contracts. The experts for the dam panel (four experts) shall be hired before project effectiveness and be paid, along with the international procurement expert, through restrictive financing. The ILC, assisted by the international procurement expert, shall prepare and initiate high-priority contracts before project effectiveness (such as contracts for the SCADA system, for the design and implementation TA consultant, and so on).

23. **Procurement of works and goods.** Works to be procured under the proposed project will include rehabilitation of access roads, bridge rehabilitation, canal rehabilitations, sewerage, water storage and hydraulic improvements, and so on. Goods to be procured under the project will include rehabilitation of electrical and mechanical equipment, and procurement of SCADA system.

24. The following methods may be used for procurement of goods, works, and non-consulting services as agreed in the PP: ICB, NCB, shopping, and direct contracting. Procurement for all ICB procedures will be done using the Bank's SBDs. Smaller-value contracts, as needed, will be procured using harmonized NCB documents for goods and works or shopping using ITQ May 2011 for works and June 2011 for goods, depending on the cost estimate for the package.

25. **Selection of consultants.** Consultant services to be procured under this project will include consulting services for preliminary investigations, detailed design, environmental management and monitoring, and so on. Individual consultants will also be hired to support project coordination and implementation. The following methods will be used for selecting consulting firms depending on the nature and complexity of assignments, interest to foreign firms and need for international expertise, and estimated budget of the services: Quality- and Cost-Based Selection (QCBS), Quality-Based Selection, Selection under a Fixed Budget , Least-Cost Selection (LCS), Selection

based on the Consultants' Qualifications (up to €260,000), Single-Source Selection in compliance with paragraph 3.8 of the Bank's Consultant Guidelines, and Individual Consultants. Contracts estimated to cost above €260,000 equivalent will be advertised through UNDB online, the Bank's website, and local media (one newspaper of national circulation or the official gazette and the ILC website). Short lists of consultants for services estimated to cost less than €260,000 equivalent per contract may be composed entirely of national consultants under the provisions of paragraph 2.7 of the Bank's Consultant Guidelines.

26. **Operating costs.** Will include expenses necessary to ensure proper implementation of the project, including communications, translations, and cost of advertisements. Such costs will be financed by the project based on the annual budget prior reviewed and agreed by the Bank. Project funds will also finance PIU staff but will not include salaries of officials of the borrower's civil service.

27. **Training and study tours.** Training and study tours will be carried out based on the annual training/study tours to be prepared by the PIU, prior reviewed and agreed by the Bank. The institutions for training/study tours will be selected considering the availability of such services, duration of training/study tour, and reasonableness of cost.

28. **Governance and Anti-Corruption Action Plan.** The project will follow the Bank Group's anticorruption policies as set forth in the Bank's Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, dated October 15, 2006 and revised in January 2011 (current edition). The Bank team intends to maintain close oversight and will carry out prior review of all major contracts according to the thresholds that will be regularly reviewed and adjusted as needed in the PP. The following measures will be carried out to mitigate corruption risk:

(a) *Training of fiduciary staff.* Starting from project launch and periodically thereafter, training will be customized to the procedures and methods that will be required for the next 12-month period. The relevant project staff shall attend the regional procurement workshops organized by the Bank on a regular basis.

(b) *Prior review.* There will be close supervision by the Bank's procurement specialist. In addition, all contract amendments will be subject to prior Bank approval.

(c) *Publication of advertisements and contracts.* All publications for advertisements and contract awards, including the results of the awards, will be done in accordance with the Procurement Guidelines and published on the Bank's Client Connection system and on external websites, that is, UNDB online and the Bank websites.

(d) *Debarred firms.* Appropriate attention will be given to ensuring that debarred firms or individuals (to be verified from the Bank's external website) are not given opportunities to compete for Bank-financed contracts.

(e) *Temporary suspended firms.* Appropriate attention will be given to ensuring that temporarily suspended firms or individuals (to be verified through client connection) are not given opportunities to compete for Bank-financed contracts.

(f) *Complaints.* All complaints by bidders will be diligently addressed and monitored in consultation with the Bank.

(g) *Tender committee.* If required, the Bank will review qualifications and experience of proposed members of the evaluation committee(s) with a view to avoiding nomination of unqualified or biased candidates. All members will be required to sign a confidentiality/impartiality form.

(h) *Civil works supervision.* Contractors carrying out civil works will be supervised by technically qualified engineering staff (firms or individuals) selected by the PIU to ensure that quality specified in the contract is delivered on time.

(i) *Monitoring of contract awards.* All contracts are required to be signed within the validity of the bids/proposals and, in case of prior-review contracts, promptly after the Bank's 'no objection' is issued. The PP format shall include information on actual dates (of 'no objection' and award) and will be monitored for cases of delay, which will be looked at on a case-by-case basis to identify the reasons. The PIU will maintain up-to-date procurement records available to the Bank staff and auditors.

(j) *Monitoring of payment vs. physical progress.* Monitoring reports prepared for the Bank will be customized to include a form to monitor physical progress compared to payment installments to avoid upfront-loaded payments.

(k) *Timeliness of payments.* Payment to contractors, suppliers, and consultants will be monitored through semiannual IFRs to ensure timely payments. The PIU will maintain a system/database to ensure payments to the suppliers and contractors are made without delay according to the conditions of the contract.

29. **Procurement Plan.** A PP for the first 18 months of the project will be prepared, and this plan was agreed upon between the borrower and the Bank project team at negotiations and will be available at the implementing agency's project database and on the Bank's external website. The PP will be updated in agreement with the Bank project team annually or as required to reflect the actual project implementation needs and improvements in the implementing agency institutional capacity.

Table 3.2. Summary of PP and Schedule for Goods and Works

Packages	Project Title and Scope	Procurement Method	(Prior/ Post)	Expected Bid Opening date
1	Quick works (including slab, retaining wall in North, and small works in South)	ICB	Prior	Oct 2016
2	Canal lining and other rehabilitation works (South)	ICB	Prior	Feb 2017
3	Gazivoda safety and other headworks rehabilitation	ICB	Post	Aug 2017
4	Pump station Mehiliq	ICB	Prior	Aug 2017
5	SCADA and rehabilitation of control equipment	ICB	Prior	Oct 2016
6	New Water storage (Mehiliq and Obliq)	ICB	Prior	Aug 2017
7	Pipeline 2 km towards DO2	ICB	Prior	Feb 2018

Table 3.3. Procurement Arrangement and Schedule for Selection of Consultants

Package	Description	Selection Method	Prior/Post	Expected Proposal Opening Date
1	Design and implementation TA consultant	QCBS	Prior	Oct 2016
2	Environmental management and monitoring	CQ	Prior	Feb 2017

Frequency of Procurement Supervision

30. In addition to the prior-review supervision to be carried out by the Bank team, the capacity assessment of the implementing agency recommends post reviews to be carried out by the Bank team, on at least 20 percent of the contracts subject to post review. It is expected that a supervision mission in the field will be conducted every six months during which post reviews will be conducted. As a minimum, one post review report that will include physical inspection of sample contracts, including those subject to prior review will be prepared each year. Not less than 10 percent of the contracts will be physically inspected. The thresholds and review frequency may be revised during the project's mid-term review or when it may be necessary taking into consideration the implementing agency capacity and performance.

31. **Records keeping and filing.** The PIU will keep procurement documentation safe and well protected at its premises.

Environmental and Social (including Safeguards)

A. Environment

32. A need for environmental capacity strengthening to meet both national legislation and the Bank policies has been identified in the PIU. At this stage, one person in the company has been selected to follow, on a temporary basis, environmental issues. For that reason, a permanent role of the environmental specialist on the project is required, as well as training of the PIU staff before the project effectiveness or during the first year of implementation. The environmental specialist will be positioned within the ILC and responsible for environmental day-to-day management of project activities. More specifically, the environmental specialist in the PIU will (a) work with the relevant staff in other ministries such as the MESP on the safeguard aspects of the project; (b) prepare relevant environmental due diligence (EMPs) documents according to ESIAF with ESMF with the team of technical specialists; (c) ensure that pertinent aspects of the EMP are contractual obligations of the contractor and supervising engineer; (d) supervise the work performed by engineering/design companies to ensure that they are applying adequate standards and are following agreed procedures, as well as the agreed EMP; (e) conduct regular site visits to inspect and approve plans and monitor compliance; (f) ensure that all environmental due diligence documents prepared after appraisal are prepared and disclosed in accordance with the national legislation and Bank environmental safeguards; (g) prepare respective sections on environmental performance for the regular progress reports; (h) with the support of Bank environmental specialist, conduct trainings for contractors and supervising engineers on implementation of EMPs

during construction; and (i) coordinate cooperation and activities with the dam safety PoE together with hydrologists and civil engineers in the ILC.

33. In addition to the above responsibilities, applicable to the overall project, the environmental specialist will, regarding the preparation of the technical documentation and construction of Mihaliq dam and ERM, (a) coordinate collection of missing data and possible site investigation; (b) coordinate disclosure and consultation of the ESIA ToR; (c) ensure and maintain regular communication among the consultant, ILC, MESP, and the Bank on preparation of the ESIA and EMP, making sure that Bank policies and outcomes of the ESIAF are addressed; and (d) facilitate timely disclosure and meaningful consultation of the ESIA and EMP.

34. The following types of the documents are expected under the project:

Table 3.4. Types of Project Documentation to Be Prepared

Type of Investment	Environmental Documentation to Be Prepared Before Construction
Rehabilitation of existing infrastructure along the canal and installation of water protection measures	EMP checklist; Any official approval/permits
Rehabilitation on the Gazivoda dam New construction of bridges and access roads along the canal Construction of small reservoir (40,000 m^3)	EMP; Any official approval/permits
Construction of Mihaliq reservoir	Full EIA report with EMP according to national procedures as well as Bank procedures

35. Upon completion of the documents, those will be reviewed by the Bank environmental specialist before the disclosure and consultation process starts.

36. All environmental due diligence documents prepared during project implementation (EIAs, EMPs, and EMP checklists) should be prepared in English, Serbian (if in North Kosovo), and Albanian. ESIAs and EMPs should be disclosed on ILC websites as well as websites of affected municipalities where it should remain available to the public for at least two weeks. All documents should also be available in hard copy on the premises of the ILC and referent municipalities. When published, call for comments on documents should be issued with electronic and postal addresses on disposal for sending comments. In parallel, a public consultation meeting needs to be organized as part of the disclosure process for ESIAs and EMPs. Disclosure and consultation of the ESIA should be done twice, at the stage of ToR and at the stage of the draft ESIA. Minutes of the meetings from public consultations will be included in the final versions of the ESIA and EMPs.

37. The EMPs for all subcomponents will be part of the contractors' and supervising engineer contracts and will be an integral part of the bidding documentation. In that way, the responsibility for implementation of mitigation measures and monitoring, as indicated in the EMP, will fall under works contractor. The supervising engineer contract will include clauses for the monitoring of contactors' environmental performance according to the EMP and national legislation. An acceptable monitoring report from the site inspector or site supervising engineer will be a condition for full payment of the contractually agreed remuneration. To ensure a degree of leverage on the

contractor's environmental performance, appropriate clauses will be introduced in the works contracts, specifying penalties in the case of noncompliance with the contractual environmental provisions, for example, in the form of withholding a certain proportion of the payments (amount depends on the severity of the contract breach). The ILC environmental specialist will obtain sufficient information from the site to report on implementation practices in the regular project progress report.

38. Although originally planned for the ESMF and ESIAF public consultation in Zubin Potok (located in the Northern Kosovo), the Municipality was unable to organize the consultation meeting, thus it was carried out in nearby Mitrovica (South) which recognizes Kosovo. However, a representative of Zubin Potok Community was present in this particular meeting. Governmental officials from relevant Ministries (Ministry of Environment and Physical Planning, Ministry of Economic Development, Ministry of Finance, and other), relevant Municipalities and NGOs were specifically invited to participate. Altogether 40 participants took part in the consultations (all three meetings) mostly from the private sector (mining and energy production) and communities around the canal. All of the questions and concerns were answered and addressed. The question of safety from unauthorized use (mostly children bathing and swimming) was repeatedly raised, especially due to the past cases of drowning, and this should be addressed and reflected in the project design and environmental due diligence documents (project component 1 would finance construction of fences and a slab to cover the canal in the Zubin Potok section).

39. **As part of the Dam Safety policy,** a PoE will be appointed to review all prepared documents for the Gazivoda dam and for the ERM. The dam safety PoE will include at least the following experts: electromechanical engineer, water resources specialist, and geotechnical/geological/geomechanical engineer. During implementation, the PoE will advise the ILC and review dam safety documentation, like full-fledged O&M and EPP plans for the Gazivoda dam; the detailed CSQA plan and instrumentation plan; the O&M plan; and the EPP for ERM.

40. More specifically, for the new dam, the following are applicable:

- The dam safety PoE established in time to review dam safety documents after the appraisal will review the FS and the PAD's cost estimates for dam construction.

- The dam safety TA consultant will be hired to support the ILC team in preparation/finalization of the dam safety documents.

- Based on drafts prepared during preparation, the dam safety consultants will prepare during implementation detailed CSQA plan and instrumentation plan parallel to, and based on, preparation of the detailed design and bidding document for construction of the dam for civil works and installation of hydro/electro/mechanical equipment.

- The actual O&M plan and EPP should be prepared during implementation no later than 6 months and 12 months, respectively, before the first impoundment. The required budget for preparing these plans (for example, for downstream topographic survey, dam break analysis, and flooding simulation) should be included in the project costing.

41. For the existing Gazivoda dam, the following are applicable:

- In a similar manner to new dams, in due time, the client will expedite preparing the ToR for the implementation TA consultants who will complete the detailed design for the remedial works and the EPP and O&M plans for Gazivoda. Full-fledged O&M and EPP plans should be prepared by the detailed-design TA consultants during project implementation.

- The PoE for the new dam will act as experts for the Gazivoda dam as well. The PoE should review the detailed design of the remedial works and review the dam safety plans.

42. A regular monitoring at the dam should be undertaken at least at the level of the past monitoring and according to the defined standards for monitoring and supervision of the dams. In addition, a geodetic survey should be undertaken to examine the extent and the progress of the settlement observed on the crest and the upstream face of the dam.

43. A risk analysis should include the following:

(a) Probabilistic seismic hazard analysis assessing the design earthquake will be prepared. The design earthquake will be the loading function to assess the earthquake safety of the dam. Modern evaluation methods are to be used.

(b) A flood hazard study will include reevaluation of the assumptions made in the original assessment and reevaluation of the probable maximum flood and the spillway capacity.

Impacts of the Project

44. The project will bring predominately long-term positive impacts and, to some extent, temporarily negative impacts during both construction and operation stage.

45. Improved water quality in the IL Canal, reduced losses in transportation, and increased water availability and abundance make the main positive impacts of the project to the environment and human health. Conducting a new safety assessment and introduction of additional safety and monitoring measures on the Gazivoda dam, constructed during the 1970s, will increase the safety of the dam, subsequently also of settlements, infrastructure, natural, and economic units located downstream. In addition, construction of the ERM will help overbridge consumption peaks, satisfy future needs, enable the canal emergency repairs, and decrease turbidity of water during the heavy rains. Through creation of protection and sanitary zones and fencing off sensitive/approachable areas, the project decreases a risk of negative anthropogenic impact.

46. The expected adverse impacts during and after Mihaliq dam construction encompass the following: (a) generation of large quantities of mineral waste, organic waste, and other types of waste as a result of earth works; (b) water turbidity, pollution with heavy metals, organic waste, suspended solids, and reduced oxygen presence in water and, in general, the lowering of the water quality level resulting from water-related works; (c) operating of heavy machinery and transportation vehicles may result in increased noise and vibrations in the immediate surrounding

resulting in negative health effects to present workers and disturbance to animals. In this specific case, amphibians, fish, and birds (for example, stork) might be affected; and (d) change of the hydrological regime, influence on water quality, and biological communities of both the lake (water reservoir) and the Sitnica River subsidiary concerned are likely, but not yet known, and will depend on the technical design of the dam and reservoir. Other effects may also include (e) potential pollution of the reservoir, particularly due to water runoffs and human activities, and deposit and spillage of domestic or hazardous substances (pesticides) in the watershed and vicinity of the project; (f) impact to ambient air due to heavy machinery during the construction and maintenance, and also changes in water regime; (g) land cover and the stability of the soils; (h) landscape pollution; and (i) loss of habitat, which currently consists of agricultural and anthropogenic areas and degraded forest remains.

47. **Natural Habitats OP/BP 4.04.** The works envisaged on the existing IL canal, Gazivoda dam, or Mihaliq dam (ERM) will not affect any protected area, important habitats, or fragile ecosystems. The Gazivoda dam and the envisaged ERM are located in districts (Mitrovica and Vushtrri) that encompass no protected or sensitive areas on their territories. The IL canal passes through four districts (Mitrovica, Vushtrri, Obiliq, and Pristina). However, neither the Gazivoda dam nor the canal rehabilitation will claim any additional surfaces while the ERM will be constructed on predominantly anthropogenic land surfaces (agricultural or deserted agricultural land). Development of the ERM, however, will pose a barrier to terrestrial animals and might impact a population of storks (IUCN least concern), which is addressed in the ESIAF and will be reflected in the environmental due diligence documents, the site-specific ESIA in particular.

48. **Pest Management OP 4.09.** Increased efficiency of the canal, foreseen decrease in losses in the network, and subsequent increased availability of water resources can affect agriculture practices; however, studies have shown that market access/conditions, rather than water abundance, are the primary constraints to agriculture in the project area. Thus, an increase in irrigated areas is only foreseen over the medium/long term, and hence, the project-financed water supply improvements are not expected to lead to an expansion or intensification of agriculture immediately. For the aforementioned reasons, this policy is not triggered.

B. Social

49. The project will undertake rehabilitation and construction works through Components 1 and 2. The investments recommended by the project FS implied the following issues:

(a) **Low scales of displacement/dislocation/land take, though dwellings are avoided.** Farmers and landowners, mostly riparian to the canal, who have extended their land use over the ILC property, will have to stop land use in the right-of-ways of the future canal rehabilitation works. This loss of land use will concern a strip of land several meters wide along the canal. This strip of land is only a low percentage of the total land use of the project-affected persons (PAPs). Consequently, this loss of land use will represent a marginal loss of income for PAPs, mainly riparian farmers

(b) **Restriction of use of canal water.** This can affect the household's organization, by reducing water access and therefore canal water used for household purposes, such as

irrigation of garden near house, and washing and cleaning of household furniture and vehicles.

(c) **Prohibition of household water and wastewater discharge into the ILC.** It will seek family investments in septic tanks or in the creation of private sewers connected to the main discharge network if it exists. People with low incomes and especially poor families will be more affected yet because they will not be able to afford such adjustments.

(d) **Application of some standards for some workshops or various businesses near the canal.** Businesses or workshops dealing with the sale of fuel or farm chemicals and car mechanics should be put under some conditional measures in operating their business. The measures will regard basic standards for the collection and discharge of oil and other harmful substances in nature (streams, rivers, or even directly into the canal).

(e) **Prohibition to dispose of hazardous waste anywhere near canal.** Daily consumables or specific wastes (that is, from vehicles and agriculture) shall not be disposed of in private or family (illegal) landfills due to contamination potential to the canal during periods of heavy rain and floods.

(f) **Access to new properties through the ILC property.** In some cases, it may happen that main accesses to agriculture plots and other private properties are provided into the ILC property by the maintenance road of the canal. Any restriction on the continuation of the use of the ILC property as a way of access to the parcels may interrupt agriculture parcels accessibility and may create social problems between neighboring landowners.

50. In the case of projected rehabilitation works of the canal, only temporary disturbances of road and tracks existing along the canal may occur during the periods of works.

51. All the existing maintenance roads and tracks along the canal will be replaced into the ILC property after works periods and will still be accessible to riparian owners.

52. Canal rehabilitations works program even includes an improvement and extension of the existing maintenance and access road along the canal. Riparian owners of the canal, mostly farmers and neighbors, will benefit from these improvements.

53. Through the second component, the project will finance the construction of an emergency reservoir in Mihaliq. Given that this will be a new reservoir, it will result in the following:

(a) *Land take and expropriation.* Owners whose property is located in the construction zone of the ERM will be subject to expropriation procedures. Expropriation will include agricultural land and forests or trees that are in this space.

(b) *Loss of accessibility to local road infrastructure.* The emergency water reservoir in Mihaliq will cut off a few households for which the access routes run through the project zone.

54. Given the above possible impacts, OP 4.12 - Involuntary Resettlement is triggered. The FS provides preliminary design for the project activities (with the exception of SCADA where detailed designs are ready), whereas the detailed designs will be developed during project implementation. The RPF was developed and addressed the situations relevant to OP 4.12 and hence provided recommendations to comply with the OP 4.12, based on which technical solutions will be developed to accommodate the project interventions when detailed designs determine the exact project footprints in the terrain, thus avoiding dwelling displacement and minimizing land expropriations. The ESMF is prepared whereby the social part assesses other social issues, from the above list, that are not addressed through the RPF and therefore provides solutions. One of the issues recognized through the ESMF is the loss of a rural road for some households due to constructing the ERM. Thus, before constructing the ERM, a community consultation will be held to determine new alternative route(s) to be built for the community, and this route will be built before constructing the reservoir.

55. The main institutions involved in the scope of expropriation in Kosovo regarding IL Canal rehabilitation and ERM projects are as follows:

- ILC, representative unit
- MoF, Property Tax Department
- MESP, Department of Expropriation

56. The Expropriation Authority in the ILC is responsible for the preparation and implementation of all the steps necessary for the conclusion and submission of the document required by the Expropriation Law in Kosovo. The Department of Expropriation at the MESP deals with executing the final stage of expropriation, which includes application for compensation.

Strategy Proposed for the Management of Expropriation because of the Project

57. In the frame of Kosovo's legislation, expropriation is only for immovable property and building structures that are found in private immovable property and not for property and facilities that were built illegally on public property. The expropriation also is done only for facilities that are legalized or have been able to be legalized under applicable laws in Kosovo at the date of issuance of the final decision on expropriation.

58. This is not in accordance with the principles of suggested value of expropriation from OP 4.12. The Bank's Operational Policy OP 4.12 includes principles that the lack of documentation of ownership does not disqualify from the expropriation assistance any contender or pretender holders of property, while under the legislation of Kosovo, discrepancies on this principle are highlighted.

59. The strategy proposed in the present RPF is the application of both Kosovo legislation and the Bank's OP 4.12, as follows:

- *In the case of ERM.* Private owners of the land, mainly farmers, are concerned (apart from public property). These PAPs will be expropriated in the respect of Kosovo

legislation. Procedures and compensations will be led respecting the principles of the Bank's OP 4.12.

- *In the case of canal rehabilitation works.* Almost total rights of way of project works are included into the ILC property but are often occupied by riparian owners and farmers; in these cases, according to OP 4.12 principles, the ILC will provide assistance and compensate loss of assets and land use suffered by PAPs.

60. **Consultation with persons affected by expropriation.** Respecting both legislation and OP, consultation with persons affected by expropriation will be led by the ILC, the Expropriation Authority for the project. The specific objectives of the campaign for public information and consultation are as follows:

(a) Distribute full information about the proposed project.

(b) Receive information about the needs of affected people, and their reactions about the proposed policies and activities.

(c) Ensure full transparency in all activities related to the expropriation of property and compensation payments.

Expropriation Process

61. Because the Expropriation Authority (ILC) is in charge of the expropriation process, it has an obligation to develop a fair expropriation process in several stages. The expropriation process can be the following two types of complaints, which relate to the assessment of assets and expropriated property:

- First, complaints against the Expropriation Authority may be in the first phase of expropriation, which includes public hearing and other procedures run by the Expropriation Authority to persons or owners affected by expropriation.

- Second, the appeal (complaint) may come from unsatisfied parties without the expropriation process, especially after the release of the preliminary decision. The complaint is addressed to the competent court.

Public Consultations under OP 4.01

62. Public consultations for the RPF and the ESMF were organized on February 24, 25 and 26, 2016) in Vushtrri, Mitrovica and Pristina.

63. There are community interests in the project, given the expected benefits, the proximity of the residents to the canal at some sections, and the proposed ERM. Public consultations for the preparation of RPF and ESMF were carried out; however, the nature of the project warrants effective, transparent, and sustained citizen engagement. The project will undertake the following interventions during project planning and implementation of the project to ensure meaningful citizen engagement. To ensure implementation of these activities, a comprehensive technical

assistance program will be developed to build clients' capacity both at the conceptual and operational levels.

Subproject Planning

- **Site-specific consultation and social mobilization.** This will be carried out through extensive information dissemination about the project and focus group discussions or community meetings (men and women) for identification of technical solutions and the access route for ERM. Rules of engagement will also be discussed through this consultative processes.

- **Gender inclusive beneficiaries' assessment.** This will contribute to the establishment of a baseline of benefits and will be a useful resource for project M&E.

- **Community institutions.** Where appropriate, the project will strive to establish local community-based organizations (CBOs) (men and women) that can represent the community throughout the project cycle.

- **Establishment of Grievance Redress Mechanism (GRM).** GRMs will be critical for smooth project implementation. These mechanisms will be identified in collaboration with the communities and will be integrated within the project management institutional framework and locally established CBOs.

- **Feedback mechanisms.** Establishment of a mechanism to inform the communities as to how their feedback has contributed to the technical design and other decisions for project implementation.

Implementation

- **Sustained engagement.** The project will ensure continuity of implementation-related information dissemination to the communities, and where appropriate, community representatives or CBOs will be engaged in local-level implementation-related decision making. This will also help the project staff share their constraints and issues with relevant communities.

- **Procurement monitoring.** Roles and operating procedures will be developed for community monitoring of the procurement to ensure transparency and communities' ownership of the project.

- **Grievance redressal.** The formal GRM will ensure that complaints are swiftly resolved and related information is appropriately communicated to the relevant person and/or group. Periodic review of the local-level GRM will be undertaken with the community.

- **Periodic monitoring.** Community representatives will be involved in the periodic monitoring of the project implementation, and resulting modifications in the technical designs, if any, will be openly shared and discussed with the community. In addition,

community representatives will be encouraged to provide feedback regarding project implementation to project staff.

- **Perception assessment.** This will be carried out through simple community scorecards or random perception surveys, where feasible and appropriate, to ensure accountability.

Project Completion

- **Beneficiary assessments.** At this stage, the project will undertake extensive and in-depth beneficiaries' assessment through citizen report cards or site-specific scorecards. Moreover, participatory impact evaluation will also be carried out through focus group discussions.

Gender

64. Gender integration will be an important aspect of this project. It will be important to engage women from an early stage because households near the canal tap into the canal and use canal water for watering gardens, washing furniture and carpets, and other uses. Women are therefore an important group of stakeholders in the project. The project will undertake consultations on the change in canal water use patterns.

65. Kosovo possesses a fairly comprehensive legal framework and mechanisms for gender equality, political participation, and nondiscrimination on the basis of gender,[8] supporting the project approach for mainstreaming gender, which is based on (a) sustained engagement throughout the project cycle and (b) equal opportunity for both men and women.

66. In this regard, the first step will be a comprehensive gender assessment that will be carried out early during the subproject design process. This assessment will focus on (a) ERM (Mihaliq); (b) access to and treatment of public property; and (c) unauthorized use of water. The assessment will collect specific information on the following:

- Gender-differentiated data on local definitions of productive and community roles; the daily activities and responsibilities of men and women in water management; differences in gender relations between subgroups of the community; the contributions men's and women's activities make to development goals especially in the water sector; women's and men's views on existing use and management of canal water; and number of women-headed households among the affected communities

- On the basis of the foregoing analysis, identification of the gender-specific dimensions of key social and institutional issues in relation to project objectives, with particular focus on constraints to women's participation

[8] Including Law on Gender Equality, the Kosovo Program for Gender Equality, and the Law on Anti-Discrimination. See http://www.ks.undp.org/content/dam/kosovo/docs/womenPub/Kosovo%20GES%202014-2017.pdf.

- Documentation of existing community and nongovernmental organizations groups in the project area and men's and women's roles in each, including any women's organizations that can be engaged in the project processes, specifically for advocacy required to address unauthorized use of water

- Identification of culturally acceptable social mobilization mechanisms to ensure engagement of women in project planning, implementation, and monitoring

- Identification of special initiatives for women (heads of households and landowners) to ensure that their living standards are maintained or improved

67. On the basis of the findings, a detailed work program will be developed to ensure gender mainstreaming in the project. In addition, gender sensitization workshops will be organized for project staff, the advisory committee, and any locally established community institution, to ensure sustainability of programs initiated by the project for women.

68. The results framework will disaggregate, where possible, the results by gender, especially the beneficiaries.

Citizens Engagement: indicators, reporting mechanism, and impact on project implementation.

69. Given that a grievance mechanism will be channeled through a community-grievance approach, which will facilitate inputs from the individuals and communities, it is expected that that the communities and individuals/beneficiaries will be proactive towards the ILC role. The Grievance Committees will be formed with participants from communities, local government and the Project Implementing Unit. The committee will have a defined protocol with standard response time and will maintain logs for the complaints/ideas/issues which will be recorded and reported in the project progress reports. The terms of operation of the grievance committee (facilitation committee) will be written after project approval. The grievance mechanism will be funded under the M&E activity under component 3.

70. The reporting will also include response from the ILC towards communities/individual proposals/complains/issues. The most probable issues to be raised by the communities (based on the public consultations) could be the technical design solutions to the rehabilitation of the canal near inhabited areas. The biggest concern from the communities (as recorded at the public consultations at appraisal) was the safety around the open canal.

In addition to reporting on the response to grievances on a monthly basis (being one of the results indicators in the Results Framework, Annex 1 below), the project progress report will also report on the satisfaction of the CBOs on the project procurement and contract-management process, reported annually. The CBOs satisfaction will be inferred by seeking feedback from the CBOs in the form of citizens-report cards.

Monitoring and Evaluation

71. The PIU will include M&E consultants supervised by the ILC. The project budget includes budget for M&E consultants, M&E incremental costs, and some water-monitoring equipment as

part of the SCADA. An intensive baseline survey is not needed as the PDO and outcome baseline indicators are simple (either zero or estimated from the analysis performed by the FS). The project semiannual progress report will include an M&E chapter informed by undertaking (a) independent land and beneficiary surveys (including on gender engagement and female beneficiaries) and (b) water modeling/desk-based estimates and in situ measurements. Monitoring of the Project's environmental compliance will be carried out by ILC for the rehabilitation works (Gazivoda dam and the canal), and implementing agency for ERM construction and operation.

Annex 4: Implementation Support Plan

KOSOVO: Water Security and Canal Protection Project

Strategy and Approach for Implementation Support

1. Implementation support is tailored to the implementation arrangements given in annex 3. The ILC, MESP, and main consultancy organizational arrangements such as structure, responsibilities, and locations are well formulated. These arrangements are applicable to both the client implementation organizations (for implementation) and the Bank's implementation support team (for review, facilitation, supervision, and due diligence) and cover the full range of technical engineering and institutional development aspects, as well as the corresponding managerial, fiduciary, socioenvironmental safeguard, and M&E aspects. The main areas of focus and skills requirements for implementation support to be provided by or through the Bank are as summarized in table 4.1.

2. **FM implementation support.** The Bank will conduct a risk-based FM implementation support mission within a year of the project effectiveness and then at appropriate intervals. In addition, the regular IFRs and annual project audit reports will be reviewed by the Bank. As required, a Bank-accredited FM specialist will assist in the implementation support and supervision process.

Implementation Support Plan

Table 4.1. Implementation Support Main Focus and Skills

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First 12 months	Start of implementation: • Support to detailed design • Support to implementing initial activities • M&E establishment	• Project management • Operational skills • Canal engineering technology • Dam safety engineering • SCADA expert • FM • Procurement • Environmental and social safeguards • M&E	US$150,000 per year	n.a.
Months 13 to 60	Implementation of subprojects: • Support to implementation for all subprojects • M&E	• Project management • Operational skills • Canal engineering technology • Dam safety engineering • SCADA expert • FM	US$120,000 per year	n.a.

Time	Focus	Skills Needed	Resource Estimate	Partner Role
		• Procurement • Environmental and social safeguards • M&E		

3. Table 4.2 shows the estimated input requirements for key personnel to carry out the implementation support for the project.

Table 4.2. Implementation Support Plan Skills Mix

Skills Needed	Number of Staff Weeks per Year	Number of Trips	Comments
Task team leader and water resources management specialist	8	2	HQ staff
Canal engineering specialist	5	2	HQ staff
SCADA specialist	3	2	Regional staff
Dam safety specialist	3	2	HQ staff
Operational specialist	8	Local trips	Local staff
Procurement specialist	4	1	HQ staff
FM specialist	3	2	Regional staff
Environmental specialist	3	2	Regional staff
Social development specialist	3	2	Regional staff

Annex 5: Economic and Financial Analysis

KOSOVO: Water Security and Canal Protection Project

I. FINANCIAL ANALYSIS

A. The Situation of the ILC

1. The ILC is a state-owned enterprise. Over the last two years, the ILC has operated on a breakeven position (before depreciation) with revenues received matching operating expenses incurred. However, due to a very high level of fixed assets' value, provision for amortization reaches nine times more than the amount of operating results (€600,000 against €4,500,000).

2. The balance sheet is summarized in table 5.1:

Table 5.1. Summarized Balance Sheet

Balance Sheet in €, thousands	*2013*	*2012*
Current assets	3,654	3,960
Cash and equivalent	1,345	1,570
Accounts receivables	1,069	1,140
Stocks	1,240	1,250
Fixed assets	134,600	137,970
Equipment and machinery	2,360	2,400
Buildings	132,240	135,570
Total assets	**138,254**	**141,930**

Current assets make up less than 3% of total assets. Customer accounts receivable as at the end of 2013 at 95 days of billing against 111 in 2012, which is a good performance.

Fixed assets consist of buildings for more than 98 percent with a financial life of around 40 years.

	2013	*2012*
Short-term liabilities	702	470
Payables	467	230
Other short-term liabilities	235	240
Long-term liabilities	485	493
Deferred revenue	485	493
Long-term loans		
Capital	137,067	140,967
Total capital + liabilities	**138,254**	**141,930**

Accounts payable are equivalent to 41 days of billing. The ILC is shown to have a favorable current ratio, exceeding 1.5; this ratio measures the coefficient between current assets and S.T. liabilities, which accounts for 5.04.

Capital value decreases due to negative results after depreciation: −€3.9 million

3. The profit and loss account shows the following structure:

Table 5.2. Profit and Loss Account - With Regard to Revenues

	2012 in €	**2013 in €**	**Variation in %**	**Structure in %**	
				2012	**2013**
Operating revenue	**3,735,168**	**4,093,084**	**9.6**		
Electricity	1,941,189	2,517,949	29.7	52.0	61.5
Industrial water	1,554,899	1,348,268	−13.3	41.6	32.9
Irrigation	209,718	191,676	−8.6	5.6	4.7

	2012 in €	2013 in €	Variation in %	Structure in %	
				2012	2013
Other	29,362	35,191	19.9	0.8	0.9

4. The strong weight of electricity should be noted; industrial water and irrigation continuing to decline, until to represent less than half of total revenue. The question is how to increase the part of revenue depending on the 'natural' activities of a company in charge of a canal of raw water.

Table 5.3. Revenue Structure

Structure of Revenue		In Cent of € per m^3 of Water	
	In %	*Exploited*	*Billed*
Energy	**62**	**3 cents per KWh**	
Raw water	**33**	**1.4**	**3.2**
Irrigation	**5**	**0.2**	**0.5**
Total	100	4.2	9.5

The current situation shows that the most profitable activity is the sale of energy which is not depending on volumes of water.

Sales of water remain weak mainly due to the fact of heavy losses. Activities linked to irrigation are not significant due to the low level of irrigated areas.

Table 5.4. Profit and Loss Account - With Regard to Operating Costs

	2012 in €	2013 in €	Variation in %	2012 in %	2013 in %
Operating costs	**3,387,131**	**3,464,923**	**2.3**		
Variable	*421,087*	*454,474*	*7.9*	*12.4*	*13.1*
Maintenance and repairs	32,158	44,112	37.2	7.6	9.7
Electricity	241,901	276,066	14.1	57.4	60.7
Fuel costs	59,219	59,190	0.0	14.1	13.0
Goods and material	87,809	75,106	−14.5	20.9	16.5
Fixed	*2,966,044*	*3,010,449*	*1.5*	*87.6*	*86.9*
Cost for services	126,076	55,830	−55.7	4.3	1.9
Gross wages	2,552,119	2,698,938	5.8	86.0	89.7
Administrative expenses	58,237	68,874	18.3	2.0	2.3
Consumables	229,612	186,807	−18.6	7.7	6.2
Operational result	**348,037**	**628,161**	**80.5**		
Depreciation	4,590,974	4,597,574	0.1		
Provision for bad debt	0	0			
EBIT	**−4,242,937**	**−3,969,413**	**6.4**		
Deferred revenue	493,327	485,156	−1.7		
Financial results	73,676	69,356	−5.9		
Net result before tax	**−4,662,588**	**−4,385,213**	**−5.9**		
Corporate and other Taxes					
Final result	**-4,662,588**	**-4,385,213**	**-5.9**		

Note: EBIT = Earnings before interest and taxes.

5. Operating costs before depreciation are quite misbalanced, causing the following:

- The underbudgeting of variable costs and in particular related to maintenance and repairs

- The absence of any provision for bad debts and doubtful debts in the face of a volume of receivables representing more than €1 million

- The heavy weight of gross wages representing 79 percent of the total of operating costs

One must underscore that the budgetary process of the ILC becomes heavily affected insofar as fixed costs and depreciation cannot be reduced and leave the possibility of increasing variable costs for investment or/and rehabilitation.

With regard to results:

Each m^3 of billed water spawns 18.4 cents of euro of cost. Each m^3 of billed water remains at the same tariff and spawns 4.2 cents of euro of revenue. This means that as long as depreciation will have such level, each m^3 of water billed spawns 14 cents of euro of losses.

Measures should be taken to alleviate the amount of depreciation with a first step through an audit of fixed assets value.

B. The Results of Financial Projections

The Projections of Revenue per Categories of Activities

6. **Regarding water sold to water companies,** volume of water sold does not change after the project. The only improvement is the reduction of losses. Unit prices are assumed constant.

7. **Regarding water sold to industries and power plants,** the improvements after the project depend on the water-losses reduction and on improving water quality at the intakes.

8. **Regarding irrigated areas,** the situation is radically improved after the project; otherwise, the absence of canal rehabilitation will not allow restoring the irrigated areas according to the original Gazivoda canal system design.

9. **Regarding (hydropower) energy sold,** the situation improves only marginally after the project (by around 4 percent improvement at the pessimistic scenario by 2035, when the Gazivoda hydropower generation may compete with the downstream water-consumptive uses).

10. **Globally, the revenues of the ILC** will progress as follows:

Table 5.5. Financial Projections - Without Project

				Variation in %	
Total Revenue	**2014**	**2025**	**2035**	**Total**	**Per Year**
Water sold	1,348,268	1,927,030	1,927,030	43.0	1.70
Irrigation	195,580	220,000	275,000	41.0	1.60
Energy sold	2,532,000	2,536,525	2,536,525	0.2	0.01

				Variation in %	
Total Revenue	**2014**	**2025**	**2035**	**Total**	**Per Year**
Grand Total	**4,075,848**	**4,683,555**	**4,738,555**	**16.3**	**0.70**

Table 5.6. Financial Projections - With Project

				Variation in %	
Total Revenue	**2014**	**2025**	**2035**	**Total**	**Per Year**
Water sold	1,348,268	3,425,832	3,639,946	170	4.8
Irrigation	198,000	1,677,500	1,677,500	747	10.7
Energy sold	2,532,000	2,982,600	2,982,600	18	0.8
Grand Total	**4,078,268**	**8,085,932**	**8,300,046**	**103.5**	**3.4**

The Projections of Costs per Categories

11. The different categories of costs have been distinguished as variable and fixed.

- Variable costs vary in accordance with the production of water (the water saleable) and the production of energy.

- Fixed costs are more dependent on the main cost of this category, labor costs. These latter develop in accordance with the number of employees of the ILC. Currently, there are nearly 300 persons employed. This amount is quite high and may influence the other categories of fixed costs.

12. The first step of projections is to fix the different costs in percentage of volume of water sold and electricity for variable costs and in percentage of labor costs for fixed costs. Labor costs will be fixed in accordance with the average of salaries and the number of employees. The addition of these costs will have to match the ones reported in the financial statement for the year 2013.

13. Table 5.7 shows the value of the components of costs.

Table 5.7. Cost Components

Operating Costs			**In €**
Variable (OCV)			*454,474*
Maintenance and repairs	% water sold	0.09	44,112
Electricity	% water sold	0.57	276,066
Fuel costs	% water sold	0.12	59,190
Goods and material	% water sold	0.15	75,106
Fixed (OCF)			
Cost for services	% of OCV	12	*NE*
Gross wages: NE X average salary	NE	9,118	296
Administrative expenses	% of GW	3	
Consumables	% of GW	7	

Note: OCV = Operating costs - variable; OCF = Operating costs - fixed; NE = Number of employees; GW = Gross wages.

Global Results of Financial Projections

14. The financial modelling makes projections on a year-by-year basis. It distinguishes three main periods:

- Initial investment from 2014 to 2019
- Impact of investment from 2020 to 2025
- Full operation from 2025 to 2035

15. Table 5.8 shows the main elements by taking over the total during the horizon period (2014–2035), as follows:

- Total investment
- Total operational costs
- Total cash collected
- Total cash flow

16. Each element is calculated without project (line 'existing') and with project (line 'project').

17. Investments are those provisioned for renewal and updated equipment for the calculation of projections without project.

18. Investments are those forecasted for the period 2014–2019 and renewal and updated equipment for the calculation of projections with project.

19. All details are shown in the financial report.

Table 5.8. Investment Cash Excluding Depreciation - Current Situation

		Total in €
− Investment costs		6,431,799
− Operating cost		80,538,273
+ Cash collected		99,325,718
Cash flow		**12,355,646**

Table 5.9. Investment Cash Excluding Depreciation - With Project

		Total in €
− Investment costs		27,731,201
− Operating cost		88,889,691

		Total in €
+ Cash collected		135,361,079
Cash flow		**18,740,187**

20. The calculation of NPV and internal rate of return is based on these elements.

21. The results are as follows:

Table 5.10. Project Impact on NPV

NPV without project	€7,329,153
NPV with project	€4,174,481

Note: With a discount rate of 5 percent, the financial internal rate of return of the project is at 3 percent.

22. This rate corresponds to the rates currently reached by projects in the water sector. Even if the rate of 3 percent is on the lower average (the average rates are from 3 to 5 percent), this result constitutes a good performance, taking into account that the project aims essentially at rehabilitating existing infrastructures rather than building new ones.

I. COST-BENEFIT ANALYSIS

A. Introduction

23. The financial and economic analyses of the Kosovo Water Security and Canal Protection Project follow recommendations for good practices and are based on the experiences of similar Bank/IDA-funded projects in other countries. These analyses are structured as follows: (a) project benefits; (b) financial analysis; (c) economic analysis; and (d) sensitivity analysis that examines key assumptions of important variables.

B. Project Benefits

24. The PDO is to contribute to restoring the Iber canal original capacity to improve water resources management for the various canal users in Central Kosovo. This will be achieved through two main components: (a) canal infrastructure rehabilitation and modernization (by reestablishing the canal transit capacity, enabling closure of the canal for maintenance, strengthening the canal structural safety against extreme events, and enhancing dam safety) and (b) water resources protection and management (by increasing the Gazivoda-Ibër system operational efficiency and protecting the canal ambient water quality).

25. It is expected that the project benefits will derive from (a) reduction of drinking water production costs; (b) water loss prevention due to extreme natural events; (c) reduction of industrial production costs; (d) increase of hydroelectricity production; and (e) irrigation benefits.

26. Some benefits were not included in the economic analysis of the project as they are negligible or their calculations are speculative and not sufficiently reliable. For example, the benefits associated with the improvement of public health and safety due to improved quality and supply of water can be valued through avoided medical costs and welfare gained due to avoided days lost from work and due to avoided school absenteeism. In addition, the project will strengthen

the governance for water resources protection and management, and the capacities of the ILC and Gazivoda-Ibër system in general and will also build skills of local companies and institutes. This benefit was also not calculated and not included in the economic analysis.

C. Financial Analysis

27. The objectives of the financial analysis are (a) to assess the financial viability of the improved infrastructures, technologies, and systems promoted by the project and the increase in incomes and benefits from indicative investments and (b) to set a basis for the project economic analysis. Several financial models were prepared for the financial analysis of the project.

28. **Key assumptions.** The parameters for the financial models are based upon the information on production systems gathered during the design mission: the interviews with the project stakeholders and the review of available documents and statistics, as well as the information and data from the Cost-Benefit Analysis that was conducted in the frame of the project FS.[9] In particular, information on labor and input requirements for various operations, capital costs, crop yields, and market prices for electricity, water resources, and equipment costs was collected. Conservative assumptions for both inputs and outputs were made.

29. **Prices of commodities/inputs reflect annual average and those actually paid/received by consumers/companies/farmers.** These were collected from the project FS, national statistics, FAOSTAT[10], and the Bank's global commodity price projections. Estimates for the infrastructure and equipment costs were based on the project FS and on those of similar types made under other projects. All prices were expressed in the 2015 level. A simulation of the effect of price/cost changes to the project viability was imputed in the sensitivity analysis.

30. **Taxes.** In line with the current government policy, the models assume a value added tax rate of 16 percent on local sales.

31. Detailed physical and financial parameters for the demonstrated financial models are presented in appendix 1 to this document. The following paragraphs contain the description of the quantifiable benefits of the project, the initial parameters, and the results of relevant financial models.

Water Loss Prevention

32. It is expected that the project will make a significant investment in infrastructure rehabilitation, modernization of Ibër Canal, and water resources protection and management of the Gazivoda-Ibër system. This will substantially increase the useful life of the infrastructure, facilities, and equipment as well as improve reliability of the overall system. The assessment of this benefit is based on the idea that those who currently pay for the bulk water need it now and will need it in the future. In other words, water users want this resource remaining available over

[9] Project FS was conducted by Egis Eau, consulting and engineering company, commissioned by the Bank/government of Kosovo.
[10] The Food and Agriculture Organization Corporate Statistical Database (FAOSTAT)

the years. In case of a shortage, tensions between the users can be exacerbated because many important uses depend on a single source.

33. To assess the economic value of resource security of direct users of the canal, it is theoretically necessary to estimate the willingness of each user to pay for the water-loss prevention. This can be done by applying the conservative assumption that the price paid to consume bulk water integrates the willingness to pay to perpetuate the service over time. It is considered that a mean of 12.5 percent of the price paid by bulk water users to the ILC corresponds to the value attributed to water-loss prevention.

34. The calculation of the annual benefits is based on the following figures:

Table 5.11. Basis for Annual Benefits Calculation

	Water Supply	**Power Generation**	**Industries**
Volume of water consumed, m^3 per year	82,466,640	24,508,200	40,996,800
Average price paid for raw water, € per m^3	0.0207	0.05	0.0405

35. It is estimated that the project will generate the benefit stream deriving from water loss prevention of about €570,000 per year in total. The detailed financial model is presented in table A-1.1 in appendix 1.

Water Loss Prevention because of Extreme Natural Events

36. In case of extreme climatic event (occurrence ratio of 1/100) such as an earthquake or a flood, the canal water supply will be interrupted for at least one or two weeks. The implementation of the project will not only minimize the canal's exposure to such event but also reduce the duration of such event.

37. To assess the economic value of this benefit, it must be considered that the interruption of raw water supply to direct users will have an automatic impact on their own customers (indirect impact). The supply of Pristina with drinkable water will be highly affected with the creation of the new WTP in Skabaj. The Feronikelli production system will be affected as well. It will also become impossible to provide irrigation water. Knowing that the power plants supplied by the canal produce more than 90 percent of the electricity consumed in the country, a service interruption will have a significant impact on the economy even though the electricity may be imported from the neighboring countries. It is proposed to take an assumption that the total cost of such interruption of service during a given period equals to about 10 percent of the GDP of this period. Assuming that the improvement of the canal will allow to reduce the duration of a service interruption period by 5–10 days (7.5 days on average) under comparison of with and without project situations and considering that the 2014 annual GDP is more than €5 billion, the average annual benefit of the project equals €205,500.

Reduction of Drinking Water Production Costs

38. During rainy periods, the high turbidity of water significantly affects the treatment costs of water. According to the information collected during the discussion meeting with the WTP's managers, excessive turbidity has a negative impact on the process of treatment within up to 4 to

6 months per year. When the water is highly turbid, filters have to be washed more often. Sand filters are backwashed with water from the canal. A backwash lasts from 10 to 20 minutes. Electricity is consumed to activate the pumps necessary for the backwash. The more turbid the water is, the more chemicals are used. Aluminum sulfates are used to flocculate the suspended solid matters and accelerate their sedimentation. While a filter is washed, the production of the unit must be reduced. This situation generates an opportunity cost.

39. All of the WTPs using bulk water from the ILC canal apply the same process of treatment. The composition of treatment costs depends on the capacity of the plant.

40. First of all, extra costs due to turbidity were calculated for the two WTPs. Then, a ratio of 'extra cost per month according to the treatment capacity in l/s' was calculated for each plant. Finally, these two ratios were used to calibrate a conservative probability distribution of the 'extra cost per month according to the treatment capacity in l/s' that can be applied to every WTP using the bulk water of the canal.

41. The Albanian WTP does not use the water provided by the ILC. However, according to the Pristina Regional Water Company, it is a good example for a calculation of the extra costs of turbidity in a WTP of an important capacity.

Table 5.12. Albanian WTP Characteristics

Parameters	Data
Capacity of the WTP	900 l/s
Capacity of the pumps used to backwash	45 kW/h
Number of extra wash because of turbidity	272 per month
m^3 of raw water needed to backwash one filter	10 m^3
Quantity of aluminum sulfate used during the months of high turbidity	7.5 kg
Total number of filters	12

Note: Extra cost of high turbidity during one month = €22,942; Extra cost per month according to the treatment capacity = €25.50 per l/s.

42. The Drenas WTP is directly concerned by the project and used here to calculate the extra costs of turbidity in a WTP of a smaller capacity.

Table 5.13. Drenas WTP Characteristics

Parameters	Data
Capacity	120 l/s
Capacity of the pumps used to backwash	9.6 kW/h
Number of extra wash because of turbidity	260 per month
m^3 of raw water needed to backwash one filter	20 m^3
Quantity of aluminum sulfate used during the months of high turbidity	1.7 tons
Price of aluminum sulfate	€500
Total number of filters	5

Note: Extra cost of high turbidity during one month = €31,075; Extra cost per month according to the treatment capacity = €55 per l/s.

43. It is assumed that each year, the number of months with a high turbidity during an average year is between 4 to 5.5 months of rain impacting the treatment process with a mean of 4.7 months.

Table 5.14. Mean Annual Benefit for the Reduction of Drinking Water Production Costs

Parameters	Data
Mitrovica (MRWC)	€186,308
Vushtrri (MRWC)	€65,208
Drenas (PRWC)	€22,357
Shkabaj (PRWC) until 2025	€130,416
Shkabaj (PRWC) since 2025	€223,570

44. It is estimated that the project will generate the benefit stream deriving from the reduction of drinking water production costs of about €404,300 per year in total. The detailed financial model is presented in table A-1.2 in appendix 1.

Decrease of Production Costs for Industries and Power Generation

45. As explained in the previous section, the high turbidity of water during rainy periods affects treatment process and thus treatment costs.

46. Financial and technical managers of industries using the ILC water were interviewed to collect relevant data for assessment of the financial consequences of such situation. Unfortunately, very little operational information was collected. This is why the assessment of the economic benefits for industries and power generation is based on the expert's estimates and the extrapolation of calculations made concerning drinkable water production.

Table 5.15. Characteristics of Industrial Users of the ILC Water

Industrial Users	Uses of Water	Water Treatment	Inflow	Total Volume per Month
Ferronikeli: nickel production plant	Cooling and steam generation	Decarbonization and demineralization	0.1 m^3/s	1,041,600 m^3
Trepça mining and metal production	The bulk water will be used in a new mining complex, probably for washing-up purposes.	Probably no treatment of the water before use	1.2 m^3/s	3,214,080 m^3
Kosovo B: power plant (lignite-fired)	Cooling and steam generation	Decarbonization and demineralization	0.39 m^3/s	1,041,600 m^3
New thermal power plant (coal-fired)	Cooling and steam generation	Decarbonization and demineralization	0.4 m^3/s	1,071,360 m^3

47. According to the water treatment experts, the turbidity of water affects only pretreatment of water. The process of pretreatment used by industries is very similar to those used in WTPs to produce drinkable water. Thus, the calculation of benefits for industries induced by the suppression

of turbidity peaks when raining is based on the same parameters as those used for drinkable water production. Table 5.16 shows the results from the calculations.

Table 5.16. Annual Benefit for the Reduction of Industrial Production Costs

Industrial Users	Estimated Annual Benefits
Ferronikeli	€18,631
Trepça	€0
Kosovo B	€72,660
KRPP	€74,523

48. It is estimated that the project will generate the benefit stream deriving from the reduction of the drinking water production costs of about €165,800 per year in total. The detailed financial model is presented in table A-1.4 in appendix 1.

Increase of Hydroelectricity Production

49. The ILC manages the hydropower plant situated between the Gazivoda reservoir and the Predvorica reservoir. Energy production provides a large part of the ILC's revenues. In general, the ILC earns from €25,000 to €30,000 per GWh produced.

50. The hydropower production is highly dependent on water demands downstream of the ILC canal. The improvement of the canal operation through remote monitoring, remote control, and a compensation reservoir will allow the ILC to increase its hydroelectricity production. The maximum potential of the hydropower production is assessed through the water balance report. This study shows that in current situation, the average production is about 84 GWh per year (2006–2013 mean) whereas for every horizon and in every scenario, the average production can be about 100 GWh per year, and even more in some cases. Therefore, there is room for a potential increase of the ILC hydropower production of about 19 percent. However, due to uncertainty concerning this value, the following probability distribution is used in the calculation.

51. With an average revenue of €27,500 per GWh per year, the mean annual benefit of the project concerning the increase of hydroelectricity production is estimated at €413,765 per year.

Assessment of Irrigation Benefits

52. At present, irrigated agriculture is rather poorly developed in the potential project area. This is apparently due to the instability of irrigation water supply and consequently to relatively low income from irrigated agriculture. In addition, it may possibly relate to insufficient development of the tradition of irrigated agriculture.

53. Currently, the command area irrigated by the canal is 1,743 ha, where potatoes and maize are cultivated. In addition there are about 3,000 ha is rainfed and cultivated with wheat, barley, and oat. The irrigated area can be potentially increased up to about 7,000 ha of land suitable for irrigation; however the contribution of the project the improved irrigation will be rather small and limited by only 1 to 2 m3/sec of water that will be added to the current water flow for irrigation. This amount of water can irrigate only about 2,000-3,000 ha of land. It is expected that the project will marginally improve the stability of water supply to the irrigated area, which will in turn

increase the productivity of cultivated crops there. It is estimated, that about 20% of the future incremental irrigation benefits can be attributed to the project. This corresponds to the irrigation benefits that would derive from cultivation of crops on about 2,000 ha of irrigated land.

54. Several crop budgets were prepared to estimate the cost of production and revenues for each of the crops that were used in the financial analysis. The results of these crop budgets were used in the financial model, which was developed to calculate the benefits of the improved irrigation on the project area. Crop budgets and the model are presented in tables A-1.5–A-1. in appendix 1. It is estimated that the incremental benefit stream deriving from the improved irrigation which can be attributed to the project is about €2 million per year on average.

II. ECONOMIC ANALYSIS

55. The period of analysis is 20 years to account for the long-term benefit and phasing periods of the proposed interventions.[11] The scenario presented in the economic analysis is conservative (based on conservative assumptions and estimates). The analysis that appears below is indicative and demonstrates the scope of economic profitability originated from the conditions prevailing at the time of the preparation.

56. **Benefit stream.** The analysis attempts to identify quantifiable benefits that directly relate to the activities undertaken following implementation of the project components and activities, or that can be attributed to the project's implementation.

57. Price estimates for tradable commodities were based on the Bank's global commodity price projections. All local costs were converted into their approximate economic values using a standard conversion factor of 0.8, and a shadow wage rate factor of 0.7 for unskilled labor was also applied. No subsidies and taxes were considered in the calculations because they represent transfer payments and have to be excluded from the economic analysis. All values are given in constant 2015 prices.

58. The incremental quantifiable benefit stream comprises the following five main elements: (a) reduction of drinking water production costs; (b) water loss prevention due to extreme natural events; (c) reduction of industrial production costs; (d) increase of hydroelectricity production; and (e) incremental irrigation benefits.

59. The illustrative models, calculations, and crop budgets described above were used for the calculation of the overall benefit stream, on the basis of economic prices.

60. **Cost stream.** The economic project costs were calculated by the Costab software by removal of price contingencies, exchange rate premium, and taxes/duties.

61. **Summary.** Given the above benefit and cost streams, the base case ERR is estimated at 10.1 percent. The base case ENPV of the project's net benefit stream, discounted at 6 percent, is €6.9 million in economic terms. The details of the analysis can be found in table A-2.2 in appendix 2.

[11] However, it should be noted that for some investments, benefits will be produced during a longer period.

62. **Sensitivity analysis.** Economic returns were tested against changes in benefits and costs and for various lags in the realization of benefits. In relative terms, the ERR is equally sensitive to changes in costs and in benefits. In absolute terms, these changes do not have a significant impact on the ERR, and the economic viability is not threatened by either a 20 percent decline in benefits or by a 20 percent increase in costs. A one-year delay in project implementation will reduce the base ERR to about 8.1 percent.

63. The sensitivity analysis results are presented in table 5.18. The detailed results of the analysis can be found in table A-2.3 in appendix 2:

Table 5.17. Sensitivity Analysis

Sensitivity Analysis (20-year period)	Base case	Costs Increase			Increase of Benefits		Decrease of Benefits			Delay of Benefits	
		+10%	+20%	+50%	+10%	+20%	−10%	−20%	−30%	One year	Two years
ERR	**10.1%**	11.2%	10.1%	7.3%	11.6%	13.0%	8.5%	6.8%	4.9%	8.1%	6.3%
ENPV (€, millions)	**6.9**	9.8	8.1	2.9	9.8	12.7	4.1	1.2	-1.6	3.7	0.6

Appendix 1. Financial and Economic Models

A-1.1. Water-loss Prevention - Benefits of Improvement of the Infrastructure Life Duration and Resource Reliability

Item	Unit	Unit Price, EUR	Without Project	With Project 1	2	3	4	5	6	7	8	9	10-20
Water consumed by:													
Water supply to regional water companies a/	m3 million	20,700	-	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
By power generation b/	m3 million	50,000	-	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
By industries c/	m3 million	40,500	-	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Revenue streams:													
From water supply to regional water companies	€ million			1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
From power generation	€ million			1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
From industries	€ million			1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Willingness to pay:	%							*12.5%*	*12.5%*	*12.5%*	*12.5%*	*12.5%*	*12.5%*
Of regional water companies	€ million		-	-	-	-	-	0.21	0.21	0.21	0.21	0.21	0.21
Of power generation	€ million		-	-	-	-	-	0.15	0.15	0.15	0.15	0.15	0.15
Of industries	€ million		-	-	-	-	-	0.21	0.21	0.21	0.21	0.21	0.21
Total benefit stream	€ million			-	-	-	-	0.574	0.57	0.57	0.57	0.57	0.57

a/ Average price paid for raw water: 0.0207 €/m3
b/ Average price paid for raw water: 0.05 €/m3
c/ Average price paid for raw water: 0.0405 €/m3

A-1.2. Benefit of Reduction of Drinking Water Production Costs

Item	Unit	With Project 1	2	3	4	5	6	7	8	9	10-20
Mitrovica (MRWC)	€ million	-	-	-	-	0.19	0.19	0.19	0.19	0.19	0.19
Vushtrii (MRWC)	€ million	-	-	-	-	0.07	0.07	0.07	0.07	0.07	0.07
Drenas (PRWC)	€ million	-	-	-	-	0.02	0.02	0.02	0.02	0.02	0.02
Shkabaj (PRWC) until 2025	€ million	-	-	-	-	0.13	0.13	0.13	0.13	0.13	0.13
Benefit of the extreme risk reduction	€ million	-	-	-	-	0.40	0.40	0.40	0.40	0.40	0.40

A-1.3. Risk Reduction in Case of Extreme Climatic Events

Item	Unit	With Project									
		1	2	3	4	5	6	7	8	9	10-20
Number of days of blackout saved	day	-	-	-	-	7.5	7.5	7.5	7.5	7.5	7.5
Annual GDP	EUR billion	-	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0
Ratio of daily GDP lost	%	-	-	-	-	20%	20%	20%	20%	20%	20%
Probability of the event	%	-	-	-	-	1%	1%	1%	1%	1%	1%
Benefit of the extreme risk reduction	**EUR million**	**-**	**-**	**-**	**-**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**

A-1.4. Benefit of Reduction of Industrial Production Costs

Item	Unit	With Project									
		1	2	3	4	5	6	7	8	9	10-20
Ferronikeli	EUR million	-	-	-	-	0.02	0.02	0.02	0.02	0.02	0.02
Kosovo B	EUR million	-	-	-	-	0.07	0.07	0.07	0.07	0.07	0.07
KRPP	EUR million	-	-	-	-	0.07	0.07	0.07	0.07	0.07	0.07
Benefit of the extreme risk reduction	**EUR million**	**-**	**-**	**-**	**-**	**0.17**	**0.17**	**0.17**	**0.17**	**0.17**	**0.17**

A-1.5. Improved Irrigation - Crop Financial Budgets for Without and With Project Situations (per ha)

		Unit	Wheat				Maize				Potato			
			Rainfed		Irrigated		Rainfed		Irrigated		Rainfed		Irrigated	
			WOP	WP	WOP	WP	WOP	WP	WOP	WP	WOP	WP	WOP	WP
Yield	Main Product	kg	4,000	4,000	6,000	6,900	2,000	2,000	4,500	4,950	15,000	15,000	22,000	24,200
	By-product	kg	2,400	2,400	3,600	4,140	1,000	1,000	2,250	2,475				
Crop Inputs	Seed/Seedlings - local	kg	250	250	280	280	250	250	250	250	2500	2500	2000	2000
	Seed/Seedlings - improved	kg	0	0	0	0	0	0	0	0	0	0	0	0
	Manure	ton	0	0	0	0	0	0	0	0	0	0	0	0
	Fertilizer (AN)	kg	250	250	250	200	0	0	100	70	200	200	100	100
	Fertilizer (TSP)	kg	0	0	0	50	0	0	0	50	300	300	100	70
	Potassium	kg	0	0	0	0	0	0	0	0	0	0	0	10
	Herbicide	lt	1.5	1.5	1.5	1.5	0	0	0	0	1.5	1.5	0.75	0.75
	Pesticide	lt	0	0	0	0	0	0	0	0	3	3	1.5	1.5
	Fungicide	lt			0	0			0	0	8	8	4	4
	Bagsoxes	unit	80	80	120	138	40	40	90	99	300	300	440	484
	Machinery Service													
	Machinery operation or rent													
	Ploughing	ha	1	1	1	1	1	1	1	1	1	1	0	0
	Ploughing (machinery)-improved	ha	0	0	0	0	0	0	0	0	1	1	0	0
	Cultivation	ha	1	1	1	1	1	1	1	1	1	1	0	0
	Cultivation (machinery)-improved	ha	0	0	0	0	0	0	0	0	0	0	1	1
	Seeding (machinery)	ha	1	1	1	1	1	1	1	1	1	1	1	1
	Seeding (machinery)-improved	ha	0	0										0
	Spraying/Weeding	ha			1	1					5	5	2	2
	Spraying/Weeding-improved	ha	1	1										
	Bailing (machinery)	bales	160	160	240	276					0	0	0	0
	Transport	t	6.7	6.7	9.9	11.3	3.3	3.3	7.0	7.7	17.5	17.5	24.0	24.2
	Fertilizer application	ha	1	1	1	1	1	1	2	2	1	1	1	1
	Fertilizer application-improved													0
	Harvesting (cereal)	ha	1	1	1	1	1	1	1	1	0	0	0	0
	Harvesting (tomato/onion)										1	1	1	1
	Land tax	ha									1	1	1	1
	Irrigation applications	ha	0	0	0.3	2	0	0	2	3	1	1	1	3
	Family Labour		12	12	15	15	12	12	15	18	35	35	20	20
	Hired Labour		0	0	0	0	0	0	5	5	45	45	15	30
	Total Labour	man-day	12	12	15	15	12	12	20	23	80	80	35	50

		Unit	Wheat				Maize				Potato			
			Rainfed		Irrigated		Rainfed		Irrigated		Rainfed		Irrigated	
			WOP	WP	WOP	WP	WOP	WP	WOP	WP	WOP	WP	WOP	WP
Input/ Output Prices	Main Product /a	EUR/kg	0.22	0.22	0.22	0.22	0.26	0.26	0.26	0.26	0.28	0.28	0.28	0.28
	By-product	EUR/kg	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.00
	Seed/Seedlings - local	EUR/kg	0.22	0.22	0.22	0.22	0.26	0.26	0.26	0.26	0.22	0.22	0.22	0.22
	Seed/Seedlings - improved	EUR/kg												
	Manure	EUR/ton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Fertilizer (AN)	EUR/kg	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	Fertilizer (TSP)	EUR/kg	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	Potassium	EUR/kg	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
	Herbicide	EUR/kg (l)	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
	Pesticide	EUR/kg (l)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
	Fungicide	EUR/kg	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	Bagsoxes	EUR/each	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Machinery Service													
	Machinery operation or rent													
	Ploughing	EUR/ha	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	55.0	55.0	55.0	55.0
	Ploughing (machinery)-improved	EUR/ha												
	Cultivation	EUR/ha	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
	Cultivation (machinery)-improved	EUR/ha												
	Seeding (machinery)	EUR/ha	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	50.0	50.0	50.0	50.0
	Seeding (machinery)-improved	EUR/ha												
	Spraying/Weeding	EUR/ha	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	Spraying/Weeding-improved	EUR/ha												
	Bailing (machinery)	EUR/bale	0.10	0.10	0.1	0.1	0.1	0.1	0.1	0.1				
	Transport	EUR/ton	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Fertilizer application	EUR/ha	22	22	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
	Fertilizer application-improved	EUR/ha												
	Harvesting (cereal)	EUR/ha	60.0	60.0	60.0	60.0	90.0	90.0	90.0	90.0				
	Harvesting (potato/onion)	EUR/ha									100.0	100.0	100.0	100.0
	Land tax	EUR/ha												
	Irrigation applications	EUR/ha	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
	Family Labour	EUR/man-day												
	Hired Labour	EUR/man-day	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0

		Unit	Wheat				Maize				Potato			
			Rainfed		Irrigated		Rainfed		Irrigated		Rainfed		Irrigated	
			WOP	WP	WOP	WP	WOP	WP	WOP	WP	WOP	WP	WOP	WP
Input/	Main Product /a	EUR/kg	0.22	0.22	0.22	0.22	0.26	0.26	0.26	0.26	0.28	0.28	0.28	0.28
Gross	Main Product /a	EUR/ha	880	880	1,320	1,518	520	520	1,170	1,287	4,200	4,200	6,160	6,776
Output	By-product	EUR/ha	120	120	180	207	60	60	135	149	-	-	-	-
	Subtotal	EUR/ha	1,000	1,000	1,500	1,725	580	580	1,305	1,436	4,200	4,200	6,160	6,776
Costs	Seed/Seedlings - local	EUR/ha	55	55	62	62	65	65	65	65	560	560	448	448
	Seed/Seedlings - improved	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Manure	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Fertilizer (AN)	EUR/ha	175	175	175	140	0	0	70	49	140	140	70	70
	Fertilizer (TSP)	EUR/ha	0	0	0	35	0	0	0	35	210	210	70	49
	Potassium	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Herbicide	EUR/ha	75	75	75	75	0	0	0	0	75	75	38	38
	Pesticide	EUR/ha	0	0	0	0	0	0	0	0	45	45	23	23
	Fungicide	EUR/ha	0	0	0	0	0	0	0	0	640	640	320	320
	Bagsoxes	EUR/ha	16	16	24	28	8	8	18	20	60	60	88	97
	Machinery Service	EUR/ha												
	Ploughing	EUR/ha	50	50	50	50	50	50	50	50	55	55	0	0
	Ploughing (machinery)-improved	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Cultivation	EUR/ha	30	30	30	30	30	30	30	30	30	30	0	0
	Cultivation (machinery)-improved	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Seeding (machinery)	EUR/ha	20	20	20	20	20	20	20	20	50	50	50	50
	Seeding (machinery)-improved	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Spraying/Weeding	EUR/ha	0	0	20	20	0	0	0	0	100	100	50	50
	Spraying/Weeding-improved	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Bailing (machinery)	EUR/ha	16	16	24	28	0	0	0	0	0	0	0	0
	Transport	EUR/ha	27	27	40	45	13	13	28	31	70	70	96	97
	Fertilizer application	EUR/ha	22	22	22	22	22	22	44	44	22	22	22	22
	Fertilizer application-improved	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Harvesting (cereal)	EUR/ha	60	60	60	60	90	90	90	90	0	0	0	0
	Harvesting (potato/onion)	EUR/ha	0	0	0	0	0	0	0	0	100	100	100	100
	Sub-total Machinery Services	EUR/ha	225	225	266	275	225	225	262	265	427	427	318	319
	Land tax	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Irrigation applications	EUR/ha	0	0	9	60	0	0	60	90	30	30	30	90
	Labour													
	Family Labour	EUR/ha	0	0	0	0	0	0	0	0	0	0	0	0
	Hired Labour	EUR/ha	0	0	0	0	0	0	125	125	1125	1125	375	750
	Total Labour	EUR/ha	0	0	0	0	0	0	125	125	1125	1125	375	750
	Subtotal	EUR/ha	546	546	610	674	298	298	600	649	3,312	3,312	1,779	2,203
	Gross Margin	EUR/ha	454	454	890	1,051	282	282	705	787	888	888	4,381	4,573
	Benefit-cost Ratio		1.8	1.8	2.5	2.6	1.9	1.9	2.2	2.2	1.3	1.3	3.5	3.1

Note: WOP = Without project; WP = With project; AN =Ammonium Nitrate; TSP = Triple Superphosphate.

A-1.6. Quantification of Improved Irrigation's Benefit Stream

Item	Unit	Unit Price, EUR	Without Project	With Project 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15-20
Production																		
Irrigated area	ha		1743	1,743	1,743	1,743	1,743	2,269	2,794	3,320	3,846	4,372	4,897	5,423	5,949	6,474	6,737	7,000
Success factor	%							*85.0%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*	*85.0%*
Irrigated area:																		
Potato	ton	320.0	23,012	23,012	23,012	23,012	23,012	29,284	35,556	41,828	48,100	54,372	60,644	66,916	73,188	79,460	82,596	96,800
Maize	ton	224.0	3,137	3,137	3,137	3,137	3,137	3,711	4,286	4,861	5,436	6,011	6,586	7,161	7,736	8,311	8,598	9,900
Wheat	ton	160.0	-	-	-	-	-	1,760	3,519	5,279	7,038	8,798	10,557	12,317	14,076	15,836	16,715	20,700
Rainfed area:																		
Phasing in %						*100%*	*100%*	*50%*	*30%*	*10%*	*5%*	*0%*						
Wheat	ton	160.0	4,800	4,800	4,800	4,800	4,800	2,400	1,440	480	240	-	-	-	-	-	-	-
Barley	ton	270.0	750	750	750	750	750	375	225	75	38	-	-	-	-	-	-	-
Oat	ton	262.5	1,540	1,540	1,540	1,540	1,540	770	462	154	77	-	-	-	-	-	-	-
Revenue																		
Irrigated area:																		
Potato	EUR mln		7.4	7.4	7.4	7.4	7.4	9.4	11.4	13.4	15.4	17.4	19.4	21.4	23.4	25.4	26.4	31.0
Maize	EUR mln		0.7	0.7	0.7	0.7	0.7	0.8	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.9	1.9	2.2
Wheat	EUR mln		-	-	-	-	-	0.3	0.6	0.8	1.1	1.4	1.7	2.0	2.3	2.5	2.7	3.3
Rainfed area:																		
Wheat	EUR mln		0.8	0.8	0.8	0.8	0.8	0.4	0.2	0.1	0.0	-	-	-	-	-	-	-
Barley	EUR mln		0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	-	-	-	-	-	-	-
Oat	EUR mln		0.4	0.4	0.4	0.4	0.4	0.2	0.1	0.0	0.0	-	-	-	-	-	-	-
Total	EUR mln		9.4	9.4	9.4	9.4	9.4	11.2	13.3	15.5	17.8	20.2	22.6	25.0	27.4	29.8	31.0	36.5
Cost of production																		
Irrigated area:																		
Potato	EUR mln		1.9	1.9	1.9	1.9	1.9	2.6	3.3	3.9	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
Maize	EUR mln		0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Wheat	EUR mln		-	-	-	-	-	0.2	0.4	0.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Rainfed area:				-	-	-	-	-	-	-								
Wheat	EUR mln		1.1	1.1	1.1	1.1	1.1	1.0	0.9	0.8	-	-	-	-	-	-	-	-
Barley	EUR mln		0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	-	-	-	-	-	-	-	-
Oat	EUR mln		0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	-	-	-	-	-	-	-	-
Uncultivated area	EUR mln		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	EUR mln		3.9	3.9	3.9	3.9	3.9	4.7	5.6	6.4	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Gross Income (attributable)	EUR mln		0.00	0.00	0.00	0.00	0.00	0.18	0.45	0.71	0.03	0.50	0.98	1.47	1.95	2.43	2.68	3.77

Appendix 2. Project Economic and Sensitivity Analyses

A-2.1. Project Economic Costs (Generated by Costab)

Kosovo
Kosovo Water Security and Canal Protection Project
Project Components by Year –
Totals Including Contingencies
Economic Costs

	2016	2017	2018	2019	2020	Total
Component 1: Infrastructure Rehabilitation and Modernization	-	-	653.5	9,716.2	-	10,369.7
Component 2: Water Resources Protection and Management	-	-	233.9	7,778.9	-	8,012.8
Component 3: Project Management	220.0	509.0	374.3	357.8	252.8	1,713.9
Total PROJECT COSTS	220.0	509.0	1,261.7	17,852.9	252.8	20,096.5

A-2.2. Project Economic Analysis

Item	Unit	PY1	PY2	PY3	PY4	PY5	PY6	PY7	PY8	PY9	PY10-20
Project investment costs (economic)	EUR million	0.1	0.7	1.5	18.1	0.4					
Project O&M costs	EUR million					0.6	0.6	0.6	0.6	0.6	0.6
Total Project costs	EUR million	0.1	0.7	1.5	18.1	1.0	0.6	0.6	0.6	0.6	0.6
Incremental Gross Incomes streams											
Benefits of water-loss prevention	EUR million	-	-	-	-	0.6	0.6	0.6	0.6	0.6	0.6
Benefit of reduction of drinking water production costs	EUR million	-	-	-	-	0.4	0.4	0.4	0.4	0.4	0.4
Benefit of the extreme risk reduction	EUR million	-	-	-	-	0.2	0.2	0.2	0.2	0.2	0.2
Benefit of reduction of industrial production costs	EUR million	-	-	-	-	0.2	0.2	0.2	0.2	0.2	0.2
Increase of hydroelectricity production	EUR million	-	-	-	-	0.4	0.4	0.4	0.4	0.4	0.4
Attributable irrigation benefits	EUR million	-	-	-	-	0.2	0.4	0.7	0.0	0.5	1.0
Incremental Gross Incomes, total	EUR million	-	-	-	-	1.9	2.2	2.5	1.8	2.3	2.7
Project Incremental Gross Income	EUR million	- 0.1	- 0.7	- 1.5	- 18.1	0.9	1.6	1.8	1.2	1.6	2.1
ENPV @6% (EUR million)	6.9										
ERR	10.1%										

Note: PY = Project year.

A-2.3. Sensitivity Analysis (Detailed Table)

Year	1	2	3	4	5	6	7	8	9	10-20	ERR	ENPV (EUR mln)
Incremental Benefits (EUR mln)												
base scenario	**0.0**	**0.0**	**0.0**	**0.0**	**1.9**	**2.2**	**2.5**	**1.8**	**2.3**	**2.7**		
benefits +10%	0.0	0.0	0.0	0.0	2.1	2.4	2.7	2.0	2.5	3.0		
benefits +20%	0.0	0.0	0.0	0.0	2.3	2.7	3.0	2.2	2.7	3.3		
benefits -10%	0.0	0.0	0.0	0.0	1.8	2.0	2.2	1.6	2.0	2.5		
benefits -20%	0.0	0.0	0.0	0.0	1.6	1.8	2.0	1.4	1.8	2.2		
benefits -30%	0.0	0.0	0.0	0.0	1.4	1.5	1.7	1.3	1.6	1.9		
Project Costs (EUR mln)												
base scenario	**0.1**	**0.7**	**1.5**	**18.1**	**1.0**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**		
costs +10%	0.2	0.8	1.6	19.9	1.1							
costs +20%	0.2	0.9	1.8	21.7	1.2							
costs +50%	0.2	1.1	2.2	27.1	1.5							
Net cash flow (EUR mln)												
base scenario	**-0.1**	**-0.7**	**-1.5**	**-18.1**	**0.9**	**1.6**	**1.8**	**1.2**	**1.6**	**2.1**	**10.1%**	**6.9**
costs +10%	-0.2	-0.8	-1.6	-19.9	0.8	2.2	2.5	1.8	2.3	2.7	11.2%	9.8
costs +20%	-0.2	-0.9	-1.8	-21.7	0.7	2.2	2.5	1.8	2.3	2.7	10.1%	8.1
costs +50%	-0.2	-1.1	-2.2	-27.1	0.4	2.2	2.5	1.8	2.3	2.7	7.3%	2.9
benefits +10%	-0.1	-0.7	-1.5	-18.1	1.1	1.8	2.1	1.3	1.9	2.4	11.6%	9.8
benefits +20%	-0.1	-0.7	-1.5	-18.1	1.3	2.0	2.3	1.5	2.1	2.7	13.0%	12.7
benefits -10%	-0.1	-0.7	-1.5	-18.1	0.7	1.4	1.6	1.0	1.4	1.8	8.5%	4.1
benefits -20%	-0.1	-0.7	-1.5	-18.1	0.5	1.1	1.4	0.8	1.2	1.6	6.8%	1.2
benefits -30%	-0.1	-0.7	-1.5	-18.1	0.3	0.9	1.1	0.6	1.0	1.3	4.9%	-1.6
benefits delayed 1 year	-0.1	-0.7	-1.5	-18.1	-1.0	1.3	1.6	1.8	1.2	1.6	8.1%	3.7
benefits delayed 2 years	-0.1	-0.7	-1.5	-18.1	-1.0	-0.6	1.3	1.6	1.8	1.2	6.3%	0.6