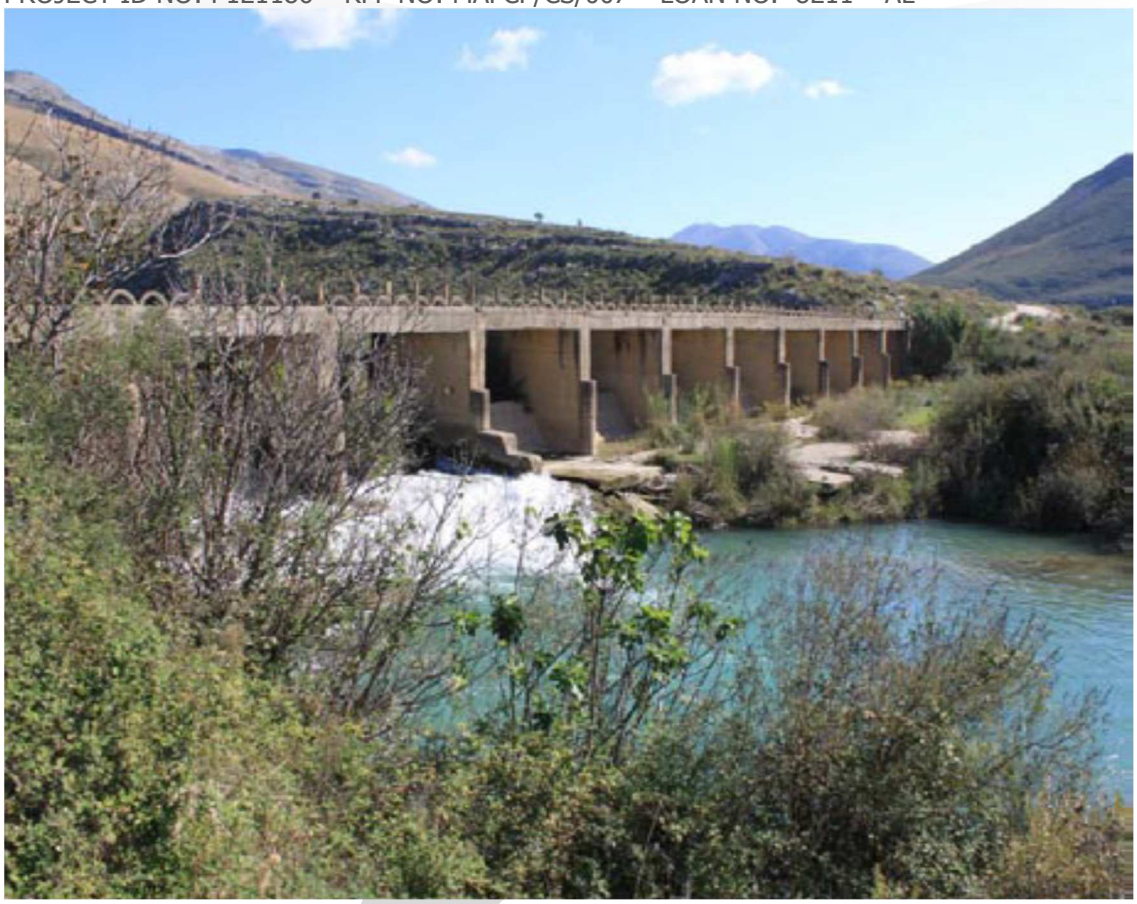
REPUBLIC OF ALBANIA
MINISTRY OF AGRICULTURE, RURAL DEVELOPMENT AND WATER ADMINISTRATION
WATER RESOURCES AND IRRIGATION PROJECT

Consulting Services for

PREPARATION OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS (ESMPS) AND RESETTLEMENT ACTIONS PLANS (RAPS) FOR THE REHABILITATION OF IRRIGATION SCHEMES/SYSTEMS

PROJECT ID NO: P121186 – RFP NO: MAFCP/CS/007 – LOAN NO. 8211 – AL



ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) – XARRA – FINAL VERSION

June 2017

CEIA

COWI

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ACRONYMS AND ABBREVIATIONS

ALL	Albanian Lek
ARAP	Abbreviated Resettlement Action Plan
BOD	Biological Oxygen Demand
BWA	Basin Water Agency
BWC	Basin Water Council
CEIA	Centre for Environmental Impact Assessment
COD	Chemical Oxygen Demand
DAP	Di-ammonia Phosphate
DD	Detailed Design
DLP	Defects Liability Period
DSDC	Department of Strategy of Donor Coordination
EA	Environmental Assessment
EC	European Council
EIA	Environmental Impact Assessment
EEP	Emergency Evacuation Plan
EMP	Environmental Management Plan
ERP	Emergency Response Plan
ESFD	Environmental and Social Framework Document
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMiP	Environmental and Social Mitigation Plan
ESMoP	Environmental and Social Monitoring Plan
FS	Feasibility Study
GoA	Government of Albania
I&D	Irrigation and Drainage
IBRD	International Bank for Reconstruction and Development
IEMC	Independent Environmental Monitoring Consultant
INSTAT	Albanian Institute for Statistics
IPM	Integrated Pest Management
IPMP	Interated Pest Management Plan
IWRM	Integrated Water Resources Management
M&E	Monitoring and Evaluation
MAFCP	Ministry of Agriculture, Food Security and Consumer Protection
MARDWA	Ministry of Agriculture, Rural Development and Water Administration
MIS	Management Information System
MOE	Ministry of Environment
NAPA	National Parks Administration
NCCC	National Committee for Climate Change
NEA	National Environmental Agency
NGO	Non-Governmental Organization
NIVA	Norwegian Institution for Water
NPO	Non Profit Organisation
RDPA	Regional Directorate of Protected Areas
N.P.K.	Nitrogen, Phosphate and Potassium
NSDI	National Strategy for Development and Integration
O&M	Operation and Maintenance
OP	Operational Policy (World Bank)
PGA	Peak Ground Acceleration
PIU	Project Implementation Unit
RAPs	Resettlement Action Plans
RBMP	River Basin Management Plan

ACRONYMS AND ABBREVIATIONS

RCC	Rehabilitation Construction Contractor
REA	Regional Environmental Agency
RPF	Resettlement Policy Framework
SEC	Supervisory Engineering Consultant
SIA	Social Impact Assessment
SIDA	Swedish International Development Agency
TA	Technical Assistance
TOR	Terms of Reference
UK	United Kingdom
UNFCC	United Nations Framework Convention for Climate Change
USD	United States Dollars
WB	The World Bank
WFD	EU Water Framework Directive
WSRBC	World Soil Reference Base Classification
WRIP	Water Resources and Irrigation Project
WUA/Os	Water User Association/Organization

1 EXECUTIVE SUMMARY

This Environmental and Social Management Plan (ESMP) is for the rehabilitation of Xarra irrigation and drainage (I&D) scheme. The Consultants COWI AS of Norway as lead and the Centre of Environmental Impact Assessment (CEIA) as sub consultant have prepared the ESMP. Following the first draft submission, comments were made by the environment and social safeguard specialists from the World Bank and from the Gender Specialist from Sida. Some of these comments relate to the lower priority schemes such as Xarra. After organizing of the Public Hearing meeting on 31st May 2017 covering the Xarra I&D scheme, the Consultant included a new chapter (Chapter 9) to summarize the Public Hearing organization and findings. This report in hand takes into consideration the comments from this meeting. [1]

The Xarra ESMP is based upon an earlier template prepared for the environmental and social assessment components of the World Bank funded Water Resources and Irrigation Project (WRIP) that is being jointly implemented through the Ministry of Agriculture Rural Development and Water Administration (MARDWA) and the Ministry of Environment, (MoE). The Consultant JV RENARDET – BETA STUDIO – HYDROWATER-ALBANIA has prepared the updated feasibility study for Xarra I&D scheme and most recently the preliminary design that was submitted in October 2016. The ESMP report in hand takes into consideration the changes that have occurred between the updated feasibility study and the preliminary design. Further changes have been made following comments from the World Bank dated March 2017. In addition, MARDWA together with the design consultant (Renardet et al), stakeholders and administrative personnel from Xarra I&D scheme held a meeting at Mursi on the 10th March 2017 to discuss the preferred scheme (Option 3).

The methodology followed for the environmental assessment involved a desk study and interviews with specialists in Tirana (such as scientists from Tirana University, National Environmental Agency (NEA) experts, water quality, biodiversity and hydrologist experts of specialized institutions etc., This was followed by visits to site by environmental and social specialists with good knowledge of flora and fauna, social and economic indicators as well as with infrastructure engineering disciplines. Field surveys also included discussions with village elders, farmers, government field extension officers and with local NGOs/NPOs. A public hearing was organized during 31st May 2017, and after discusions with the community and other interested parties, the Consultant addressed the community concerns through field verifications. For more details refer to the Chapter 9 - Public Hearing.

The Xarra I&D scheme rehabilitation can be classified as a Category B project under World Bank because the impact on human population or environmentally important areas is less adverse than those of Category A projects. The general impacts associated with the works are temporary during the construction stage; few, if any, are irreversible and all are site specific. The project outcome and the adopted mitigation measures employed will actually benefit the area for the future.

A potential challenge will be abstraction of the waters from Pavlla River. There are no data on the amounts of water in the Pavlla River (e.g. water flow) during the summer months (the main irrigation season), and it is very likely that the base flow of the river will be the same as the ecological minimum. It is therefore important that a detailed hydrological/ecological study is undertaken to find out how the ecological equilibrium of the Pavlla River, is affected by abstracting additional water for irrigation purposes. At the 10th March 2017 meeting in Mursi a potentially good solution with Option 3 was to take water from the Janjari Reservoir (which is furnished from collection of waters in its basin and not from the Pavlla River) and discharge this into the Pavlla River, upstream. This water is additional water that will be used for Bufi channel and Mursi reservoir. This would appear to be a more environmentally acceptable solution, however it is recommended that the above study is undertaken regardless.

[1] The Comments and responses are contained in Annex 9 of this document. Other suggestions will be found at the summary of the public hearings in Chapter 9 of this report. The main Public Consultation Report will contain all necessary documentation and will be prepared upon completion of all I&D scheme consultation,

Furthermore, there is an issue regarding the proximity of the Butrint Lagoon and the risk of rehabilitated I&D scheme drainage water carrying contaminants (mainly insecticides and herbicides) flowing into the lagoon. Butrint is a National Park (RAMSAR site) and some important mitigation measures contained within this ESMP Report must be adhered to. At the 10th March 2017 meeting in Mursi, it was confirmed that no irrigation channels will discharge directly into the body of the Butrint lagoon, rather that they will discharge to a point in the southern extreme, to discharge the waters into the sea, which is a more environmentally acceptable proposal. Notwithstanding, the risk is with improved irrigation there will be higher amounts of pesticide and fertilizer used in the irrigation water.

Under Albanian law, the contents of the ESMP can be adopted as a Preliminary EIA document as the rehabilitation project falls under the list of project types within Appendix 2 of the Albanian EIA law. The final decision on this fact however, rests with the Regional Environmental Agency In case that the preliminary EIA, provides such information that it requires a full, profound EIA, then the report should be prepared, as it is required by Albanian legislation, and reviewed by NEA.

Chapter 2 of this report provides more details of the physical and social economic environment that surrounds the I&D scheme. Xarra commune is situated in South of Albania in the Saranda region. The population is around 6,750 inhabitants and consists of five villages Shkalle, Mursi, Vrine, Xarra and Shendelli. The present irrigated area is around 2000 ha, with the main crop patterns being trees olives, vineyards and oranges and mandarins. The Xarra I&D scheme obtains its water principally by from two irrigation reservoirs Janjari and Mursi that are filled by the Pavlla River. The Xarra scheme original command area is 3000 ha (Xarra 2,500ha and Bufi 500ha), but the bigger constraint on irrigation is the availability of water delivery through Pavlla River and Janjari Canal.Please refer to Figure 1-1 which shows the planned rehabilitation work within the scheme and the proximity of other settlements.

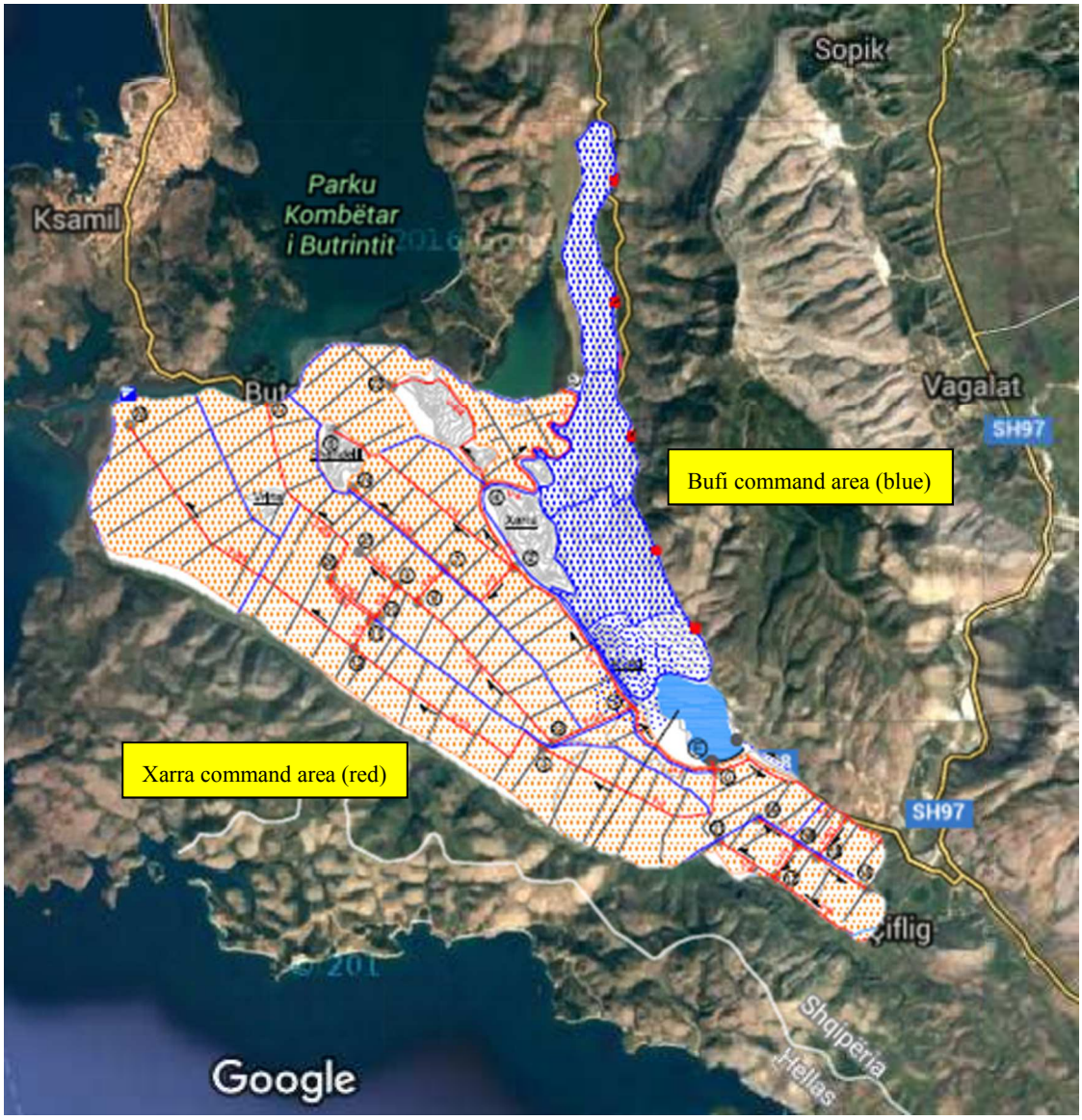


Figure 1-1: Satellite image of the Xarra I&D scheme)

Chapter 3 of this report provides a summary of the impacts associated with the Xarra I&D scheme. Beneficial impacts during construction include: increased employment opportunities leading to improved living standards and increased household income. This will ultimately lead to an improvement in the local economy.

Beneficial and more permanent impacts associated with the operation stage are associated with improved agricultural productivity through improved irrigation to the Xarra I&D scheme. Road improvements associated with the development will also improve access to social services and transportation time to markets. With more water available, the running water capabilities in channels will assist wildlife habitats and indigenous fish populations. Furthermore the scheme will assist in maintaining the salinity balance at Butrint Lagoon, as the main resource of freshwater of the lagoon.

Adverse impacts during the construction phase are likely to be associated with public health issues mainly associated with air and noise pollution, occupational health and safety and disposal of solid, liquid and sanitary waste. Other construction impacts are associated with soil stripping and loss of vegetation, which can exacerbate soil erosion.

Permanent negative impacts during the operation phase are associated with risks to groundwater pollution and surface water pollution from the increased use of pesticides and fertilisers.

As mentioned above, it is important to undertake a detailed study on the impact expected by reducing of water amount of Pavlla River for irrigation purposes, during the summer season.

For this particular scheme, this is a very important issue due to the spatial position related to the Butrint Lagoon, a protected area and Ramsar site. The implementation of traditional agriculture, conditioned some proposals on mitigation measures and monitoring program related to administration of the scheme and monitoring operation and facilities. These measures are elaborated in more detail in Chapter 4 and specifically in Table 4.1 which is the mitigation plan. The main line references in Table 4.1 regarding this are:

- Ref PC 18 – Habitats and biodiversity"
- Ref "O 9 – Water quality"
- Ref "O 10 – Water pollution"
- Ref "O 11 - Agrochemical pollution" and
- Ref "O 18 – Pests, diseases, improper use of pesticides"

Due to this important fact, it is essential that awareness is raised with the farmers to correct pesticide and agro chemical use in line with the stipulations in the World Bank OP 4.09 and in accordance with the Albanian law and which is being progressively aligned to EU legislation

The Pesticide Management Plan in Annex 6 of this report contains further details related to this issue and in particular Table 10.1, which contains further mitigation issues concerning pest and pesticide management, Possible contamination of irrigation and draining channels and reservoir from sewage, issues on wastewater management etc.

Other impacts during operation can be sedimentation of channels leading to impaired flow of irrigation water and soil salinization due to the chemical nature of the soil and groundwater quality.

A summary of impacts on environmental, social and economic indicators is shown in *Figure 1-2* below.

Indicator	Construction Phase	Operation Phase	Other Comments
ENVIRONMENTAL			
Air Quality			Slight deterioration during construction phase
Noise			Slightly elevated background noise levels during construction phase
Water Supply			Increased water supply Important that any abstraction from the Pavlla River is monitored and agreed between stakeholders
Natural habitats of running waters			Effects on water abstraction in biodiversity and microclimate Risk of deterioration of main habitat for fish population in Pavlla
Flora			
Fauna			Especially better for fish in water channels
Groundwater Quality			Increased pesticide/fertiliser use during operation may cause deterioration. However, with stringent control the intention is to recharge the aquifer with fresh water to reduce salinization.
Surface Water Quality			Pesticide/fertiliser use may cause deterioration, which needs to be stringently monitored due to the proximity of the Butrint Lagoon.
Soil loss/Sedimentation			Potential soil salinization due to proximity of coast
Landscape			
SOCIAL AND ECONOMIC			
Cultural			
Migration			slight reversal
Employment			

Indicator	Construction Phase	Operation Phase	Other Comments
Living standards			Improvement in standard of living due to increase in sale of agricultural products.
Local Economy			
Agricultural production			Increased production due to increase in water supply
Road Access			
Gender			
Tourism			Improve tourism venue
Health			
Land Loss/Resettlement			On state owned land, however it is important to ascertain if any private land will be affected due to reconstruction of Bufi Pumping Station and from the potential widening of irrigation channels.

High -ive Impact | Mild -ive Impact | No Impact | Mild +ive Impact | High +ive Impact

Figure 1-2: Summary of Impacts on Environmental, Social and Economic Indicators

The Xarra I&D scheme maintains the same footprint although there is some land acquisition planned which is indicated to be on state owned land. With the details provided in the Preliminary Design, no private buildings will be affected and no people will need to be moved due to this rehabilitation work. Any temporary land take during construction (e.g. contractor's camp) will be on state owned land. However, in the event that private land is required, then this will be the subject of a negotiation between the Affected Person (e.g. Farmer) and the Contractor, the former having a choice not to rent the land if he/she so desires. This project will not be used to irrigate any new irrigated areas with the exception of the land earmarked for acquisition, full details which are not provided in the Preliminary Design. .The rehabilitation works will not effect, endanger or put at risk flora and fauna and the works are far away from the nearest protected areas.

Site specific issues that will require mitigation beyond the standard requirements normally associated with the construction works are principally associated with addressing the sedimentation although this is generally not that serious at present in Mursi Reservoir and Xarra I&D scheme. Notwithstanding, there is need to train farmers to alter their ploughing and irrigating practices to prevent soil loss to streams. MARDWA therefore needs to promote improved soil management measures not only in the project areas but also in the basin at large. There is provision under the WRIP components to cover this.

Other mitigation measures required beyond the construction stage of the project are:

- Introduction of a flood warning scheme downstream of Xarra reservoir in the event of a sudden inundation (e.g. major flood event, dam break from earthquake etc.)
- Obtain a signed agreement on water use between the concerned stakeholders of the reservoir (i.e. irrigation users, farmers, fishery owners etc.) facilitated by the BWC and BWA to prevent any future discord. As there is abstraction from the Pavlla river planned then agreement between the specialized institutions including the Institute of Geosciences, Energy, Water and Environment, Faculty of Natural Sciences/Biological Department, University of Agriculture, etc. is necessary before work can commence.
- Obtain a signed agreement between National Park Administration/NAPA and the Municipality covering Xarra I&D scheme, to control use of pesticides, herbicides and fertilizers on this scheme and their discharge to the Butrint Lagoon.

A draft Environmental and Social Monitoring Plan (ESMoP) has been prepared within the ESMP to be covered under the WRIP monitoring (Component 4 Part B) and others under existing national monitoring programs by the Albanian Government. This is provided in Chapter 5 and further details of institutions involved in monitoring are shown in Annex 7. The main body for review of monitoring data is the National Environment Agency supported by its regional counterparts (REAs). Monitoring will be undertaken during the con-

struction and operation phases. Responsibility for different monitoring parameters/indicators is shown in Annex 7. In Chapter 5, proposals for organizing the monitoring program are provided, Chapters 6, is related to institutional arrangements – Capacity building, Chapter 7, on Implementation Plan – Reporting Procedures and Chapter 8, is summarizing Cost Estimates – Resource Funds.

Besides the appointment of an experienced contractor for the rehabilitation work, other key staff will include the appointment of a supervision-engineering consultant (SEC) with some outside technical assistance (TA) on an as required basis.

MARDWA will reassign an existing environmental engineer to act as auditor to oversee the project and any external environmental consultants that may be hired on an as required basis.

In terms of the plan of implementation (See Chapter 7) according to the Preliminary Design, there is no time estimate for the rehabilitation works for Xarra I&D scheme although the Updated Feasibility Study stated that the works would last about 24 months. The estimated cost for the works under the Preliminary design is about USD 3,750.781 (USD 3,938,320 with 5% physical contingency.

In terms of reporting procedures the SEC Consultant will obtain information from the Contractor and provide a report on data and information on health and safety (accidents and incidents), environmental protection (spill and non-compliance), labour (numbers, grades, problems), community relations (complaints, issues), and relevant training. The SEC will also check Contractors reports before sending them onto MARDWA. MARDWA will report to the World Bank in accordance with the stipulations in the PAD and the IBRD Loan document.

It is important that the Employer's, SEC and the Contractor’s staff on the Xarra site establish and maintain effective communication links between each other and other stakeholders (i.e. the communes) to ensure easy two-way flow of information. This is best undertaken through formation of a committee comprising MARDWA representative (a PIU member), a local government representative and a member from the scheme (a farmer or another concerned individual). Such a committee needs to meet on a regular basis to be effective during the construction phase.

The costs of the ESMP component associated with the project are estimated at about USD 121,008 over 3 years over a three year period, the majority (USD 75,016 of which are covered within the costs of the rehabilitation works being undertaken by the Contractor. SEC costs are estimated at USD 24,000 and should be built into the Contractors contract. Environmental quality monitoring during the construction period is estimated at USD 4,000. The cost of independent environmental monitoring during the operation period (over 3 years) is set at USD 4,800 whilst provision of TA over the same period is USD 5,769. Finally, the implementation of the pesticide management plan is set at USD 7,423 over 3 years of operation. Further details on the costs associated with the Xarra ESMP are provided in Chapter 8.

The allocated source of the funds for the work will come from the World Bank WRIP loan during construction and from the state and local government budget during operation of the I&D scheme.

2 INTRODUCTION

MARDWA have contracted COWI AS Norway and the Centre for Environmental Impact Assessment (CEIA) to undertake Environmental and Social Management Plans (ESMPs) and Resettlement Action Plans (RAPs) for I&D schemes/systems under Water Resources Irrigation Project (WRIP) funded by the World Bank (WB).

Part of the work requires the preparation of a site specific Environmental and Social Management Plan (ESMP), which is an instrument that outlines the mitigation/enhancement, monitoring, consultative and institutional strengthening measures to prevent, minimize, mitigate or compensate for adverse environmental and social impacts and to enhance beneficial impacts. Typically, an ESMP specifies how, when and by whom such measures shall be implemented.

The ESMP is based upon an earlier template prepared during earlier part of WRIP when a Generic ESMP and Environmental Social Framework Document (ESFD) together with the Resettlement Policy Framework (RPF) were produced. This Site Specific ESMP is for Xarra I&D Scheme (based on Renardet et al Preliminary Design document).

The WRIP responds to requests from MARDWA and Department of Strategy of Donor Coordination (DSDC), and integrates strategic support for integrated water resources management (IWRM) and institutional support and investments in the rehabilitation of irrigation and drainage infrastructure, to be implemented by MARDWA.

This site-specific ESMP identifies in detail the relevant impacts, specific measures and practices suited to avoid or minimize adverse effects as well as specific monitoring program, institutional and implementation arrangements together with related cost estimates provided by the Preliminary Design for I&D schemes being implemented by Consultant JV RENARDET – BETA STUDIO – HYDROWATER-ALBANIA.

Furthermore relevant sections of this site-specific ESMP are prepared in the required format for direct inclusion in the construction specifications and bid documents for the I&D rehabilitation works. The main details on the I&D schemes is taken from the preliminary design and any specific reference to the dam and reservoir specifications are taken from the earlier feasibility and preliminary design undertaken by Consultants, Mott MacDonald from the UK.

This site specific ESMP has also been prepared in accordance with the ESFD and RPF together with the WB Environmental and Social Assessment Guidelines and Safeguards as well as Government of Albania (GoA) policies.

After this introduction, which provides a description of the project objectives and components, the report delineates the following;

- Chapter 3 describes the potential major environmental and social impacts;
- Chapter 4 describes the possible enhancement and mitigation measures;
- Chapter 5 describes the monitoring programme;
- Chapter 6 provides the institutional arrangements and capacity building requirements;
- Chapter 7 shows the implementation schedule and reporting procedures; and
- Chapter 8 provides the cost estimates and sources of funding.

As a separate annex (Annex 7), an Integrated Pesticide Management Plan has been included in compliance with the requirements of the WB Policy. This ensures appropriate selection and safe use of pesticides when they are needed related to safeguard OP 4.09 - Pest Management. Avoiding of use of pesticides that fall in WHO classes IA, IB or II. Annex 8 contains institutions responsible for monitoring parameters in the environmental sector in Albania and Annex 9 provides a summary of the Reviewers comments to the first draft of the ESMP and the Consultant's responses and then provides comments from the second draft of the ESMP and the Consultant's responses in addition to the third draft of the ESMP based on comments from the environmental

and social safeguard specialists in Mid-June 2016. In addition, an "Addendum to the ESMP Reports of high priority" has also been prepared and submitted.

2.1 Project Objectives

The project development objective is to increase the area under improved irrigation and drainage for Xarra and to establish the institutional basis for improved integrated water resource management (IWRM). This must also tie in with the current IWRM strategy that is being prepared by the Government of Albania (GOA) and also the recently commenced River Basin Management Plan (RBMP) being presently implemented.

The project aims to capture synergies and evident opportunities for win-wins between water resources management and irrigation, by far the largest – and most inefficient – user of water in the area. Promoting water use efficiency in irrigation schemes will increase farmers' incomes and strengthen water resources management. Improving farmers' incomes will enhance the resource base for IWRM, which will, in turn, require relevance of rational water resources management to a large segment of the population to ensure involvement and ownership. Support for the preparation of agreed RBMP will tie the preparation of the IWRM Strategy *at the national level* to structural and non-structural improvements in the quality of water services delivery *at the local level* that are of immediate relevance to large numbers of water users.

2.2 Project Components

The proposed project at Xarra can be divided into the following WRIP project components:

1. Component 1 -Dam and Irrigation and Drainage (I&D) System Rehabilitation,
2. Component 2 - Institutional Support for I&D
3. Component 3 - Institutional Support for Integrated Water Resources Management
4. Component 4 - Implementation Support including Monitoring and Evaluation (M&E)

2.2.1 Component 1: Dam and I&D Systems Rehabilitation

This component is being implemented by the MARDWA. Rehabilitation of the 11 agreed dams is on track being implemented by a consortium headed by the Contractor Strabag; completion was due by December 31, 2015. However, there are some delays and some of the rehabilitation on dams will continue into 2016.

Progress towards finalizing the Feasibility Study (FS) and detailed designs for I&D schemes has also been delayed. The FS needs to be approved before work on the detailed design can commence. This has implied that ESMP and RAP preparation needs to closely follow the priorities of the detailed design of the I&D schemes.

2.2.2 Component 2: Institutional Support for I&D

This component is being implemented by MARDWA. The objective is to improve the performance of organizations that provide irrigation services, including institutional reforms and capacity strengthening of Local Government Units, WUA/WUOs and Drainage Boards (DBs) within the Xarra area. MARDWA have prepared a draft national I&D strategy, which is intended to be finalized by December 31 2015, so that it could inform the envisaged I&D Law.

2.2.3 Component 3: Institutional Support for IWRM

This component is now being implemented by MARDWA, due to a change in restructuring of the project where originally MoE were the responsible institution. This is because of a transfer of responsibility of water administration to MARDWA from the MoE. Consequently, a Director for the Directorate for Water Resources Policy under MARDWA has been appointed that will help strengthen the capacity of the Ministry to steer the consultant inputs for the component. The Consultant involved with this component (Mott MacDonald) have engaged with national stakeholders to produce an updated version of National IWRM Strategy. Furthermore, an Inception Report for the preparation of River Basin Management Plans for Drini-Buna and Semani, as well as proposal reports for the National Water Cadaster and for the project M&E have been provided and reviewed by MARDWA and World Bank.

2.2.4 Component 4: Implementation Support

This components aim is to manage project resources in accordance with the project's objectives and procedures and has two components i) *Project Management*. Project implementation will be mainstreamed into the regular functions of the implementing Ministries, and ii) *Establishment of a Monitoring and Evaluation (M&E) system*. An Inception Report was commented on by MARDWA, World Bank and SIDA and a reduction of indicators has been suggested. It is assumed that the results achieved at the Xarra I&D schemes will feed into a performance based Management Information System (MIS).

The Project Area

2.3 Location

Xarra commune is situated in South of Albania in the Saranda region. The population is around 6,750 inhabitants and consists of five villages Shkalle, Mursi, Vrine, Xarra and Shendelli. The present irrigated area is around 2000 ha, with the main crop patterns being trees olives, vineyards and oranges and mandarins. The Xarra I&D scheme obtains its water principally by from two irrigation reservoirs Janjari and Mursi that are filled by the Pavlla River. The Xarra scheme original command area is 3000 ha (2,500 ha in Xarra and 500 ha in Bufi), but the bigger constraint on irrigation is the availability of water delivery through Pavlla river and Janjari Canal. Hence, additional flow is diverted from Pavlla River through a rudimentary existing diversion, with a concrete intake on the right bank facing downstream. The main and secondary canals and their structures are damage due to lack of maintenance and are destroyed. There is also the Janjari scheme that has a command area of 10.000 ha (not part of Xarra I&D) that should have been fed by the Janjari reservoir upstream with a capacity of 15 Mm³ at an elevation of 145 m.a.s.l. The western side of the I&D scheme runs into Butrint Lake, part a National Park of international importance and a World Heritage Site. The location of the Xarra I&D scheme is shown on *Figure 2-1* below.

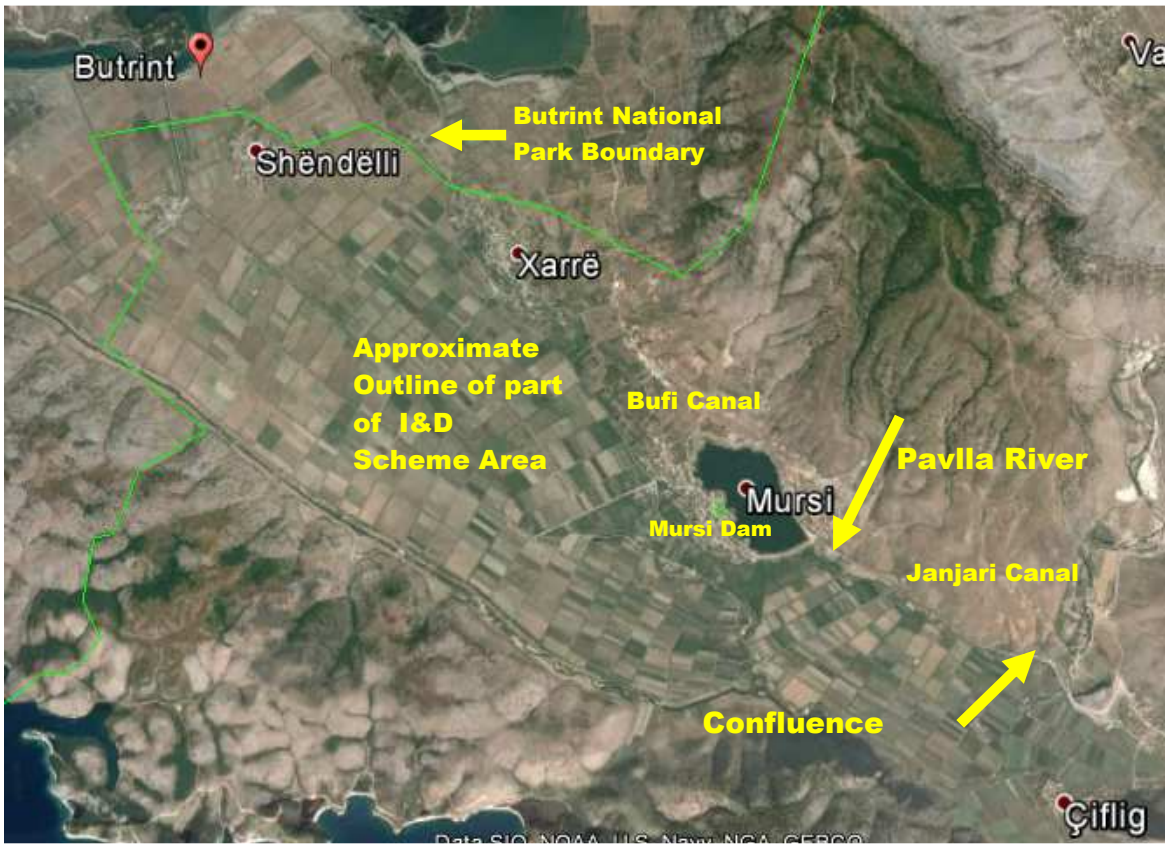
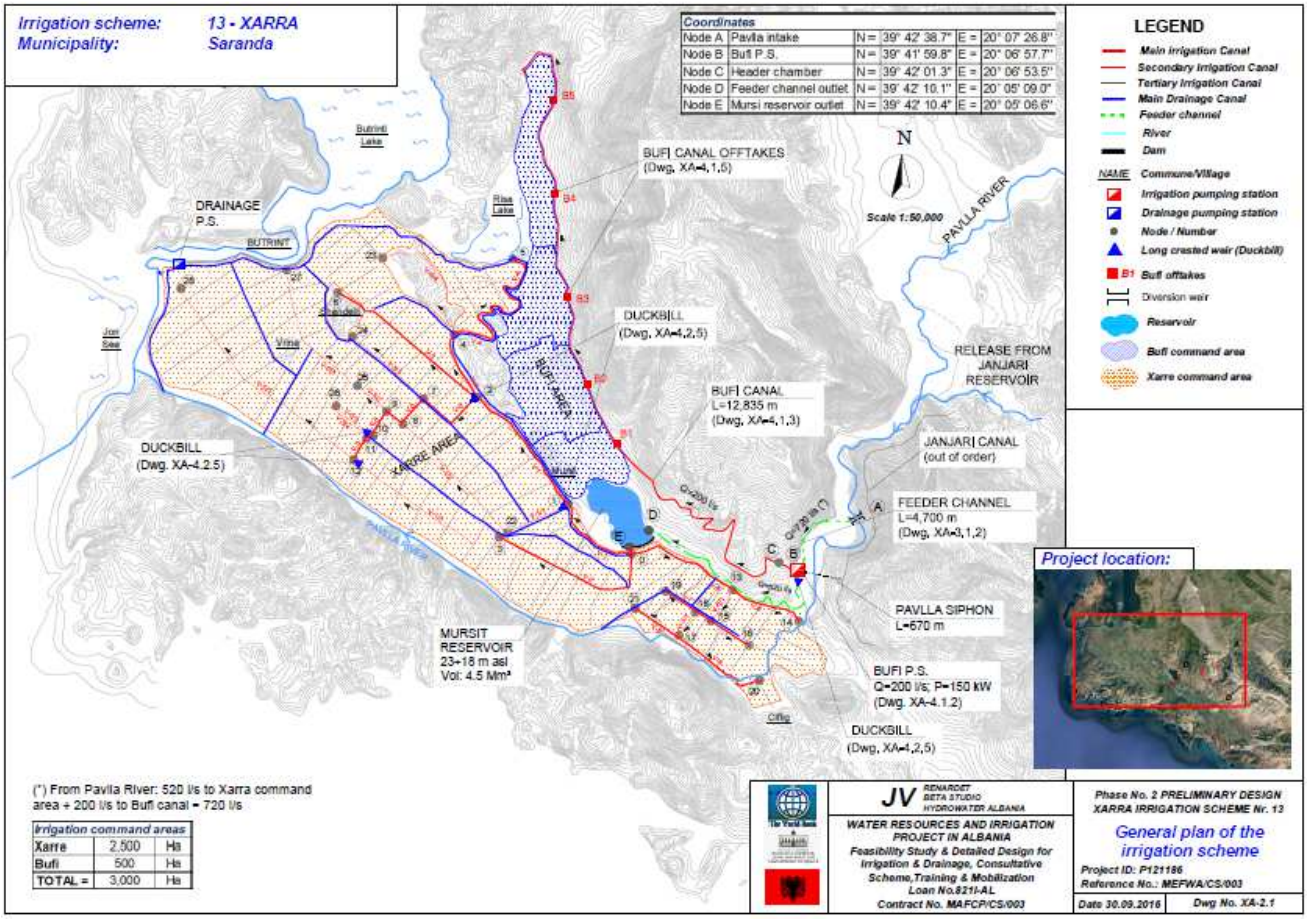


Figure 2-1: Location of the Xarra Reservoir and water sources

The plan from the Preliminary Design showing the pump fed and gravity fed areas for the I&D scheme is shown in Figure 2-2 .



Source:Preliminary Design from JV Renardet, Beta Studio, Hydrowater Albania

Figure 2-2: Plan of the Xarra – I&D scheme

2.4 Key Information on Xarra I&D scheme

Key information on the Xarra I&D scheme is shown in Table 2-1 below.

Table 2-1: Key data on Xarra I&D Scheme Rehabilitation

Item	Value	Notes
Location Details		
I&D Scheme Name	Xarra	
Location in Albania	Xarra\ Saranda\Vlore	Commune\District\Prefecture
Nearest Town	5km southeast of Butrint	
Reservoir		
Reservoir capacity at design	Janjari reservoir with 15,000,000 m3 and Mursi reservoir with 4,500,000 m3	
Reservoir capacity actual	4,500,000	Mursi Reservoir
Reservoir surface area	No data	
Reservoir catchment area	No data	
Feeder Canal	4,700 metres	From Janjari along Pavlla River Reservoir
Dam details		
Year constructed	Around 1989	
Dam Height	18 to 23 m.a.s.l.	Mursi Reservoir formed by single dam
Dam length	No Data	
Design Dam Crest elevation	No Data	

Item	Value	Notes
I&D Option + costs		
Recommended I&D Option	Option 3 new in Preliminary Design	
I&D area as per design (ha)	3,000	2,500 gravity , 500 pumped
Inferred Underlying geology	Underlain by inter-bedded weak sandstone. The area has substantial alluvial deposits: gravel sand, top-soil, and clay from the Quaternary period	
Soil	Clay	
Current I&D area (ha)	2,000 of which 520 ha irrigated	All by gravity
Recommended option cost (USD)	3,750,781	Updated in March 2017

2.5 Overall Condition of I&D Scheme

2.5.1 Current condition

The Janjari reservoir provides water to three I&D areas and Xarra is one of them, the Sorone and Konsipol valley are the other areas. The entire scheme was constructed in 1989, but never completed, and presently is totally out of order, while the upstream Janjari reservoir is functional, but with a difficult access. The main canal, coming downstream from the dam, has a length of 19 km. Along the course there is a short tunnel 600 m long and three close conduit steel syphons. The tunnel has never worked and is unclear if it is blocked from rock falls or is flowing away through other fissures.

The other irrigation water supply is from Mursi dam. Through the main outlet channel, this is irrigating about 1,500 ha. It has a feeding canal of 4.7 km from Pavlla River to the reservoir and two main irrigation canals of 2.4 km and 4.8 km respectively. The 2.4 km branch of the main canal is the one that irrigates the agriculture land of Xarra commune. The feeding canal is not lined with concrete and therefore water is lost into the ground. There is presently no land being irrigated from the Mursi dam. Consequently, 520ha are now irrigated from the original design area of 2,000ha.

With a runoff coefficient of 40% and considering the storage capacity to be 15 Mm³, it is very likely that the Janjari reservoir would be full prior to the onset of the irrigation season as long as the reservoir is properly operated. For the Mursi reservoir, assuming a similar storage coefficient of 40%, then there is only a 51% probability to have the reservoir storage capacity of 4.5 Mm³ filled prior to the onset of the irrigation season. Hence, it is crucial that the additional feed from the Pavlla River is realized to make up for this deficiency, but even then, there are low flow rates anticipated in summer. Hence Option 3 envisages that water from the Janjari Reservoir (which is furnished from collection of waters in its basin and not from Pavlla River) and discharged into the Pavlla River, upstream. This water is additional water that will be used for Bufi channel and Mursi reservoir.

It is also important to highlight that during the summer season the reservoir has deficiency of water because the main source of water for this reservoir is Pavlla River and is characterized by low flow rates. The old pumping station is located near Pavlla River and had a pumping capacity of about 160 l/s.

The maximum water release from the reservoir is 2.6 m^3/sec and Bufi branch receives about 0.7 m^3/sec. The complete I&D system from Janjari reservoir is in poor conditions and has urgent need for rehabilitation. As mentioned previously, the Mursi reservoir has a capacity of 4.5 Mm³ that is not sufficient to satisfy completely the irrigation needs during the dry season.

2.5.2 Works Proposed

The Feasibility Study and more recently the Preliminary Design by JV Renardet et al provides details of the main rehabilitation works to be undertaken at the I&D scheme under review. After stakeholder consultation (with JV Renardet et al) Xarra I&D scheme was chosen and confirmed by MARDWA. This work will rehabilitate the entire original scheme of 3000 ha (2,500ha for Xarra and 500 ha for Bufi).

Rehabilitation works comprise of the following key points:

- Taking water directly from Janjari Reservoir and to discharge into Pavlla River upstream
- Land Acquisition (state owned land only)
- Diversion weir and intake work on Pavlla River;
- A 4.7km feeder canal with concrete lining;
- The rebuild of Bufi pumping station;
- Laying of 120m of steel rising main pipe DN450 and header manhole;
- Lining of 12.1kms of the Bufi canal and 5 main offtakes
- Lining of 429kms of primary and secondary Xarra irrigation canals (F1 3,433m, F2 2,447m, F3 9,281m, 4 13,012m, F5 6,872m, F6 1,492m, F7 1,116m and F8 5,220m);
- Construction of 5 long crested weirs (Duckbills)
- Construction of 120 delivery sluice gates.

The Physical Environment

There follows details of the physical environment covering climate, geology, topography and geomorphology soils etc.

2.6 Climate

Xarra I&D Scheme in Saranda district lies within the South Highland Zone - Rainfall has a lower intensity and abundance in relation with other parts of Albania (600-680mm/year). The wettest month is December and the coldest one the January. The daily maximum of rainfalls is 76mm. The wind has regional and local characteristics, conditioned mostly by the relief of the area. Table 2-2 provides a summary of the general data on climate for Xarra I&D scheme. Generally, July and August are dry months, with scarce rainfall that is not enough for plant growth and development. Irrigation to address the soil moisture deficit is therefore necessary during these months.

Table 2-2: General Data on Climate for Xarra I&D scheme

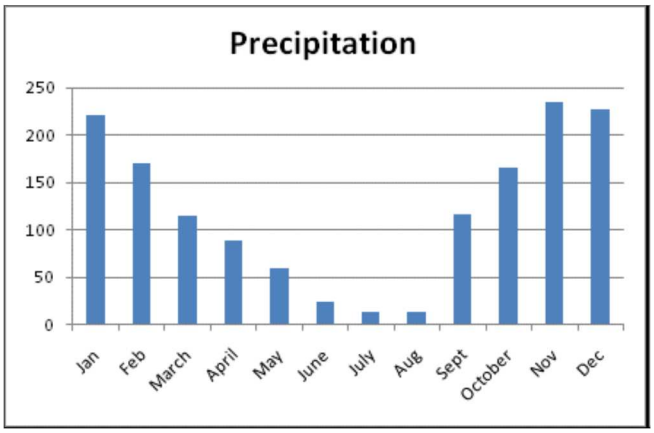
#	I&D Scheme Name	Average Temp °C		Average Rainfall (mm)		Humidity (%)	Sun Hours	Frost Periods	Evapora-tion (mm/day)	Est. Avg. winter soil temp °C at 10cm depth
		Min Winter	Max Summer	Winter	Summer					
13	Xarra	4 to 7	19 to 24	618	51.4	50-60	2583	Nov-Feb	1.78-6.32	7

Source: Mott MacDonald Feasibility Study

2.6.1 Rainfall

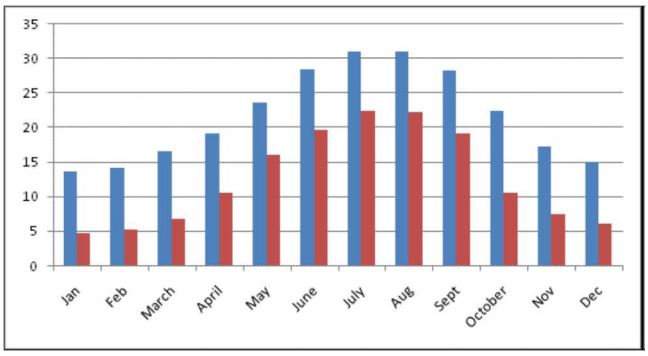
According to the FS, the mean annual rainfall total in the area of Xarra is 1,449 mm distributed in twelve months of the year. The maximum monthly amount of rainfall is equal to 235 mm which occurs in November and the minimum amount is 13.1 mm and occurs in August.

Most of the rainfall occurs during the period (October to March), while the amount of rainfall recorded is very low during the summer months (June - August). Irrigation to address the soil moisture deficit is therefore necessary during these months. mean annual rainfall in the project area



2.6.2 Temperature

According to the FS, the average annual temperature at Xarra is 17.2 ° C. Hottest months are July and August with respective average max temperatures of 31.0°C and 31.1°C while the coldest month is January with an average minimum temperature of 4.7°C. Saranda region is typically Mediterranean with wet winters and warm, hot summers. Rarely have temperatures below zero and there is no risk of frost for plants planted during the winter season. Throughout the year, temperatures are highly influenced by the Adriatic Sea.



2.6.3 Wind

In the Lowland zone, the wind is strongly influenced by the air movements from the sea to the earth and vice versa. This wind, conditioned from changes of temperatures from the Sea (from the west) to the land (the east) has a general west/east/west direction. However, at each site, the dominant winds are those with local characteristics. The most predominant are the horizontal winds, running in respect with the valley direction. The permanent winds with low intensity, but with high abundance are vertical winds caused by temperature differences between the lower areas and the upper mountain or hilly areas. Such winds are called "wind of the slopes". Xarra is heavily influenced by high wind speed from the Adriatic Sea.

2.6.4 Ambient Air Quality

The ambient air conditions at the Xarra I&D scheme is generally good under natural circumstances and is not contaminated by any pollutants, as the site is quite far away from the cities or industrial areas. Despite this the area is underlain by hydrocarbons and there are some scattered oil and gas wells in the nearby vicinity of the I&D scheme. Furthermore, there appear to be no major development activity close to the I&D schemes that can affect the air quality, such as quarries, industrial plants, intensive transport etc. The Albanian air quality standards for selected pollutants are contained in Annex 1.

2.6.5 Climate Change

Climate change will affect water availability, water quality, and has destructive potential. Combining climate change impacts with other water resources pressures such as land-use change and environmental pollution can also lead to serious challenges for farming and irrigation in the Xarra I&D scheme. Albania's First and Second National Communications to the United Nations Framework Convention on Climate Change (UNFCC) used climate change scenarios that indicate that the average annual increase in temperature is expected to be 1°C, 1.8°C and 3.6°C by the years 2025, 2050 and 2100 respectively. These projected ranges of temperature increase apply to all seasons, but there is likely to be some variability throughout the regions in Albania. The important point here however is that there is every likelihood that more irrigation will be required in the future to cater for these increasing temperatures.

2.7 Geology

The geological map of the Xarra site shows the area is underlain by alluvium deposits of Quaternary age comprising, sand, grit, and layers of clay. The terrain is also composed of weak inter-bedded sandstones.

2.8 Seismic Conditions

The peak ground acceleration (PGA) for a 475 return period seismic event in the region of Xarra was calculated from seismic research undertaken by Aliaj et al (2004), that also presented a relationship between PGA and annual probability. Xarra lies on the southern edge of the highest seismic hazard probability.

2.9 Topography and Geomorphology

In the Xarra area, the topography is generally flat or gently undulating. The Mursi reservoir site is at an elevation of about 30masl and slopes towards the northwest. The higher points of the surrounding hills range up to 600 m.a.s.l. The dam lies on the western face of the reservoir. The I&D schemes extends for more than 5kms in a west and north west direction from the Mursi reservoir towards Butrint.

2.10 Soil Characteristics

The soil characteristics are quite different throughout the different I&D schemes and are heavily dependent upon the underlying geology, flora and vegetation types, climate and exposure, water presence and effects etc. In the area of Xarra I&D schemes, soils are characterized by sandstones.

The soils are influenced by river erosion activity and with low phosphorous and humus; and with average calcium and nitrogen content. In terms of the Word Soil Reference Base Classification (WSRBC) the following soil types are found in the areas surrounding Xarra I&D scheme:

- **Cambisol:** are soils with limited age and with transitional characteristic structure of development. They are soils with different absorption capacities (16-32 mek/100 gr), with light acid reaction. (pH 5.5-6.5) to neutral and light basic (pH 6.5 -8.0) with high levels of Organic Carbon, that goes from 0.3 - 1.7
- **Luvisol:** are mineral soils with a horizon B-Clay as a diagnostic quality. The capacity for cationic exchange is equal or greater than 24,ek/100g clay, saturation in base with 50% or higher, in all B horizons. These soils are leached into the horizon form the surface; therefore the content of humus, nitrogen and carbonates is comparatively low. They are slightly acidic and slightly basic in reaction (pH 6.0 -7.5). The B horizon has a neutral nature and with accumulation of carbonates. The content of nutrient elements NPK, is from medium to high.
- **Fluvisol:** are newly developed and formed in low areas with alluviums deposits on both sides of the rivers and their deltas. Such lands are encountered in low terrains, influenced by continuous flooding or saturation. Their absorbing capacity varies 26.04 - 50.54 mek/100 gr, pH 7.7 - 8.2, the humus varies 0.51 - 1.18, nitrogen (N) varies 0.11 - 0.133%, P_2O_5 varies 0.106 - 0.166%, K_2O .73- 0.8% and $CaC0_3$ varies 9.5 - 17%.
- **Phaeozem:** are dark mineral soils, abundant in organic substances, conditioned from the climate of steppes. These lands have an A horizon - Molic about 30 cm followed by a brown B horizon – Cambic. They have high alkali saturation over 50 %. They are soils with good chemical quality, which is expressed with content of organic carbon within the limits 2 - 2.6% and in the nature of organic substance (ratio C / N varies from 8 - 12). Phaeozem are soil with slightly acid reaction to neutral pH values of 6 - 7.2 with the trend of increasing toward deepness. Cationic exchange capacity and alkali saturation are respectively 39 to 68 mek / 100 and 65 - 100%. They are soils with good status of nutrients. The content of N is within 0.451-0.782%, P_20_5 assimilated is 0.102-0.093 mg/100 g and K_2O is 0.7 - 0.3 mg/100 g. Carbonates move from 1 - 2%.

Soil erosion is a major problem in Albania but in the Xarra area this is not so much an issue as in other basin (see green shading in Table 2-3).

Table 2-3: Soil Erosion in River Basins in Albania

River	Basin Area (km2)	(ton/km2)/year	(ton/ha)/year	Total Quantity per year (tons x 1000)
Drini	11,756	1,543	15.43	18,145
Semani	5,649	3,085	30.85	17,429
Other Rivers	18,330	1,628	16.28	29,844
Total Territory of Albania	35,735	1,831	18.31	65,418

Source: Adapted from Qiriazi and Sala (1999)[2]

According to the surveys of specialists from the communes, the erosion comes from the nearby hillsides whilst in the lowland area the erosion is lower. The erosion is caused mainly from the irrigation techniques employed (flood irrigation methods) and the alignment of ploughed furrows that promote soil loss to the streams and

[2] Qiriazi P- Sala S,1999, "Mass Movement in Albania + Human Activities" Japanese Geomorphological Union, 20/3, p.p. 251-264.

eventually into the main rivers. This is an issue that MARDWA need to take into consideration in the planned training programmes associated with WRIP project components.

2.11 Soil Contamination

In the area of Xarra I&D scheme there are no specific hydrocarbon industry or mining/quarrying activity, and no soil contamination is occurring. Sewer discharges into rivers and septic tanks is a potential source of some contamination. Some of the river waters are also used directly for irrigation purposes. In addition, runoff from irrigation trenches that may be carrying fertilisers can leach into soils, but there are no problems reported in this regard.

2.12 Surface Hydrology and Groundwater

2.12.1 Waters from the Xarra I&D Scheme

As previously mentioned, the Xarra I&D scheme is located within a small basin that originates in Greece (see *Figure 2-3*). This is south of the Bistrica Basin. The main sources of water for the irrigation network in Xarra area are the Janjari and Mursi reservoirs with 15,000,000 m^3 and 4,500,000 m^3 capacity respectively. Mursi reservoir through one of the main outlet channel is irrigating Xarra commune in about 1.500 ha.

The Pavlla River is crucial for the functioning and optimal conditions for Xarra I&D system. The Pavlla River has a catchment area of 374 km² (295 km² lies within Albania, while the rest is in Greece) and is located in the southern part of hydrographic network of the country. The Pavlla River lies in the southern part of the Kalase-Pavlla Bistrica basin, and its springs are located in west Greece at Fatirion village. Near Ciflik village the Pavlla changes its direction of flow from the northwest to the field of Mursi. The watershed receives precipitation between 1553 mm to 2200mm per annum. The river water flow is Q=6.51(m^3/s) in Bogaz hydrometric location with mean level Hm (m) =556 m.

Figure 2-3: Location of Xarra within Albanian River Basin

The Mursi reservoir is connected and fed mainly by Pavlla River by an open channel with a length around 4.7 km. The outlet channel that irrigates Xarra and Bufi area is about12.8 km. It is important to highlight that during the summer the reservoir has a deficiency of water due to the characteristic low flows of the Pavlla River, which is the main source of water for this reservoir. The old pumping station that is planned for rehabilitation

is located near to the Pavlla River and had a previous capacity was about 160 l/s. There is no hydrological monitoring available for the Pavlla River.

In the 1996 Water Law, there is no provision for minimum environmental flow. However, Albania in its' strive for EU Accession has now prepared a draft Water Management Law, which is based upon the EU Water Framework Directive (WFD) most notably WFD Article 4 paragraphs 3-5. There is provision within this draft law for minimum environmental flow. It now is a requirement for minimum environmental flows to be specified in the River Basin Management Plans (RBMP). The WRIP Component 3, Part C is preparing RBMP for Drin and Semani river basins. The RBMP under WRIP will also provide the framework to address hydropower plant and irrigation and drainage allocation issues with involvement of the BWA and BWC.

Any planned abstraction of water from the Janjari Reservoir or from the Pavlla River for the Xarra I&D scheme will need agreement between the Institute of Geosciences, Energy, Water and Environment, Faculty of Natural Sciences, Biological Department, University of Agriculture, etc.

2.12.2 Groundwater

Underground water also occurs within the basin and is exploited by private individuals at natural out-flows and wells. Groundwater is generally reserved for drinking water purposes whenever it is abstracted, but most people are supplied by water supply companies in the various communes encompassing the Xarra I&D scheme. The I&D schemes under the study are characterized from two types (horizons) of groundwater, shallow groundwater and deeper artesian groundwater.
P
Artesian groundwater are deep and phreatic and found mostly in weak sandy and gravel rocks. Such groundwater generally occurs in synclinal type structures where the nature of the sedimentary beds creates artesian pressure. The karstic waters such as some of those at Xarra, are strongly related to carbonate rocks (Calcareous and Dolomites), and sulphate rocks (Gypsum and Anhydrites). Usually such rocks have extensive jointing and fracturing and are the main source of water for Albania. Porous rocks are related mainly to the Quaternary deposits, and according to their productivity are divisible into high and low productive aquifers. Highly productive porous aquifers are associated to gravelly deposits filling some plains of the Adriatic Basin such as those extending westward from Xarra. The following Table 2-4 provides details of the main gravel aquifer in Albania and the one of relevance to Xarra I&D scheme is the Mursi aquifer shaded in green.

Table 2-4: Main Gravel Aquifers in Albania

Gravel Aquifer Basin	Maximum thickness m	Permeability m/day	Transmissivity m^2/day	Storage coefficient Fraction
Shkodër	60	100 - 800	2000 – 15 000	0.18 – 0.24
Lushnje	25	20 - 250	250 - 4000	3×10^{-4}
Berat	70	10 - 400	200 - 4500	-
Korça	50	50 - 70	100 - 2100	$4 - 7 \times 10^{-4}$
Vurg/Murs	100	10 - 300	300 - 3000	-

2.12.3 International Waterway Status and Downstream Water Users

International waterways

OP 7.50 on International Waterways is triggered, since the rivers where some of the dams and I&D schemes are located are international. Out of the 13 I&D scheme rehabilitation sub-projects, three sites lie within the Drin catchment, namely Tregtan 2, Tregtan 3 and Vranisht 2. The Drin River has two tributaries - the Black Drin and the White Drin. The Black Drin originates in Macedonia and flows into Albania, while the White Drin originates in Montenegro and flows into Albania, before joining the Buna River, which flows from Shkodra Lake (an international lake shared between Albania and Montenegro) to the Adriatic Sea.

Of specific relevance to this ESMP nine sites lie within the Semani Basin which flows entirely within Albania and exits to the Adriatic. One scheme (Xarra) is located in an area that falls under the mandate of the Vjose RBA, but that draws its water from the Janjari reservoir that is not hydrologically part of the Vjose basin. Part of the upper catchment area of Janjari reservoir is located in Greece. Other than the investments in the sites

located on international waterways under component 1, no other project activities will use water from international waterways. The said investments under component 1 of the project (i) involve rehabilitation of already existing I&D schemes and (ii) do not involve works and activities that would increase the original command area, or change the original scheme's nature. Consequently, the project falls under the exception set forth in paragraph 7 (a) of OP 7.50 as (i) it will not adversely affect the quality or quantity of water flows to the other riparians; and (ii) it will not be adversely affected by other riparians' water use. The application of the exception was endorsed by management in a memorandum dated August 10, 2012.

Water Users
The Xarra I&D scheme is located within the Vjose RBA and transboundary issues are very important as the site lies close to the international border with Greece. The biodiversity and endemic species of the Butrint Lagoon are also under threat without improved and coordinated ecosystem management.

2.13 Water Quality

The quality of Pavlla River is considered as appropriate for irrigation purposes. It basin is characterized from karst activity. The level of ammonia in Mursi is 0.03 ml/l (maximum permitted according EU norms is 0.03 mg/l, and those from Albanian norms 0.1 mg/l. Cl level is considered as appropriate. The same for NO2 and NO3. Very limited data on water quality is available for Xarra scheme, but there is some results for the Butrint Lagoon adjacent to the west of the Xarra scheme. The following section provides details.

2.13.1 Butrint Lake (lagoon) Water Quality

The catchment of Lake Butrint is defined by the Bistrica River in the north, Mile Mountain in the west and the Pavlla River in the south. The lake has a tectonic origin while its water regime is typical of coastal lagoons. It joins the Ionian Sea through the channel of Vivari (3600 m long, 60-100 m wide and up to 5-6 m deep) – see Photo 1. During high tides (with a range of approx. 15-20 cm), the sea level rises and consequently the saline water penetrates into Lake Butrint. The opposite phenomenon happens during low tide.

Photo 1: Lake Butrint and Vivari Channel

A small amount of continental water, deriving from Bistrica and Kalasa rivers, enters the lagoon in its northern side. Lake Butrint has mesotrophic waters with eutrophic tendencies in certain risky areas (Bushati et al., 2010, 2012; Osmani and Peja, 2010; Çako et al., 2013; Kolitari et al., 2013).

The limnology of the lake is divided into two distinct layers. The upper layer (approx. 8 m in depth) is rich in oxygen. Its oxygen concentration is about 2-9 mg/l on the surface and reduces to zero by the depth of 7.5-8m. Consequently, hypoxic or anoxic conditions are dominant. The absence of dissolved oxygen from deeper waters is accompanied by the production of hydrogen sulphide (H_2S), with concentrations varying between 10 mg/l and 35 mg/l.

Salinity fluctuates with seasons: from 18.00 ppt in winter to 35.00 ppt in summer, whilst water temperature varies from 14ºC in winter to 25ºC in summer. The organic matter is about 2-10 mg/l (Pano et al., 1984; Peja et al, 1996). The values of pH oscillates between 6.5 and 9.5. The organic matter is about 2–10 mg/l. The concentrations of Cd, Cr, Cu, Hg and Pb in the lagoon water are relatively low, but in some locations Cd and Pb exceed the EU standards due to agricultural activities and urban effluents derived by nearby settlements such as Ksamili (Topi et al., 2012; 2013). No benthic fauna are found in the lakes lower layer.

The presence of organo-chlorine pesticides (OCPs) in the water is also relatively low with values ranging from 7.3 ng/l to 30.7 ng/l (Nuro and Marku, 2011), confirming the significant drop in pesticide use in this region over the last 25 years.

The Albania State of the Environment Report (2014) does not cover water quality for the Pavlla River that drains the Xarra I&D scheme into Lake Butrint, but it does monitor water quality of the lake. Monitoring performed in 2013 (two phases in different seasons) indicated that the water temperature of Butrint lake ranges between 19.3-24.2oC (for depths of 1.5 to 2m and the lake surface). The pH of lake water ranges from 7.18 to 8.42-8.53, respectively for surface progressing down to 1.5 to 2 m depth. According to the limit values of the EU WFD, the rate of aqueous acid and alkaline waters, Butrint lake waters have a good state. They are neutral pH=6.5-8.5.

The alkalinity value ranges from 165 to 211 to 216 mol/l, from the surface, 1.5m depth and bottom. This value decreases in the second phase of monitoring. Electrical conductivity value fluctuate from 23’600 -31’900-38’000 µS/cm respectively on the surface, middle and bottom of the lake. Seasonal fluctuations in the three monitoring points are high ranging from 436 to 644 to 865 µS/cm. These values are high because Butrint waters are saline.

Transparency measured with a "Sechi Disk" is 2.8 metres in the first monitoring phase and 3 metres in the second monitoring phase. According to EU WFD standards, Butrint waters are characterized as good. The content of dissolved oxygen in Butrint lake value fluctuates from 2.75 to 3.62 mg/l (seasonal fluctuations)

Biological Oxygen Demand - BOD5 content value ranges from 0.5to 1.25 mg/l, leading to average quality. There is no presence of ammonium indicating that the waters have a very good quality. Chemical oxygen demand value ranges from 1.52-8.16-9.04 mg/l, respectively on the surface, middle and depth. In the second phase, values reach up to 16.8 mg/l. According to NIVA (Norwegian Institute for Water), these waters are of poor quality (6.5-15mg/l).

Total phosphorous content values ranges from 0.03 to 0.15 to 0.35 mg/l, classifying Butrint waters in a very bad state (Pt (mg/l) = > 0.05) (see *Figure 2-4*).

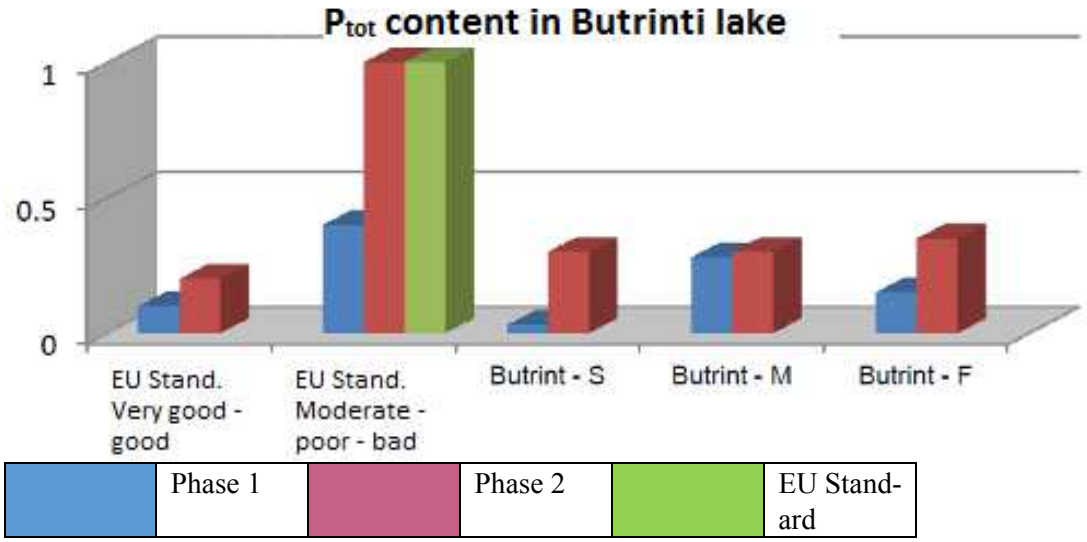


Figure 2-4: Total Phosphorous measurements for Butrint Lake Monitoring Station

Nitrate- NO3 content value ranges from 0.1-1.6-0.4 mg/l. Nitrite- NO2 content value in 2013 monitoring is low, at 0.01mg/l and 0.02mg/l respectively. From this point of view, these waters are classified as of a good quality.

2.13.2 Groundwater Quality

The most recent "State of the Environment Report" for Albania provides details on the current quality of groundwater for the various aquifers in Albania. Monitoring data are presented for each basin but do not cover the most southern areas of Albania. Pollution indicators like NO2, NO3, NH4 and other indicators like Na, Ca, Mg, Fe, Cl, SO4, Fp, pH, Mp, are evaluated and compared to country and EU standards. The recommended concentrations (STASH-R) and the maximum allowed concentrations (STASH- PML) are compared to Albanian standards. In addition, monitored indicator values are compared to the EU standards, recommended concentrations (EU-R) and maximum allowed concentrations (EU-PML).

Biological Environment

2.14 Protected Areas

The Consultant has reviewed the location of the I&D scheme in relation to the nearest protected areas. The western extremities of the Xarra I&D scheme are directly adjacent to the Butrint PA. Table 2-5 below provides further details.

Table 2-5: Details of Protected areas in Vlore/Saranda District

Region	I&D Schemes in Region	Name of Protected Area	Management Category	Surface area (hectares)
Vlorë/Saranda	Xarra	Butrint	National Park	8591 hectares, of which 1600 hectares belong to the Butrint Lagoon

However, it can be concluded that the Xarra I&D scheme does not have a direct impact on the Butrint PA despite it being in close proximity. Further details of the Butrint PA are provided in Annex 2.

2.15 Flora

Climate, geographical position, presence of water and specific topography are important factors that influence the abundant green cover, diversity, and appearance of the vegetation within the Butrint area.

Albanian flora comprise around 3,200 species recorded of which about 15% are characteristic of Balkan environments, 24% exhibit typical Mediterranean characteristics and the remainder are with a Central European origin, sub-Balkan etc.

The flora of Albania consists in Tertiary plants (relic plants), from which around 350 species are trees and shrubs, 85% of which has a spontaneous distribution in natural conditions (endemic) and 15% of them are introduced. Albania is considered as one of the most important migratory sites for plants in the Balkans.

In Albania, there exist 32 endemic plants and 148 sub-endemic plants. Between them can be mentioned Plantain species (*Wulfenia baldaccii*), European Forsythia (*Forsythia europaea*), etc. In the “Red Book” of Albania 305 species of plant are listed with “Threatened” or “Rare” status. Forests and pastures have a high value and are an important habitat for specific flora. The most important parts of the forests in this instance are situated in the northeast and southeast parts of Albania including the Xarra area.

The vegetation of Xarra site are generally typical of Central European species associated with a Mediterranean climate elements, and those of Mediterranean element mixed sometime with European ones in the lowland zones. The natural vegetated areas surrounding the Xarra site exhibit “bush” vegetation, comprised by evergreen "makia".

Larger plants, trees and shrubs identified at the Xarra site during the survey included:

- Elm -*Ulmus minor*
- Ash -*Fraxinus angustifolia*
- Common oak-*Quercus robur*
- White poplar -*Populus alba*
- Laurel -*Laurus nobilis*) and
- Holm -*Quercus ilex*.

Brushwood species include:

- Wild blackberry -*Rubus ulmifolius*
- Common hawthorn -*Crataegus monogyna*and
- Silk vine -*Periploc graeca*

From the survey made by the Consultant that included walking within the project area as well as speaking to local people and contacting Tirana University and local NGOs/NPOs there are no endangered species in the immediate area of the Xarra I&D scheme that are considered to be at risk. The Xarra I&D site are in an area that has been extensively farmed. The area is therefore heavily modified by past human interventions.

2.16 Fauna

Fauna of Albania consists mostly in European elements, mixed also with Mediterranean elements and Balkan sub-endemics. Albania is a natural bio-corridor of fauna from the north to the south of Europe and also in Africa and Asian continents. There are 46 species of echinoderms, 115 crustaceans and 510 molluscs, living in water bodies of seas, rivers and lakes.

In Albania 4,000 species of insects have been recorded, 313 species and sub-species of fish, where 64 species lives in rivers and lakes and 249 species lives in sea and lagoon waters. From this 4 endemic species, can be counted. Amphibians consist of 15 species and there are 37 species of reptile. Birds represent 323 species from which 72 species lives in the forests. Forty-three species have specific conservation status and are under protection. Mammals consist of 69 species, and about 42% are European representatives. 64 mammal species are inland animals and five live within sea habitats.

The fauna of the Xarra I&D scheme consists mostly of Balkan and European elements and is not very rich in wildlife primarily due to the close proximity of human settlement that has existed in the area for a long period. In the more remote forest areas away from Xarra scheme wolves, bears, wild cats and other mammals occur and have a protected status.

Around the Xarra I&D scheme and the surrounding area many different kind of raptors, reptiles and amphibians have been sighted. The Mursi reservoir water is used for irrigation and for commercial fishing. So specific wild fauna that has been recorded in the commune include:

- Wild rabbit, *Oryctolagus cuniculus*
- Fox – *Vulpes vulpes*
- Weasel – *Mustela lutreola*
- Badger – *Meles Meles*

From the bird life mainly:

- Sparrows - *Passer domesticus*
- Goldfinch
- Ouzel – *Turdus merula*
- Partridge – *Perdix perdix*

- Falcons - *Falco subniger*
- Magpies – *Pica pica* etc.
- Pheasants

Occasionally due to the presence of Butrint Lagoon it is possible to see:

- Gulls
- Widgeons- *Anas Penelope*
- Mallards – *Anas Platyrhinchos*
- Migratory Cranes – *Grus Rubicunda*

There were also different snakes including:

- Meadow Viper – *Natrix natrix*
- Horned Viper - *Viper ammondytes*

Other amphibians such as:

- Balkan Green lizards - *Lacerta trilineata*
- Balkan Water Frog - *Rana balkanika*
- Hermans Tortoise – *Testudo hermanni*
- Snail – *Trochonanina mozambicensis*

There were no species of fauna of protected status that are considered to be at risk within the immediate vicinity of the Xarra I&D scheme.

2.17 Threatened flora and fauna in the Project Area

From the survey made by the Consultant that included walking within the project area (looking for spores, dung etc.) as well as speaking to local people and contacting Tirana University biology department and local NGOs/NPOs there are no endangered species in the area that are considered to be at risk.

The Xarra I&D scheme is situated within an area that has been predominantly adapted for agricultural production. From the investigations and surveys undertaken, no flora or fauna was identified within the project area that could be considered to be at risk or threatened.

With the rehabilitation of the Xarra Scheme however, the amounts of pesticide and fertiliser in the drainage waters may increase. It is therefore very important to ensure monitoring is undertaken in the area, firstly to ascertain and accurate baseline condition and then moving forward to assess water quality on the flora and fauna over time.

The Socio Economic Environment

Data on main social and economic indicators has been gathered from central and local authorities, in depth interviews with farmers, and focus group discussions, from which resulted that nearly all respondents generally perceive that the Project related results would be of substantial benefit in improving the quality of life of residents in these areas. Besides the above, the socio-economic team focused on exploitation of existing documentation from the following sources:

- INSTAT Albania,
- the Mott MacDonald feasibility study,
- The Joint Venture RENARDET – BETA STUDIO – HYDROWATER-ALBANIA feasibility study
- Communes offices, as well as
- Field observation for verification and filling data gaps.

In the following are given general data related to the prefecture and district, other data related to communes, data on agriculture and land use, where the I&D scheme is located.

2.18 Demography

The percentage of rural population in Albania has been constantly decreasing in the last years. Whilst 52% of the population lived in rural areas in 2006, this figure has considerably decreased, amounting to 44.6% in 2013. Although Albania shows a positive trend in terms of economic indicators, 14.3% of the population still lives in poverty, representing one of the highest percentages in the region. The Country's rural population poverty equals 15.3%, and is even higher in small size villages such as in the communes associated with this study, where most of their population lives in poverty, basing their livelihood on agricultural and livestock activities.

Demographic data is available at district/prefecture and also at branch level. *Table 2-6* below provides an indication of the population structure between rural and urban dwellers in the districts where the Xarra I&D scheme is located. The rows of the table indicated in green are for the Xarra I&D scheme.

In general, there are more people living within the rural areas than in urban centres. This can be interpreted by the importance of agriculture development and irrigation needs in such regions. However, there are more people moving to the urban areas to find work or migrating abroad. The migration rate for Vlore prefecture is –2.1%.

Table 2-6: Natural demographic structure of Saranda District and Xarra schemes

District/Prefecture	Gjendja ne fillim / Balance at the beginning	Lindje / Live births	Vdekje / Deaths	Vdekje / Deaths		Martesa / marriages	Gjendja ne fund / Balance at the end
				nën 1vj. / under 1yrs	1-4 vjeç / 1-4 yrs		
Vlorë/Saranda							
Rrethi / District	182914	2231	1234	14	4	1568	182963
Bashkia / Urban	125102	1526	850	3	1	1072	126190
Komunat Rural	57812	705	384	11	3	496	56773
Xarra	7651	60	31	-	-	35	7700

The population structure of the districts and prefectures in terms of youth and old age people is quite similar, with an overall dependency ratio of Vlore prefecture at 44.6. The gross birth rate for Vlore prefecture (covering Xarra I&D scheme) is equal to the national average (see Figure 2-5 below) and the fertility rate of 1.4 (number of children per woman) is below the national average.

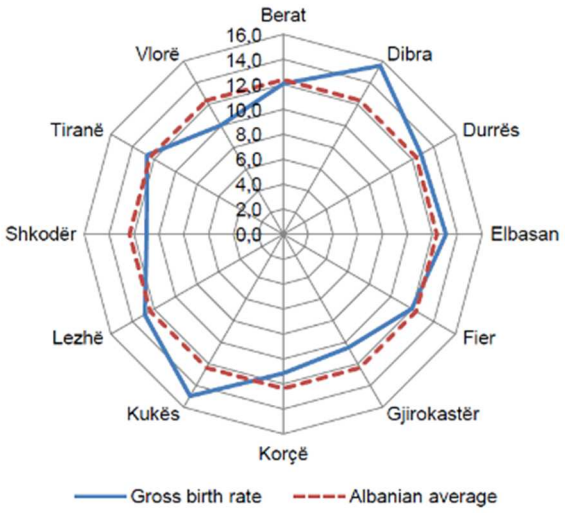


Figure 2-5: Gross birth rate by prefecture 2014

The Xarra commune comprises five villages: Mursi, Shëndëlli, Shkallë, Vrinë and Xarrë. These villages show uncharacteristic trend compared to other areas of Albania, due to the growing of mandarin oranges, which provide a good source of income from abroad. Incomes are therefore higher than in other I&D schemes.

These areas have optimal conditions to develop agricultural production (favourable land quality and climate condition, etc.) and there is good potential for adoption of modern agricultural technology, there is existence of a market within the territory of the commune or in the nearest municipality (up to 10 km) which is the centre of rural economic activities, etc.

Table 2-7: Demographic structure of the Xarra I&D scheme

Communes	Population (inhabitants)	No of Families	Female population	Male population	Density (inhabitants/ km²)	No of invalids	No of incapable peoples (blind and crippled)	No of other incapable peoples
Xarra)	Xara	7700	1800	4390	3310	296	300	200

Marriage rates are similar in all the prefectures with Vlore prefecture comparing to the national average. Notwithstanding, marriage rates are declining year on year as the concept of the traditional family breaks down and the onset of cohabitation becoming more popular. This key data is summarised in Table 2-8 below with the relevant prefecture shaded in green.

Table 2-8: Key data on population characteristics

Irrigation Scheme Name	District/Prefecture	Youth Ratio	Old Age Ratio	Total Dependency	Fertility Rate (avg # child/woman	Migration Rate (%)	Marriage Rate n/1,000
GROUP 1							
Vranisht 2	Kukes	28.3	18.0	46.3	2.3	-9.6	7.6
Tregtan 2							
Tregtan 3							
GROUP 2							
Kurjani/Strumi	Fier/Fier	28.0	17.9	46.0	1.8	-4.0	8.6
Zharrez							
Murriz Thana	Lushnje/Fier	28.0	17.9	46.0	1.8	-4.0	8.6
Divjaka							
Belesova	Berat	27.9	17.9	45.8	1.8	-9.6	7.8
Duhanas							
Slanica (Cukalat)							
GROUP 3							
Leminot	Korça	28.1	18.0	46.1	1.7	-4.7	7.4
Koshnica							
GROUP 4							
Xarra	Saranda/ Vlorë	26.9	17.6	44.6	1.4	-2.1	8.2
Albania Total	**National Level**	**27.4**	**17.8**	**45.2**	**1.8**	**-0.2**	**8.2**
Youth ratio = population under 15 years of age/the working age population 15-64 years of age							
Old ratio = population over 65 years of age/the working age population 15-64 years of age							
Total Dependency = youth <15 + >65/ the working age population 15-64 years of age							
Fertility rate = average number of children per woman							
Migration rate = difference in % between incoming and outgoing population in Prefecture							
Marriage rate = number of marriages per 1,000 inhabitants							

2.18.1 Migration

Overall migration has been one of the main demographic problems in Saranda district changing considerably the population ratios and structure. During the years 1990-2000, an important part of labour force migrated outside of Albania. Migrants from Saranda have migrated mostly to Italy and Germany, and lesser amount to Greece. Once the migrants found employment in these countries and became officially registered in these Western countries, they took their families with them.

Late in 2000, these large movements of population have ceased. In 2010, when Albania attained the right for free movement within EU countries, the migration phenomenon stopped. In the last two years due to the global economic crisis, migrants are now returning home and investing in their home country (See Table 2-9). The economic crisis in Greece in particular has caused a major migration of Albanians from Greece to their

hometowns and villages. These people are a very important future labour force, but it is important that they obtain employment; hence, development of the rural areas is very important.

Table 2-9: Migration within Saranda District

District/Prefecture	Të ardhur / Migration IN			Larguar / Migration OUT			Shtesa Absolute / Absolute Total
	Gjithesej / Total	Brenda rrethit / Within the district	Jashtë Rrethit / Outside the district	Gjithsej / Total	Brenda Rrethit / Within the district	Jashtë rrethit / Outside the district	
Vlorë/Saranda							
Rrethi / District	3475			12017		12017	-8542
Bashkia / Urban	2363			7023		7023	-4660
Komunat Rural	1112			4994		4994	-3882
Xarra	20	-	20		-	-	20

2.18.2 Population, economics and families

The family is the foundation of the social structure in the study regions. In general, there is a family head, which is considered an adult male, who provides the greater part of incomes. A family unit is often considered the husband, wife and children, but in some cases also the grandmother and grandfather. The following *Table 2-10* provides details of the numbers of families, family ratio and structure, which appears to be quite normal for all Vlore District and Xarra I&D scheme (shaded in green). There is a greater proportion of women in Xarra than men, which suggests that many of the men have gone away to work (either to bigger cities or abroad).

Table 2-10: Population and Families within the Districts

FIER DISTRICT	Gjithsej / Total	Nga e cila:Femra / from which Female	Nga e cila Meshkuj / from which Male	Numri I / Familjeve/ Number of Families
Gjithsej rrethi / District total	269452	131573	137879	69878
-Bashkia / Urban	127518	62908	64610	36362
Komunë / Rural	141934	68665	73269	33516
KUKES DISTRICT	**Gjithsej / Total**	**Nga e cila:Femra / from which Female**	**Nga e cila Meshkuj / from which Male**	**Numri I / Familjeve/ Number of Families**
Gjithsej rrethi / District total	61851	31609	30242	13371
-Bashkia / Urban	23161	11535	11626	4547
Komunë / Rural	38690	20074	18616	8824
LUSHNJE DISTRICT	**Gjithsej / Total**	**Nga e cila:Femra / from which Female**	**Nga e cila Meshkuj / from which Male**	**Numri I / Familjeve/ Number of Families**
Gjithsej rrethi / District total	179812	92113	87699	46363
-Bashkia / Urban	68414	34699	33715	18617
Komunë / Rural	111398	57414	53984	27746
BERAT DISTRICT	**Gjithsej / Total**	**Nga e cila:Femra / from which Female**	**Nga e cila Meshkuj / from which Male**	**Numri I / Familjeve/ Number of Families**
Gjithsej rrethi / District total	156254	78849	77405	40244
-Bashkia / Urban	72473	35862	36611	18715
Komunë / Rural	83781	42987	40794	21529
KORÇA DISTRICT	**Gjithsej / Total**	**Nga e cila:Femra / from which Female**	**Nga e cila Meshkuj / from which Male**	**Numri I / Familjeve/ Number of Families**
Gjithsej rrethi / District total	143271	71379	71892	62793
-Bashkia / Urban	59825	30503	29322	333
Komunë / Rural	83446	40876	42570	648
VLORË DISTRICT	**Gjithsej / Total**	**Nga e cila:Femra / from which Female**	**Nga e cila Meshkuj / from which Male**	**Numri I / Familjeve/ Number of Families**
Gjithsej rrethi / District total	182914	90645	92269	50961
-Bashkia / Urban	125102	62348	62754	31847

Komunë / Rural	57812	28297	29515	19114
Xarra	7700	4390	3310	1800

2.18.3 Gender Considerations

The following *Table 2-11* provides indication of the number of family heads that are female in the communes associated with Xarra and also provides details of the civil status of the female heads.

Table 2-11: Male/Female Family Heads /Civil Status in Communes for Xarra I&D Scheme

Komunat Communes	Kryefamiljar, mashkull Family head, male				Kryefamiljar, femer Family head, female			
	Gjithsej Total	25-45 vjec 25-30 years	46-65 vjec 45-65 years	Mbi 65 vjec Over 65 years	Gjithsej Total	25-45 vjec 25-30 years	46-65 vjec 45-65 years	Mbi 65 vjec Over 65 years
Xarra	1788	430	915	443	12	-	7	5

As can be seen female heads are very much in the minority representing around 0.7 % of all families in the communes.

Table 2-12: Female Civil Status in Communes for Xarra I&D Scheme

Statusi civil Civil Status	Communes	Grupimi sipas moshes Age group							
		18-24 vjeç 18-24years		25-34 vjec 25-34 years		35-44 vjec 35-44 years		45-65 vjec 45-65 years	
		Nr	%	Nr	%	Nr	%	Nr	%
Married/cohabiting	Xarra								
Widow								12	100
Divorced									
Single									

The majority of the female family heads are a result of being widowed (see *Table 2-12*) and they fall within the oldest age group. The education level for females in Xarra is generally quite good with 96% either equivalent or better than high school educated (see *Table 2-13*).

Table 2-13: Education level for Female Heads – Xarra I&D Scheme

Edukimi Education	Xarra	
	Nr No	%
Basic	1	4
Elementary	2	17
High/professional	8	76
University/postgraduate	1	3

2.18.4 Population Projections

Albanian population projections at prefecture level have been published for the first time in 2015. Such a projection is very difficult as apart from the estimation of fertility, mortality and international migration projections at prefectural level consist of attempting to calculate and project internal movements and their spatial concentration. Such projections have been based on a medium scenario at national level (i.e. medium fertility, medium mortality and medium international migration). The hypotheses for these demographic components were built in such a way to correspond to those at national level, by keeping always in mind the prefectural differences. In the medium hypothesis, the internal movement rate is kept constant and it is equal to the rate observed during the period 2007 – 2011. These hypotheses are combined with the hypothesis of spatial concentration, which consist in constant concentration in big economic centres, especially in Tirana – Durrës, and spatial de-concentration of internal migrants towards other centres. According to the population projections of Albania, during the period 2011 – 2031, Vlora prefecture will experience population decline (as evidenced by the migration rate of -2.1%) of 20 percent until 2031. A similar trend is assumed for the population within the Xarra I&D scheme. More details on population are contained in Annex 3.

2.19 Unemployment

Unemployment is quite a big problem in Albania as it is in many parts of Europe. The official number of unemployed is large (~35%)[3] but it should be mentioned that an important part of the labour force is working in the black economy (underground economy) for example working in part time employment or in unregistered entities, hence people are taking their salaries but are not registered at offices. The part of labour force in general is not insured at health and civil offices, and this reduces their possibility to be treated in public health institutions, without additional expenditures. Such a situation reduces and risks seriously the financial incomes of their families. Most of the population are employed in private enterprises. In cities and towns a part of the labour force is employed at state offices. A much smaller part of commune population is employed in state local offices and this number is insignificant.

The population of rural areas, in general is self-employed in their own farms. These families are dependent upon agricultural production and marketing their produce. In general, also these farmer families are not insured for health and social purposes. Only in rare cases some of the village peoples are working in state offices, like the police force, post office, communal services etc. All people employed within the state services are covered for health and social insurance. The following Table 2-14 provides indications of unemployment Saranda District; this is made up of three sources:

- Unemployed that are processed and receive benefit and social assistance (treated),
- Those unemployed for the first time on the labour market, and
- Other unemployed.

The unemployment trends are quite typical; with more women than men out of work and although there are no complete statistics for those unemployed in the Xarra I&D scheme, it is considered that a similar trend is apparent... A larger proportion of over 35 are out of work and far more people that received little education are out of work. More details on unemployment are contained in Annex 4.

Table 2-14: Unemployment within Saranda District

Region	Total Population	Overall Total Unemployed	Female	family head (Male)	By Age				By Education Level			
					15-19	20-24	25-34	Over 35	Kinder 8 years	High School	Professional school	University
Vlorë /Saranda		7078	3978	3100	1162	1684	347	3885	4556	1684	347	491

2.20 Employment

Data on the number of people in employment in Saranda District is quite difficult to obtain because of the factor of the underground economy mentioned earlier. Details of those employed in the state sector for 2010 are available as well as for those employed in the commune administration. This is contained in Table 2-15 below.

Table 2-15: Employment within Saranda District and Xarra I&D scheme

District	Average No or people employed in 2010	Gjithsej femra Total Female	Gjithsej meshkuj Total Male
Vlorë/Saranda	3,962	No data	No data
TOTAL	**3,962**	**No data**	**No data**
Xarra I&D scheme	**Nr mesatar I njerezve te punesuar ne administraten e komunes Average No of people employed in commune administration**	**Gjithsej femra Total Female**	**Gjithsej meshkuj Total Male**
Xarra	**50**	20	30

[3] Source is CIA – World Fact book

In the Xarra commune the majority of the people work in their properties engaged on agricultural lands or within the livestock sector. According to Albanian law the persons who owned agricultural land, they are treated as self-employed. There are also small businesses in the communes including bars and coffee shops, grocery stall markets etc. More details on employment are contained in Annex 4

2.20.1 Communal services

There is a sewage system existing in the Xarra commune covering the villages of Mursi, Vrine, Shkalle, Shendelli and Xarra. Other villages and other households still use septic tanks. Currently 80% of households use firewood for heating and the remaining 20% use gas and electrical power. The main source of lighting is by electrical power provide by hydropower plants. Only 70% of villages have waste collection system.

2.20.2 Economic activities and incomes

The communes are located in rural areas so the main economic activities are agriculture and livestock breeding. About 80% of households have their income provided by agriculture, and the remaining 20% by working in state organizations or remittances. A massive 90% of all agricultural products are sold, confirming the better economic status of people living in Xarra commune. Other economic activities performed include bar, restaurants, coffee shops, food stores and other small businesses. Table 2-16 and Table 2-17 below show the annual average income per family and from agriculture.

Table 2-16: Average income per family and per capita

Komunat COMMUNES	Te ardhurat mesatare lek/familje/muaj Average income per family ALL/month	Mesatarja e antareve te familjes Average family members	Te ardhurat mesatare per fryme Lek/muaj Average income per capita ALL/month	Te ardhurat mesatare per fryme Dollar/dite Average income per capita US$/day
Xarra	60000	4.1	14634	3.9

Table 2-17: Average income per family from agricultural production

Komunat COMMUNES	Te ardhurat mesatare lek/familje/muaj Average income per family ALL/month	Te ardhurat mesatare nga bujqesia Average income from agriculture (%)	Produkte bujqesore te perdorura per vet konsum Agricultural products used for own consumption (%)	Prodhime bujqesore per shitje Agricultural products used for sale (%)
Xarra	60000	80	10	90

2.21 Ethnicity, Religion, Education, Health and Currency

2.21.1 Ethnicity and religion

The basic ethnicity in Saranda district is Albanian, and also the nationality. The language used as well as the official language is Albanian. There are three religions; Muslim, Orthodox and Catholic which follow a similar pattern to the rest of Albania.

In the areas under the study, the main religion is Orthodox due to the proximity with Greece but in some areas, there are Catholic and Islamic minority faiths. The different religious groups even with Albanian ethnicity generally get on well together. This compatibility of the religions has implied that there are many inter-marriages between different faiths. In all religion groups, including Islamic faiths there are no cases of fanaticism.

2.21.2 Education

The education system in Saranda district which covers Xarra I&D scheme is broken down into the following categories:

- Basic school – public and private,
- Primary school – public and private,
- Secondary – public and private
- Upper secondary - public and private,
- Gymnasium – public and private
- University – public and private and

- post University – private

The education in the Xarra I&D scheme are shown in *Table 2-18* below.

Table 2-18: Employment within Saranda District and Xarra I&D scheme

Komunat Communes	Nr I shkollave te mesme No upper secondary schools	Numri I shkollave 9 vjecare No lower secondary schools	Nr I shkollave fil-lore No primary schools	Nr I nxenesve No pupils (total)	Nr I studenteve ne universitet No of students in university
Xarra	3	3	3	400	120

Albanian is the main language used in all schools. The schools are private or state (public) run institutions. In general, at the prefecture level, students attend a 9-year education program with 52-53 % male against 47-48% female. However, as fertility rates have been decreasing, the number of students in a 9-year education program is also decreasing and there are now more students at secondary level than at basic and primary level. Students enrolled in urban areas are significantly higher in number than those enrolled in rural areas, but there is considerable difference between prefectures. Graduation rates are better in urban areas compared to rural areas. More details on education facilities at the prefecture level are contained in Annex 5.

2.21.3 Health

Albanian female life expectancy at birth was 80.3 years in 2013, while male life expectancy at birth was 4.0 years less, i.e. 76.0 years. Life expectancy continues to increase and this may explain partly the demographic changes in the population structure and lifestyle.

The focus of Albanian policies concerning health have always been on the quality of life. Healthy life years are a measure of the number of years a person is expected to live in healthy conditions (defined by absence of limitations in the functioning/disability). According to the report of the Public Health Institute on "Health situation of the Albanian population", such an indicator among males is 62.5 years whereas for females this is 67 years; 4.5 years higher.

Primary health care service focus on health problems and providing a good and reliable service. The main institutions providing such services are consolidated, including polyclinics, health centres, public health units and special services of consultation for women and children.

In the rural areas, health services are generally located within the commune centres. The health service is also state and privately based. State institutions generally treat those with health insurance (i.e. state employees and families) while other members of the population must pay for treatment. Health insurance in the private facilities does not function well and can only be accessed by those that can afford it. The following *Table 2-19* provides details of the number of health institutions within Saranda district which contains Xarra I&D scheme (shaded in green). More details on health facilities at the prefecture level are contained in Annex 6.

For Xarra I&D scheme there are 5 health centre, one for each of the five villages.

Table 2-19: Health Facilities within the Districts

District	Fier	Kukes	Lushnje	Berat	Korça	Vlorë/ Saranda
Relevant I&D Scheme	Kur-jan/Strumi Zharreza	Vranisht Tregtan 2 Tregtan 3	Murriz Thana Divjake	Belesova Duhanas Slanica	Leminot Koshnica	Xarra
Total Number of Health Facilities in District	**291**	**25**	**300**	**291**	**330**	**523**
In Urban Areas	33	11	20	33	23	30
In Rural Areas	258	14	280	258	317	493
Ambulances urban	No data	8	12	14	0	146
Ambulances rural	No data	0	65	110	85	?

2.21.4 Currency

The money used in all Albanian territories is the Albanian LEK (ALL). The current currency range with the United States Dollar is 1 USD = 126 ALL and with the Euro is 1 EUR = 137 ALL.

2.22 Crime and Domestic Violence

2.22.1 Penal Offences

The General Directorate of Prisons provides data on the number of recorded crimes at prefecture level for 2014. Table 2-20 below illustrates the number of recorded crimes for some criminal offences with the district of Saranda (Vlore Prefecture) shaded in green. The table shows that in 2014 the group "Crimes against public order and standards of conduct" was the largest followed "Economic crimes". "Crimes against property" is the group of criminal offences with the lowest number of recorded crimes in all the prefectures. The group of criminal offences "Crimes against persons" includes crimes against life, health and freedom.

Table 2-20: Reported crimes and penal offences at prefecture level for 2014l

Irrigation Scheme Name	District/ Prefecture	Crimes against persons	Crime Against Property	Illicit trafficking	Drug crime	Economic crime	Corruption crime	Money laundering crime	Crimes against order and standard of conduct
GROUP 1									
Vranisht 2	Kukes	23	1	16	23	79	60	8	522
Tregtan 2									
Tregtan 3									
GROUP 2									
Kurjani/Strumi	Fier/Fier	54	10	70	73	189	95	34	1084
Zharrez									
Murriz Thana	Lushnje/Fier	54	10	70	73	189	95	34	1084
Divjaka									
Belesova	Berat	19	5	12	50	127	54	24	752
Duhanas									
Slanica (Cukalat)									
GROUP 3									
Leminot	Korça	39	4	49	120	175	44	26	1231
Koshnica									
GROUP 4									
Xarra	Saranda/ Vlorë	42	15	90	130	156	100	29	1084

2.22.2 Domestic Violence

Domestic violence is caused by various factors including: cultural impact that has deep roots in the old patriarchal traditions, unsound life situations, gender discrimination, unemployment, intergenerational control in the family etc.

Domestic violence is still the most frequent kind of abuse of human rights, but still the least known and worldwide accepted. Several studies point out the difficult of measuring the level and extent of domestic violence, because such phenomenon occurs within the family and it is considered a family issue. Consequently, among the factors which may affect the low reporting of domestic violence it is worth mentioning for instance shyness, fear from punishment, cultural norms, stereotypes existing about domestic violence etc., therefore the facts and figures must be read diligently, because as they do not necessarily give a clear picture regarding the spread of violence.

The Table 2-21 below shows the proportion (percentage) of the number of domestic violence reports in a given year within the total number of police reports of a specific prefecture during 2010-2014. Saranda district (Vlore Prefecture which covers Xarra I&D scheme is shaded in green. This does not show a gender split, but it is assumed that by far the majority of these reported cases are male attacking female. Vlore prefecture has a

lower incidence of domestic violence from all the regions covered by the study. It is also the only one to record a reduction in violence from 2010 to 2014.

Table 2-21: Incidence of Domestic Violence at Prefecture level

Irrigation Scheme Name	District /Prefecture	2010	2011	2012	2013	2014
GROUP 1						
Vranisht 2	Kukes	18%	13.7%	17.6%	20.6%	30%
Tregtan 2						
Tregtan 3						
GROUP 2						
Kurjani/Strumi	Fier/Fier	20.1%	29.9%	12.3%	16.1%	21.7%
Zharrez						
Murriz Thana	Lushnje/Fier	20.1%	29.9%	12.3%	16.1%	21.7%
Divjaka						
Belesova	Berat	15.6%	13.4%	18%	24.7%	28.3%
Duhanas						
Slanica (Cukalat)						
GROUP 3						
Leminot	Korça	9.3%	13.7%	16.5%	22%	38.4%
Koshnica						
GROUP 4						
Xarra	Saranda/ Vlorë	24.5%	15.2%	19.7%	17.3%	23.3%
Albania Total	**National Level**	**14.4%**	**15.8%**	**18.2%**	**21.8%**	**29.8%**

2.22.3 Young Prisoners

Table 2-22 shows that in 2014 Vlore Prefecture had 335 prisoners with only 1 <18years, while in 2010 there were 281 prisoners (0 <18years) (see green shading). This indicates an increase of 19 % in the number of prisoners over the 5 years. Vlore Prefecture has one of the lowest number of prisoners compared to the other areas that are covered under the project.

Table 2-22: Prisoners by age group 2010-2014l

Irrigation Scheme Name	District/ Prefecture	2010		2011		2012		2013		2014	
		Under 18 years	Over 18 years	Under 18 years	Over 18 years	Under 18 years	Over 18 years	Under 18 years	Over 18 years	Under 18 years	Over 18 years
GROUP 1											
Vranisht 2	Kukes	0	163	2	168	0	171	2	182	2	293
Tregtan 2											
Tregtan 3											
GROUP 2											
Kurjani/Strumi	Fier/Fier	5	508	8	511	6	522	5	591	4	618
Zharrez											
Murriz Thana	Lushnje/Fier	5	508	8	511	6	522	5	591	4	618
Divjaka											
Belesova	Berat	8	313	6	318	8	321	7	352	2	409
Duhanas											
Slanica (Cukalat)											
GROUP 3											
Leminot	Korça	0	333	4	338	3	331	5	367	2	461
Koshnica											
GROUP 4											
Xarra	Saranda/ Vlorë	0	281	6	269	3	265	6	299	1	334
Albania Total	**National Level**	**102**	**4,501**	**121**	**4,469**	**97**	**4,453**	**107**	**4,807**	**101**	**5,352**

2.23 Agriculture

2.23.1 Farm Sizes

The majority of farms in Albania are family farms with the average size in hectares reported to be 1.2ha/farm. Indications suggest that the average farm size is slightly decreasing. For example, in 2014 the average farm size decreased by 0.6% from 1.17ha/farm to 1.16ha/farm.[4] Despite a shrinking average farm size, the number of farms nationally has increased by 0.4% from 350,416 in 2013 to 352,315 in 2014. The following Table 2-23 presents information on farm size, number of farms, number of families and dependent population. As can be seen the average farm size for Xarra is slightly higher (1.35ha/farm) compared to the national average. The average farm size reported by the commune varies significantly compared with the data provided to INSTAT by MARDWA. Xarra I&D scheme is shown in green shading.

Table 2-23: Average Farm Size and numbers of families within the schemes

Scheme	Average Farm Size reported by commune (Hectare)	Average Farm Size reported by MARDWA for region (Hectare)	Number of Farms	Number of Families	Total Dependent Population
Vranisht 2	1.2	0.62	180	262	1,050
Tregtan2	1.1	0.62	275	340	1,370
Tregtan3	1.1	0.62	165	220	825
Murriz Thane	1.8	1.64	23,226	Nd	Nd
Divjake	1.4	1.6	1,820	1,820	7,028
Kurjan and Strum	1.5	1.64	8,373	10,299	51,715
Zharrez	1.4	1.64	1,678	1,942	8,606
Slanice	1.4	1.37	2,550	2,900	12,750
Belesove	1.2	1.37	1,470	1,850	6,900
Duhanas	1.2	1.37	1,080	1,260	3,960
Leminot	0.7	1.45	1,141	1,624	6,060
Koshnice 1	0.62	1.45	912	912	3,280
Xarra	1.35	1.08	1,485	1,485	5,940
I&D Schemes Total	**1.23**	**1.27**	**44,355**	**24,092**	**106,239**
Albania Total (INSTAT)	**1.17**		**352,315**		

Source: Adapted from INSTAT and Mott MacDonald Feasibility Study

2.23.2 Land Tenure and Land Use

The land tenure is divided into state lands and private lands. In the agricultural areas, the private land is generally inherited. Nevertheless, under Albanian law, most of the owners of the period before World War II are considered legal owners only for a part of their inherited land. The other lands or occupied agricultural lands are distributed to the farmers.

Between the years 1990-2000, much state or private lands were occupied by illegal developers or families that had no legal claim of hereditary entitlement. Many laws were adapted to regulate this situation and to avoid social conflicts. This process until now is not proceeding satisfactorily and hence land ownership is quite a complicated issue, especially in the cities. In the rural areas, this situation appears better, as most of the owners have a hereditary claim to their land.

Land use, is quite relative to land tenure. The land use of the state or private lands can be decided by the land owners (i.e. State or Private), but only after approval of the intended use from the state authorities. Most of the agriculture lands are used by private farmers. Also a part of forests is privatized, or provided for use to the village community. Notwithstanding, the specific sites, like protected areas, reservoirs, rivers etc. are all state owned, but can be offered or used with a concession to private developers. Details of land use within the districts are shown in *Table 2-24* with Saranda shown with green shading.

[4] INSTAT - http://www.instat.gov.al/media/304623/press_release_agriculture_statistics__2014.pdf

Table 2-24: Land Use within the Districts

Nr	Emërtimi / Name	Njësia e Matjes / Unit	Fier	Kukes	Lushnje	Berat	Korça	Vlorë/ Saranda
1	Sipërfaqe gjithsej / Total area	ha	**79,406**	**66,480.6**	**71,239**	**93,888**	**137,369**	**270,621**
a	Nga: - Sipërfaqe bujqësore / From which: agriculture area	ha	52,591.8	11,415.6	51,109	35,324		62,984
2	Sipërfaqe bujqësore e përdorur / Agriculture area in use	ha	46,232.3		51,109	28,746	52,390	17,064
	Nga: - Bimët e arave / From which: - field crops	ha	38,912.5	4,909	45,887	19,493	26,533	11,612
	- Kulturat drufrutore / -tree crops	ha	7,319.8	1,150.7	5,222	9,253	2,253	5,452
b	Livadhe e kullota / meadows and pastures	ha	618	14,505	440	8,183	23,604	208,000
c	Pyje +truall / woods + lands	ha	7,100	40,560	4,563	29,620	54,900	-
d	Toke jo bujqesore / non-agricultural land	ha	6,359.5	1,024.6	1,276	20,761	30,079	-
3	NR tapive te ndara / number of land patents distributed	Cope / unit		3,419.9	13,849	19,670	0	16,000

The distribution of the land between the families in Xarra commune are shown in *Table 2-25* below.

Table 2-25: Land Use within Xarra I&D Scheme

Komunat Communes	Toke gjithsej Land Total	Toke e privatizuar Land privatized	Nr I familjeve No of family	Toke per familje Land/family	Madhesia e familjes Family size	Toke per fryme Land per capita
	Ha	Ha	No	Ha	Nr	ha
Xara	2400	2400	1800	1.33	4.27	0.31

2.23.3 Agricultural Production

This section describes the products on crops and vegetables, fruit trees, livestock etc., for Saranda District. In general the production of agricultural lands will increase over the next few years, but there are factors which will hinder this development. The low income levels and poverty of the rural population reduces the use of fertilizers and pesticides. This on the one hand is good for the environment as it prevents excessive water pollution, but on the other hand, production quality and quantity is reduced.

The malfunction or immobility of irrigation reservoirs and canals is also influencing a reduction of agricultural products. Furthermore, problems of climatic change and malfunction of draining channels has created problems of flooding of agricultural lands during extreme rainfall events. The Albanian government is trying to restore all irrigation and draining system, to save farm assets and crop production and to improve the standard of living in the communities, using the agriculture activity as a powerful development instrument.

2.23.4 Crop Types

Within the areas of the irrigation schemes and reservoirs, the most popular crops are forages and alfalfa or lucerne, with wheat grown in winter and spring, and maize grown in the summer. Small lands or gardens are planted with vegetables. However in the south, there are a lot of fruit tree plantations in Saranda with apples, cherry, plum, pear, fig, olive trees, oranges and vineyards. Mandarin oranges are a major crop in Xarra commune

In the low-lying areas of Xarra commune the total planted surfaces are dominated by oranges (40%) vegetables (35%) and forages (28%), (see Table 2-26). Almost all citrus is planned to come from Xarra.

Table 2-26: Aggregated Structure of Cropped Area within all Schemes versus Xarra I&D scheme

Crop Type	Overall Average (%)	Aggregated total cropped area All Schemes (hectares)	Xarra Planned (%)	Xarra Planned (Hectares)
Wheat	15%	12,567	0%	
Maize	10%	4,855	17.5%	4200
Potatoes	1%	463	2.5%	3600
Beans	3%	1,419	0%	
Tobacco	0%	20	0%	
Vegetables	6%	3,893	35%	4600
Forages	31%	13,884	28%	4200
Alfalfa	22%	11,949	0%	
Fruit trees	3%	698	0%	
Apples	1%	72	0%	
Pastures	2%	139	0%	
Olive tree	3%	2,395	3.5%	3400
Vineyards	2%	739	1.5%	3600
Oranges (citrus)	0%	14	40%	4500
TOTAL	**99.00%**	**53,107**	**128.00%**	**11500**

Source: Adapted from Mott MacDonald Feasibility Study – data collected by Regional Directorate of MARDWA, Drainage Board, Communes and Consultant

2.23.5 Crop Patterns and Crop Yields

Details of the Crop Patterns within the 13 irrigation schemes being investigated are shown in Table 2-27 below (Xarra I&D scheme is shaded in green). As the I&D schemes are in poor condition, the yield of the crops of cereals and green vegetables and green forages is around 30-50% less than what the maximum yield could be. This has caused the farmers to increase the use of wells to supplement their water supply for crop requirements.

Table 2-27: Current crop pattern and intensity within all Schemes

Crop Type	Vranisht 2	Tregtan 2	Tregtan 3	Kurjan and Strumi	Zharrez	Murriz Thana	Divjake	Duhanas	Belesova	Slanice	Leminot	Koshnica	Xarra
Wheat	13.2%	13.5%	12.2%	18.3%	21.2%	26.3%	5%	14.5%	11.3%	9.6%	19.3%	21.1%	0
Maize	9.9%	10.8%	15.9%	5.2%	9.3%	9.6%	3%	8.7%	13.8%	6.0%	9.7%	8.2%	17.5
Potatoes	1.6%	0.0%	1.2%	0.7%	2.0%	0.8%	6%	1.4%	0.3%	2.2%	5.0%	1.5%	2.5
Beans	2.6%	8.1%	1.2%	1.4%	1.3%	3.0%	4%	1.2%	1.8%	1.2%	2.9%	6.7%	0
Tobacco	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0
Vegetables	4.9%	8.1%	2.4%	2.8%	14.9%	8.6%	75%	4.3%	2.3%	6.0%	7.7%	4.3%	35
Forages	29.6%	29.7%	40.2%	36.0%	24.3%	23.3%	20%	25.4%	34.6%	35.4%	26.8%	26.1%	28
Alfalfa	26.3%	21.6%	22.0%	30.6%	21.2%	21.0%		20.3%	27.7%	27.7%	21.2%	21.1%	0
Fruit trees	7.6%	5.4%	3.2%	0.3%	0.3%	1.2%	7%	6.1%	1.3%	1.2%	3.9%	6.1%	0
Apples	2.3%	2.7%	1.2%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	1.5%	4.4%	0
Pastures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0
Olive tree	0.0%	0.0%	0.0%	3.7%	3.4%	4.8%	6.5%	14.5%	5.6%	6.7%	0.0%	0.0%	3.5
Vineyards	2.0%	0.0%	0.5%	0.8%	2.1%	1.5%		3.6%	1.4%	3.9%	1.9%	0.7%	1.5
Oranges	0.0%	0.0%	0.0%	0.1%	0.5%	0.0%	3%	0.0%	0.0%	0.0%	0.0%	0.0%	40
Cropping Intensity	**140%**	**132%**	**130%**	**65%**	**37%**	**98%**	**129.5%**	**125%**	**138%**	**130%**	**33%**	**78%**	**128%**

Source: Adapted from Mott MacDonald Feasibility Study

2.23.6 Crop water requirements

The current crop water requirements for the Xarra I&D schemes is shown in Table 2-28 below.

Table 2-28: Current crop water requirements in Xarra overall

Crop Type	Xarra Overall m³/ha	Xarra	
		Yield (Tonne/Ha)	Water m³/ha
Grure /Wheat			
Miser /Maize	4200	6	4200
Patate /Potatoes	3600	27	3600
Fasule/White beans			
Duhan/Tobacco			
Perime/Vegetable	4600	35	4600
Foragjere/Forage	4200	35	4200
Jonxhe/Alfalfa			
Peme/Fruit Trees			
Molle/Apples			
Livadhe/Pastures			
Ullinj/Olive trees	3400	4,7	3400
Hardhi /Vineyards	3600	20,4	3600
Agrume/Citrus	4500	45	4500

Source: Adapted from Mott MacDonald Feasibility Study

2.23.7 Pests and Crop Diseases

Among the diseases of agricultural plants and pests is found mainly:

- Potato blight - *Phytophthora infestans*
- Tomato/pepper/cucumber blight - *Phytophthora caspici*
- Grapevine mildew - *Plasmopora viticola*
- Fusarium Wilt affecting tomatoes
- Botrytis bunch rot – grey mould - *Botrytis Cinerea* – affecting fruit
- Olive scab/olive leaf spot or peacock spot - *Spilocea oleagina*

Pests include

- Various Lepidoptera (moths and butterflies)
- Plant louse and other aphids of the homopterous family *Psyllidae* (or *Chermidae*
- Wood louse or Woodlice form the suborder *Oniscidea* within the order *Isopoda*
- Chafer or beetles living on many plants and crops.

For animal diseases the one to mention in Xarra is pseudo - *pestis avium* (Poultry Plague) of chickens, *Coccidiosis* (Eimera sp.), Ovine Brucellosis (*brucella militensis*) etc.

No serious human illness passed from animals such as tuberculosis, bird flu etc. have been recorded in the commune.

2.24 Fertiliser and Pesticide Use

2.24.1 Fertilisers

There has been limited use of fertiliser since 1991 that has resulted in reduction of organic content, nitrogen, and potassium levels in the soil compared to 25 years ago. Wasteful cultivation practices and poor soil conservation practices have also caused soil degradation. Before 1990, an average of 150-160kg/ha of active matter (nitrogen, phosphate and potassium - NPK) and 8 tons/ha/year of organic manure was added to fertilise arable lands. After 1990 and with improved statistical data around 70-80kg/ha/year of NPK chemical fertiliser was used and 1.6 ton/ha/year of organic manure, a substantial reduction.

Principal fertilisers used are DAP, “nitrate” and Urea that are mainly sourced locally. Fertiliser application is haphazard and soil analysis have indicated that potassium fertiliser is required in some area and not used and

nitrogen is used on alfalfa crops, but this is not normally required. Nutrient applications are made in the main without any up to date knowledge of individual field fertility status.

The MARDWA Statistical Yearbook for 2010 provides details for given for the amount (kg) of Chemical Fertilisers used per farm, in the respective regions where I&D schemes are located. The current rates of usage per hectare in the I&D schemes are shown in Table 2-29 below (Xarra I&D scheme is shaded in green).

Table 2-29: Current Fertiliser usage per hectare in the I&D schemes

Scheme No.	Scheme Name	Actual irrigated Surface	Original command area	Planned Command Area	UREA usage (per ha)	Ammonium nitrate usage (per ha)	DAP usage (per ha)	Other (used)
		ha	*ha*	*ha*	*ton/ha*	*ton/ha*	*ton/ha*	*ton/ha*
1	Tregtan 3	155	315	260	0.0021	0.0042	0.002	0.0031
2	Tregtan 2	15	28	28	0.0393	0.0786	0.079	0.0589
3	Vranisht 2	50	217	217	0.0033	0.0066	0.003	0.0050
4	Duhanas	20	550	550	0.0295	0.0020	0.026	0.0020
5	Belesove	50	1,280	1,150	0.0172	0.0011	0.015	0.0011
6	Sllanica	20	300	260	0.1275	0.0085	0.111	0.0085
7	Leminoti	250	400	450	0.0200	0.0371	0.023	0.0000
8	Koshnica	0	850	850	0.0075	0.0139	0.009	0.0000
9	Kurjan-Strumi	3,000	5,430	5,000	0.0278	0.0216	0.020	0.0200
10	Zharreza	100	600	600	0.0503	0.0392	0.036	0.0364
11	Murriz-Thana	13,000	29,270	29,270	0.0143	0.0111	0.010	0.0103
12	Divjaka	2,000	3,000	3,000	0.0093	0.0073	0.007	0.0067
13	Xarra	2,000	2,500	3,000	0.0112	0.0088	0.008	0.0080

Applying the current rates of fertiliser use to actual current irrigated surface and to the original and planned command area (based on I&D scheme Feasibility Study) it is possible to calculate the amounts of fertilisers that are currently used and will be used in the future. This information is shown in Table 2-30 below.

Table 2-30:– Current and Future Fertiliser Usage (tons) for I&D schemes

					PRESENT DAY IRRIGATED SURFACE				ORIGINAL COMMAND AREA				PLANNED COMMAND AREA			
Scheme No.	Scheme Name	Actual Irrigated Surface	Original command area	Planned Command Area	UREA usage	Ammonium nitrate usage	DAP usage	Other Fertiliser used	UREA usage	Ammonium nitrate usage	DAP usage	Other Fertiliser used	UREA usage	Ammonium nitrate usage	DAP usage	Other Fertiliser used
		ha	*ha*	*ha*	*ton*	*ton*	*ton*	*ton*	*ton*	*ton*	*ton*	*ton*	*ton*	*ton*	*ton*	*ton*
1	Tregtan 3	155	315	260	0.32	0.65	0.32	0.49	0.66	1.32	0.66	0.99	0.54	1.09	0.54	0.82
2	Tregtan 2	15	28	28	0.59	1.18	1.18	0.88	1.10	2.20	2.20	1.65	1.10	2.20	2.20	1.65
3	Vranisht 2	50	217	217	0.17	0.33	0.17	0.25	0.72	1.44	0.72	1.08	0.72	1.44	0.72	1.08
4	Duhanas	20	550	550	0.59	0.04	0.51	0.04	16.20	1.08	14.04	1.08	16.20	1.08	14.04	1.08
5	Belesove	50	1,280	1,150	0.86	0.06	0.75	0.06	22.05	1.47	19.11	1.47	19.81	1.32	17.17	1.32
6	Sllanica	20	300	260	2.55	0.17	2.21	0.17	38.25	2.55	33.15	2.55	33.15	2.21	28.73	2.21
7	Leminoti	250	400	450	4.99	9.27	5.71	0.00	7.99	14.83	9.13	0.00	8.99	16.68	10.27	0.00
8	Koshnica	0	850	850	0.00	0.00	0.00	0.00	6.38	11.86	7.30	0.00	6.38	11.86	7.30	0.00
9	Kurjan-Strumi	3,000	5,430	5,000	83.27	64.76	60.14	60.14	150.71	117.22	108.85	108.85	138.78	107.94	100.23	100.23
10	Zharreza	100	600	600	5.03	3.92	3.64	3.64	30.20	23.49	21.81	21.81	30.20	23.49	21.81	21.81
11	Murriz-Thana	13,000	29,270	29,270	185.68	144.42	134.10	134.10	418.07	325.16	301.94	301.94	418.07	325.16	301.94	301.94
12	Divjaka	2,000	3,000	3,000	18.67	14.67	13.33	13.33	28.00	22.00	20.00	20.00	28.00	22.00	20.00	20.00
13	Xarra	2,000	2,500	3,000	22.40	17.60	16.00	16.00	28.00	22.00	20.00	20.00	33.60	26.40	24.00	24.00
		20,660	44,740	44,635	325.12	257.06	238.05	229.10	748.34	546.62	558.91	481.42	735.55	542.87	548.95	476.14

Therefore, after a review of Xarra, it is clear that fertiliser usage will increase by half from the present day conditions, which is due to an increase of the command area. Therefore, for Xarra, total Urea use will increase from 22.4 tons present day to 33.6 tons under planned I&D schemes. Ammonium nitrate will increase from 17.6 tons to 22 tons, DAP from 16 tons to 24 tons and other fertilisers from 16 tons to 24 tons. These increases assume an optimal use of fertiliser at present, which is most probably not the case. It is highly likely with improved irrigation that fertiliser use may increase per hectare as perceived incomes from agriculture increase. Details of the monitoring program are contained in Chapter 5 and most specifically in Table 5.1 (see line Ref # MON8). It is important that a complete baseline survey is implemented with urgency to ascertain

background levels of fertilizer within the drainage channels. This should then be followed with regular monitoring during the construction period and then in to the operation of the scheme.

2.24.2 Pesticides

A considerable range of crop protection chemicals are observed to be available; but the exact nature, target crops and methodology of usage is not known. In accordance with the requirements of World Bank O.P 4.09 – Safeguard on Pest Management is triggered and there is a requirement for an Integrated Pest Management Plan (IPMP) to be provided. This IPMP is provided as Annex 7 to this ESMP. The IPMP also contains two lists of the current pesticides (comprising insecticides, fungicides, herbicides etc.) "Allowed to be imported, traded and used in Albania" (List 1) and "Not allowed to be imported, but only to be traded and used in Albania" (List 2).

After rising slightly from 2008-2011, pesticide use has declined in recent years. The MARDWA Statistical Yearbook for 2010 provides details for given for the amount (kg) of pesticides from a national perspective. However, for 2010 there were more details provided on the amount of pesticides used per farm, in the respective regions where the I&D schemes are located. Taking this information, the rates of pesticide usage per hectare in the 13 I&D schemes are shown in Table 2-31 below and are significantly lower than they were 25 years ago (the Xarra I&D scheme is shown with green shading). Applying the current rates of pesticide use to actual current irrigated surface and to the original and planned command area (based on I&D scheme Feasibility Study) it is possible to calculate the amounts of pesticides that are currently used and will be used in the future.

Table 2-31: Current and Future Pesticide usage in the I&D schemes

Scheme No.	Scheme Name	Actual irrigated Surface	Original command area	Planned Command Area	Pesticides used/ha	Pesticides used Present day	Pesticides used Original	Pesticides used Planned
		ha	*ha*	*ha*	*ton/ha*	*ton*	*ton*	*ton*
1	**Tregtan 3**	155	315	260	0.0004	0.06	0.13	0.11
2	**Tregtan 2**	15	28	28	0.0079	0.12	0.22	0.22
3	**Vranisht 2**	50	217	217	0.0007	0.03	0.14	0.14
4	**Duhanas**	20	550	550	0.0047	0.09	2.59	2.59
5	**Belesove**	50	1,280	1,150	0.0028	0.14	3.53	3.17
6	**Slanica**	20	300	260	0.0204	0.41	6.12	5.30
7	**Leminoti**	250	400	450	0.0040	1.00	1.60	1.80
8	**Koshnica**	0	850	850	0.0015	0.00	1.28	1.28
9	**Kurjan-Strumi**	3,000	5,430	5,000	0.0032	9.71	17.58	16.19
10	**Zharreza**	100	600	600	0.0059	0.59	3.52	3.52
11	**Murriz-Thana**	13,000	29,270	29,270	0.0017	21.66	48.77	48.77
12	**Divjaka**	2,000	3,000	3,000	0.0013	2.67	4.00	4.00
13	**Xarra**	2,000	2,500	3,000	0.0016	3.20	4.00	4.80
		20,660	**44,740**	**44,635**		**39.69**	**93.49**	**91.90**

Source: Adapted from MARDWA 2010 Census

It is clear that pesticide usage will increase by half from the present day conditions, which is due to an increase of the command area. So for Xarra I&D scheme total pesticide use will increase from 3.2 tons present day to 4.8 tons under planned I&D schemes. In a similar manner to fertiliser, these increases assume an optimal use of pesticide at present, which is most probably not the case. It is highly likely with improved irrigation that pesticide use may increase per hectare as perceived incomes from agriculture increase.

Details of the monitoring program are contained in Chapter 5 and most specifically in Table 5.1. It is important that a complete baseline survey is implemented with urgency to ascertain background levels of pesticides within the drainage channels. This should be followed with regular monitoring during the construction period and then into the operation of the scheme.

2.25 Livestock

In the Xarra area livestock has more prominence than crops, with sheep accounting for around 80% of the bovine structure. In Xarra area the average dairy yield is 2200-¬3000 litre/head. The yield from goats and sheep is around 60-65 litre/head. In general, all the manure produced from these animals is used in the agricultural process as a crop fertiliser. The cattle are in small herds and there is no risk for nitrate run off. The breakdown of livestock is shown in *Table 2-32* below.

Table 2-32: Number of Livestock in Xarra I&D Scheme

Komunat Commune	Nr I familjeve No family	Kafshe gjithsej Total animals	No of Head of Livestock				Average per Family			
			Lope Cows	Dele Sheep	Dhi Goats	Dera Pigs	Lope Cows	Dele Sheep	Dhi Goats	Dera Pigs
Xarra	1800	22000	1200	18500	800	1500	0.66	10.2	0.44	0.83

2.26 Cultural Monuments

There are no cultural or archaeological sites of interest within the communes associated with Xarra I&D scheme that will be affected by the project. Butrint PA however is in very close proximity.

2.27 Roads

The condition of the roads in rural areas is a very important issue for the residents that live there. Many of the I&D schemes are located along very poor roads that are not maintained. The following Table 2-33 and Table 2-34 provide indications for the travelling times from Tirana, the capital, to the district centres and provides indications of the time and condition of the roads from the district centres to the villages/I&D schemes.

Table 2-33: Travelling time from Capital city to District centres

FROM			TO	ROAD DETAILS	
Capital City	Kms by road	Total minutes	Main/ District Centres	Road type	Condition
Tirana	112	82	Fier	Asphalt	Excellent
Tirana	270	260	Saranda	Asphalt	Excellent

Table 2-34: Travelling time from District centres to village/I&D scheme sites

FROM			TO	ROAD DETAILS	
Main/ District Centres	Kms by road	Total minutes	Commune/ Villages/ I&D scheme	Road type	Condition
Saranda	25	30	Xarra	Asphalt	fair

3 SUMMARY OF IMPACTS

Following on from Chapter 2 which provided a description of the Project area and the environmental and socio economic aspects, this chapter provides a summary of the impacts associated with the rehabilitation of the I&D scheme at Xarra. Not all of the environmental and socio economic factors are specifically impacted by the I&D scheme. Hence this chapter 3 only deals with issues that are. The chapter is divided into beneficial impacts and adverse impacts and is further subdivided into those that are temporary during the construction phase and those that are more permanent during the operation phase. More details of measures to enhance positive impacts and to avoid, reduce and appease adverse impacts are contained in the mitigation plan, which is included in the next chapter.

3.1 Beneficial Impacts

3.1.1 Temporary impacts during construction

The rehabilitation and development of the I&D scheme at Xarra will temporarily increase employment opportunities for the surrounding area and this will also assist in ensuring the sustainability of existing livelihoods during the rehabilitation works. Hence, the Project will slightly improve on a temporary basis household income and social-economic wellbeing of the community living within the communes that encompass the I&D scheme.

Following on from this, local people should be provided every opportunity to be employed in temporary work associated directly with the Xarra I&D. Such improvements will undoubtedly lead to knock on effects in terms of improvements to local shops and businesses in terms of turnover etc. The commencement of the construction work will also raise public awareness in relation to the I&D scheme.

3.1.2 More permanent impacts during operation

The new schemes are likely to improve agricultural productivity through provision of more reliable irrigation to existing I&D areas in the summer months due to more water supplies.

The current state of rural roads is a disincentive to farmers because of high transport costs, O&M costs and the length of time it takes farmers to reach markets and commercial centres. By improving the Xarra I&D scheme, it is likely that part of the commune access roads will be improved; some of the existing access roads to the I&D scheme are in a seriously dilapidated state. Hence, it is expected that with the road improvements, the farmers' travel time to markets and access to social services such as hospitals and schools, will be improved.

The I&D scheme also enables farmers to be provided more flexibility for crop diversification and crop intensification. With improved agricultural production and crop diversification, Albania will benefit from much improved food security, which is an important strategic issue for the country in the 21st Century.

With the I&D scheme in full swing, it is expected that volume of trade will increase and stimulate different commercial activities in the beneficiary areas. This will in turn lead to better prices for farm produce, as well as facilitate access to farm inputs and services, ultimately leading to increased agricultural productivity and positive impact on food security as already mentioned.

Hence, the project will have highly positive impacts considering the natural and human environment. On the latter, such impacts extend from local to regional and national scale. Improving the irrigation capability will cause direct positive impacts such as increasing community incomes, leading to improved standard of living on all related communities. Increasing water circulation will help also on reduction of stagnant water bodies, which are the main habitats for mosquitoes that have increased in recent years, (*Anopheles crucians*), and are a potential risk for human health-
Not only will the rehabilitated I&D schemes increase food production, but also giving chance for more trade activity and import of the agricultural production, which usually are very closed to bio-production, will help al-

so region related to the site under the study, to be developed. Inciting business in the area will help the local families to remain in their native region and it will help reverse the migration to the cities like Sarande etc., and maintain existing traditional values. Therefore, this project should be regarded as a substantial demographic and social development instrument.

To the other side, increasing the running water capabilities, reconstruction of irrigation canals, will help to restore typical and historical wildlife habitats, which are seriously reduced in the last 20 years. The project will help restore the main habitats of the lagoon, by furnishing the lagoon with potable/fresh water, thus maintaining the appropriate ratio between salt water coming from the sea and fresh waters discharged from the I&D channels. However, as several drains will discharge into the sea directly south of the Butrint Lagoon, there will also be a threat in respect to water quality from herbicides and pesticides. These are described in more details, together with the mitigation measures to be undertaken, in Chapter 4 of this Report and most specifically in Table 4.1. The main line references in Table 4.1 regarding this are:

- Ref PC 18 – Habitats and biodiversity"
- Ref "O 9 – Water quality"
- Ref "O 10 – Water pollution"
- Ref "O 11 - Agrochemical pollution" and
- Ref "O 18 – Pests, diseases, improper use of pesticides"

In addition the Integrated Pest Management Plan outlined in Annex 6 also contains important mitigation measures, most specifically Table 10.1.

As the I&D scheme is in an area of relatively high seismic hazard, increased seismic knowledge and safety from earthquakes will be made possible by the preparation of emergency response plans.

In terms of enhancement/preservation of local structures/landscapes, the Xarra site is only being rehabilitated and it already was an I&D scheme before. The development will likely lead to improved and regular O&M and with proper management, the resulting landscape can also provide some benefit in terms of scenic and amenity value. .

Finally, with improved irrigation comes more vegetation growth that ultimately can reduce soil erosion, which is a major concern in the Albanian River basin.

3.2 Adverse Impacts

3.2.1 Temporary impacts during construction

The rehabilitation of Xarra I&D scheme and the improvement of access roads could potentially have temporary impacts on public health associated with air and noise pollution, occupational health and safety and the disposal of solid, liquid and sanitary waste. The work on the Xarra I&D scheme is likely to cause a disturbance for the people living in the nearby vicinity, especially those living near to irrigation canals, drainage ditches and other sites that are scheduled for rehabilitation.

During the construction phase of the Project, potential negative impacts will also likely be associated with stripping of soil, loss of vegetation soil erosion on road cuts and fills and on stripped borrow areas. Other temporary impacts may be silting of roadside ditches and subsequent downstream sedimentation, noise, dust, risk of soil and water pollution due to spillage of toxic and hazardous materials generated by construction activities. None of these impacts is however expected to be large scale, significant and irreversible.

Most impacts are expected to be localized in relation to the places where construction works are carried out (principally the lining of the canals and the site works at the intake and pumping station etc.) which is on state

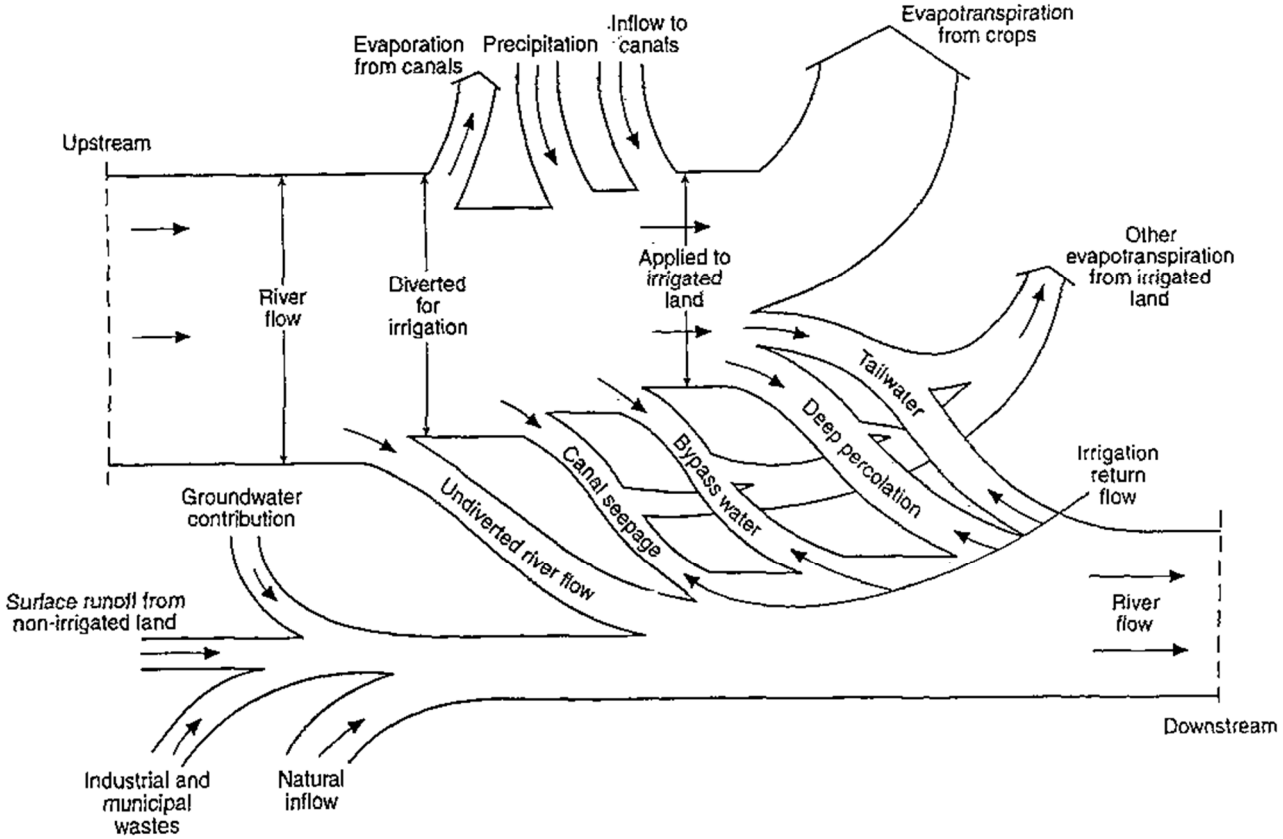
owned land. They are also limited in time by the length of the construction contracts. The civil works under the Project will follow the alignments of existing roads and rights-of-way, and no land take is anticipated.

Should there also be temporary loss of land for work camps and deviations, any communities inhabiting these areas will be compensated for loss of crop and other disturbance in accordance with the Bank's Involuntary Resettlement Policy and Albanian requirements.

3.2.2 More permanent impacts during operation

During the operation phase, the likely intensification of agriculture may increase risks of groundwater pollution related to the increased use of pesticides and fertilizers. Furthermore, there is a higher risk of surface water pollution to the Butrint Lagoon due to the increase water flow bringing higher levels of pesticides and fertiliser into the drainage channels from improved irrigation methods. Some of the drainage channels of the I&D scheme flow into the sea immediately to the south of the Butrint Lagoon. Due to this important fact, it is essential that awareness is raised with the farmers to correct pesticide and agro chemical use in line with the stipulations in the World Bank OP 4.09 and in accordance with the Albanian law and which is being progressively aligned to EU legislation. The Pesticide Management Plan contains further details (see Annex 7) and in particular Table 10.1, which contains further mitigation issues concerning pest and pesticide management.

The consumptive nature of irrigation on the local hydrological regime at Xarra will need to be harmonised between the different water users both upstream and downstream and facilitated by the BWA and BWC. This is especially important for Xarra as there are abstractions from the Janjari reservoir planned which is shared with other users. The ecology and uses from the river will have developed as a consequence of the existing regime (one of reduced irrigation flow due to the poor state of repair of the irrigation system). This may not be able to adapt easily to sudden major changes (such as increased irrigation flow). It is also important to recognize the interrelationship between the Butrint Lagoon, river flows and the water table. During high flow periods, recharge tends to occur through the river bed whereas groundwater often contributes to low flows (see *Figure 3-1*).



Source: After FAO

Figure 3-1: Conceptual diagram of I&D scheme interaction for a given reach of a river

Changes to the low flow regime that may result from hydropower operations may also have an adverse impact on downstream users. Minimum demands from both existing and potential future users need to be clearly identified and assessed in relation to current and future low flows, and as mentioned in the paragraph above need to be facilitated by the BWA and BWC.

With regard to public markets and associated agro-processing facilities, occupational health and safety issues, and poor solid waste disposal could likely induce negative environmental impact. No potential long-term and cumulative impacts are anticipated if the mitigation measures are well implemented.

Appropriate care and consideration needs to be taken by the stakeholders to minimise the loss of cultural heritage. The Xarra site is already a pre-existing I&D scheme and there are no culturally important sites (e.g. churches, graves) that will be affected by the rehabilitation works. In terms of archaeological chance finds, these would be dealt with in accordance with Albanian regulations and also in accordance with WB OP 4.11.

The reduced downstream river flow may reduce downstream flooding but may cause disappearance of ecologically and economically important wetlands or reduced availability of industrial, municipal, household, and drinking water etc.

Increased groundwater recharge stems from the unavoidable deep percolation losses occurring in the irrigation scheme. The lower the irrigation efficiency, the higher the losses. This may cause the following issues: rising water tables, increased storage of groundwater that may be used for irrigation, municipal, household and drinking water by pumping from wells, waterlogging and drainage problems in villages, agricultural lands, and along roads - with mostly negative consequences. The increased level of the water table can lead to reduced agricultural production. Shallow water tables - a sign that the aquifer is unable to cope with the groundwater recharge stemming from the deep percolation losses where water tables are shallow, the irrigation applications are reduced. As a result, the soil is no longer leached and soil salinity problems develop and close to surface stagnant water tables can increase the incidence of water-borne diseases

As drainage water moves through the soil profile it may dissolve nutrients (either fertilizer-based or naturally occurring) such as nitrates, leading to a build-up of those nutrients in the groundwater aquifer. High nitrate levels in drinking water can be harmful to humans, particularly infants

Owing to drainage of surface and groundwater in I&D scheme, the waters may be salinized and polluted by agricultural chemicals like pesticides and fertilizers, the quality of the river water below the I&D scheme can deteriorate, which makes it less fit for industrial, municipal and household use. It may lead to reduced public health. Furthermore, polluted river water entering the Adriatic Sea may adversely affect the ecology along the sea shore in the vicinity of Butrint Lagoon. Hence, the best way would be to control intensive pesticide and herbicide use in agricultural lands.
Ways to mitigate against this issue are mentioned in the next chapter 4, and most specifically in Table 4.1. The main line references in Table 4.1 regarding this are:

- Ref PC 18 – Habitats and biodiversity"
- Ref "O 9 – Water quality"
- Ref "O 10 – Water pollution"
- Ref "O 11 - Agrochemical pollution" and
- Ref "O 18 – Pests, diseases, improper use of pesticides"

Another issue remains abstraction of water from Janjari Reservoir to supplement the Pavlla River. The cumulative effect of this impact can only be measured after a detailed hydrological/ecological study.

4 DESCRIPTION OF MITIGATION MEASURES

4.1 Introduction

The mitigation and optimisation measures are presented in the following order:

- Measures that avoid impacts altogether
- Measures that partially avoid impacts altogether
- Measures that compensate for impacts and
- Measures that enhance already positive impacts

The mitigation measures and monitoring program appropriate proposals will be explained during the Public Consultation and Hearing process. The Consultant will also inform the community, stakeholders and administrative authority on the necessary requirements. The Consultant will also stress the need for gender considerations to apply to the Management Plan, considering findings and points of interest and suggestions from women's groups. In addition, the possibility of ARAPs in cases of accidents etc., has been considered in this mitigation plan. Broadly speaking, avoidance of impacts altogether is more preferable than reduction, which in turn is more preferable to reparation and compensation.

4.2 Measures avoiding impacts altogether

Health and safety hazards, especially during the construction phase, can be completely avoided with the provision of an adequate and clear health and safety working policy: This can be provided by incorporating the following measures into contractor tender documentation and upholding strict contractor supervision during the construction stage:

- Appointment of experience contractors that have a proven track record of good health and safety procedures.
- Incorporation of precise safety and environmental requirements into contract documentation.
- Adherence to all relevant laws, regulations and guidelines that are in force within Albania.
- Adherence to environmental, health and safety policies of the World Bank and full compliance with site-specific ESMP for Xarra (i.e. this document).
- Adequate capacity building amongst key stakeholders to emphasise the need for safety at work.
- Implementation and maintenance of effective speed control measures (for example; speed humps and semi sinuous roads) and clear signage can completely avoid on site/near site related accidents.
- Implementation of a complete ban on the use of asbestos in any building work on the Contract.

Breakdown in trust between stakeholders and the public can be avoided with full transparency shown by all stakeholders on all issues involved on the work activities. This can be assisted by:

- Public awareness campaigns focused on the local community informing of what is going on.
- Regular involvement of community liaison officers (that need to be adequately trained) concerning all matters that have impact on the public.
- Provision of an information centre established within the local area, which has permanent display of proposed development works and is dynamic so it can be regularly updated to chart progress. This facility could also have useful after use as an educational facility for schoolchildren visiting the development.

During the construction phase, erosion of exposed areas can be circumvented by employing a working policy that completely avoids such prone areas during adverse weather conditions.

Solid waste pollution is unsightly, pungent and a contaminating source of water supply and will be generated in large amounts especially during the construction phase due to contractor’s camps etc. Disposal of waste in accordance with WB Health and Safety Guidelines and Albanian legislation is a mandatory requirement. A

policy of regular refuse collection and disposal can completely avoid this impact from occurring. Furthermore, appropriate training of construction workers in proper methods of solid waste disposal will also prevent this impact from occurring.

The contractors will compensate any damage to private property from carelessness or from accidents.

Albania has a long archaeological history and this needs to be seriously considered at the Xarra site. In the event that there are archaeological chance finds at the sites of the rehabilitation works during the construction phase, then the Contractor will follow the procedures prescribed in the construction contract whereby he will be instructed by the Client to suspend work at that particular location on the site. The Contractor will then have to undertake necessary procedures advocated in the Albanian law by contacting the Regional Cultural Directorate, the Agency of Archaeological Service and in case of chance finds; the National Centre for Inventorisation of Cultural Assets, and also to proceed according to World Bank procedures as prescribed under paragraph 9 of WB OP 4.11 Physical and Cultural Resources.

4.3 Measures partially avoiding impacts altogether

Many of the potential impacts can be partially avoided by good tender document planning. A requirement of the tender should include the need for Contractor Method Statements for;

- any borrow pits and quarries, with details of location, working, closure etc.;
- spoil disposal with details of authorisation, location, placement, closure etc.;
- standard operating procedures for vehicle washing, refuelling, working in water, and emergency response plan
- A waste management plan

Measures for prevention of risks or problems due to design, construction and operation should be taken up in the pre-construction, construction and operation phase. The MARDWA and other stakeholders such as MoE etc. should closely monitor the proposed designs and closely monitor the construction phase, either directly or indirectly through a Consultant, by inspecting the Contractor in order to ensure appropriate construction quality. Regular inspections of operation should be done within the legislative measures and standards.

Mitigation from siltation will be undertaken through re-building sediment traps if possible or a sedimentation basin on the feeder canal and also maintaining the current policy of not operating the feeder canal at times when the turbidity of the river is high.

The risk of deteriorating surface and groundwater quality should be mitigated by strict control of intensive pesticide and herbicide use in agricultural lands at Xarra I&D scheme. This would be the most optimal way of ensuring improvements and would not increase design and construction costs. There needs to be agreement between the municipality and other stakeholders, including the Regional Directorate of Protected Areas (RDPA) (National Park are under state administration) and the National Agency for Protected Areas (NAPA) before starting the project implementation, by establishing a monitoring system for the water quality. This would be part of a monitoring system implemented by the National Environmental Agency, which can help to define how much the waters will be impacted (to be included at Monitoring Program too). This agreement (once consensus is reached) would be an obligation of the Xarra Municipalities in controlling pesticide/herbicide use upon the strict requirements set by the Butrint National Park Staff and NAPA consent. A detailed hydrological/ecological study should be undertaken, to ascertain if it will be ecologically acceptable to extract more water from Janjari Reservoir to the Pavlla River, and if confirmed as affirmative then by what amount. It will be important to define the minimum level (minimum ecological equilibrium) on which the Pavlla River can serve as a natural river. This level should be respected as the limit on water extraction in the river. After that, an agreement between the Municipality, WUA, etc. will be necessary with the National Environmental Agency providing permits and possible penalties for extraction of Pavlla River water for irrigation purposes.

In order to expedite this agreement, the following course of action should be undertaken:

- A letter should be prepared by MARDWA outlining the challenging issues associated with the Xarra scheme specifically concerning risk to pollution of Butrint Lagoon from increased use of pesticides and other agro chemicals and water extraction from Janjari reservoir into the Pavlla River.
- A separate project should be carried out on calculation of minimum ecological equilibrium of Pavlla River, and its predicted impact on water habitats and related biodiversity.
- A period of two months should be enough to define if it is ecologically possible to extract more water from Pavlla River and if yes - how much.
- A draft agreement outlining the details for consensus should be prepared. This should contain items such as mitigation measures and proposed monitoring to be adopted.
- This letter together with the draft agreement should be sent by MARDWA together with the ESMP in Albanian language to the stakeholders mentioned above (i.e. Municipality, NEA and RDPA).
- A period of 1 week should be provided for review of the documents,
- A meeting of all the stakeholders should then be convened to discuss the issues. An outline agenda for this meeting is as follows:

    - Introduction of the issues concerning Xarra and Pavlla
    - Outline of the proposed mitigation measures
    - Outline of the Monitoring program
    - Outline of the Pesticide Management Plan
    - Outline water extraction plan, if approved by hydrological/ecological study
    - Outline on the stakeholder responsibilities and staffing arrangement
    - Outline of the anticipated budget for mitigation and monitoring and funding sources.
    - Round table discussion on the draft agreement
- The agreement should be signed by all parties and distributed to concerned stakeholders.

It is thought likely that the timeline for achieving the above would be about one month, however this greatly depends upon the responsiveness of the stakeholders and the ease of reaching an agreement.

4.4 Measures that compensate for impacts

The Xarra I&D scheme occupies the same footprint as existed before; hence disturbance to land is considered to be minimal. The Feasibility Study does not indicate the site for the contractor's camp. Temporary loss of agricultural land for the construction camp is important public's concern. Proper provision of compensation to affected people in line with the Albanian Law is very significant and the Resettlement Policy Framework already prepared under WRIP will be particularly important documentation for this. Although the siting of the contractors camp is likely to be on state land, in the event that people are affected (e.g. farmers), then this should be the subject of a negotiated settlement between the affected person (farmer) and the Contractor, whereby the former has the choice not to rent such land.

In addition, some of the farmers may have been reliant on the Pavlla River down-stream for irrigated supplies of the Mursi reservoir and they may be affected with the new flow regime being employed. Such issues needs to be discussed with all stakeholders including the fishery to ensure there is no discord.

Damage to topsoil and erosion of exposed land areas can be prevented by stripping topsoil and storing for use in the post construction/operation phase. Efforts should be made to prevent silt from occurring and building up in the newly rehabilitated canals downstream of the reservoir. The Consultant recommends that improved soil management measures should be promoted by MARDWA in the southern basins of Albania which included the Pavlla River.

Existing data records including the most recent Red Lists of Albanian Flora and Fauna (2013), discussion with local leaders, NGOs/NPOs and Specialist from Tirana University combined with a general site review by the Consultant's environmental specialist around the Xarra I&D scheme have not indicated any endangered species that are present within the project area; thus confirming the fact that the Xarra site is a heavily modified area due to past human interventions.

Fishing in the reservoirs and in the surroundings of the I&D scheme is done for additional food and income to the families in the wider area and might be an activity that helps community cohesion and poverty alleviation. Furthermore, the fish are exploited commercially by a licenced company and hence the use of the dam water for irrigation needs to be harmonised with the commercial fishery with oversight from the BWA and BWC.

There is the Butrint lagoon downstream and near the Xarra I&D scheme so there in no need to consider compensation by protection and enhancement of remaining wetland area and similar wetlands in the wider areas.

The Xarra I&D scheme are in an area prone to earthquake activity it is important that an Emergency Response Plan (ERP) which includes an Emergency Evacuation Plan (EEP) is produced and all concerned officers with various stakeholder organisations have the necessary training to deal with such an event. Besides the ERP and EEP it is also important that the infrastructure to implement the plan is in place, including the installation of monitoring equipment, warning sirens etc.

Upgrading of the existing infrastructure (i.e. roads) associated with the rehabilitation development will enable maximum benefits to be obtained by local communities. This could be by upgrading recreation facilities and rehabilitating water supply and sewerage systems, landfills etc.

4.5 Measures that enhance already positive impacts

The Xarra I&D scheme is in a particularly scenic area, so there is scope for provision of recreational viewpoints (including toilet, picnicking facilities etc.), particularly at the Butrint Lagoon, that would enhance the views and improve the tourism potential of the area. However such developments are beyond the scope of the WRIP and are only mentioned for future consideration.

The rehabilitation construction of the I&D scheme and the limited spin off effects of subsidiary industry and employment will create a few potential job opportunities which is considered a positive effect for the area albeit a small one. Employment during the construction phase will only be relatively short term but there may be need for some permanent positions during the operational phase. Furthermore, priority needs to be given to employment of local personnel as much as possible to give inputs into the local economy and a “sense of purpose” for the local population. The economic benefits from the I&D scheme function should also be maximised in terms of flood control, irrigation, water supply, eco-tourism, water recreational activities (fishing, boating, hiking) etc.

4.6 Environmental and Social Mitigation Plan

The Environmental and Social Mitigation Plan – ESMiP for Xarra (in landscape format) is contained in *Table 4-1* below. The ESMP will form an important part of the contract between MARDWA and the I&D scheme rehabilitation contractor. The general and technical specification from the contractors bidding documents contain appropriate reference to this ESMP report. It is very important that they are referred to in parallel by the Contractor. Table 4.1 also provides cross references to related or semi related clauses from the Contractor's General and Particular Technical Specification. Hence, this ESMP is intended to show clear descriptions of the contractor’s obligations regarding mitigation measures to be performed during the pre-construction, construction and operational periods of the project development. The ESMiP also shows the responsibility for the other stakeholders during the pre-construction, construction and operational periods.

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
	Pre-Construction Phase					
	TENDER AND DESIGN MEASURES					
PC1	Agreement on the monitoring and mitigation responsibilities	• Without agreement of responsibility the scheme cannot progress.	• Convene meeting between MARDWA, Municipality, Regional Directorate of Protected Areas, NEA and other stakeholders and agree on timeline, staffing, responsibility, and funding sources for monitoring and mitigation.	• MARDWA • Municipality • RDPA • NAPA	• Agreement necessary before construction.	• meeting costs from stakeholder budgets
PC2	Hydrology and Habitats	• Loss of river flow and habitat in the Pavlla River due to irrigation use	• Undertake hydrological and ecological study of Pavlla River and Janjari Reservoir – to determine minimum ecological flow in Pavlla River that must be maintained throughout the year	• MARDWA • Municipality • RDPA • NAPA	• Results of study are needed before construction begins	• State budget or seek donor funding
PC3	Water quality monitoring	• Pollution surrounding water bodies	• Negotiate and sign a written agreement on monitoring in the Butrint Lagoon	• MARDWA • Municipality • RDPA • NAPA	• Agreement needs to be signed before construction	• costs of agreement from stakeholder budgets
PC4	Water quality	• Pollution of Butrint Lagoon with pesticides	• Negotiate and sign written agreement between National Park and Municipality on controlled use of pesticides.	• MARDWA • Municipality • RDPA • NAPA	• Agreement necessary before construction.	• meeting costs from stakeholder budgets
PC5	Execution of the Works	• Unsatisfactory working practices leading to negative impacts	• Contractors Method Statement for execution of the works to be approved by the Client (see below for more details)	• MARDWA	• during tender process	• Include in tender for contractors
PC6	Contractor's Camps	• Temporary loss of land and impacts of inadequate physical and social management of camps and workforce	• Use marginal state land wherever possible • • Require construction contractor to appoint part-time Community Relations Officer & establish a formal Social Responsibility system (tender documents) • Require full site restoration on completion of construction (tender documents) • Consider future permanent use of contractor's facilities	• MARDWA	• During tender process	• Include in tender for contractor
PC7	Construction access and traffic	• Unsafe access routes and construction traffic hazards • poor quality of access roads	• Repair and upgrade existing roads • In case of new roads: develop mandatory procedures for negotiating rights of way for temporary access as part of RAP	• MARDWA	• During tender process	• Include in tender for contractor

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
			• Require implementation of a comprehensive Traffic Management and Safe Driving Plan during construction (tender documents). • Coordinate with contractor that is planning to rehabilitate access road to dam • Prepare an emergency plan in case of accidents, health and safety emergency traffic solutions on community emergency possible needs • Prepare a comprehensive plan for the pedestrian accessibility in working sites			
PC8	Construction Materials	• Impact of borrow pits and quarries: land, health, Safety • Hazards from use of Asbestos • Procurement from environmentally & socially responsible suppliers	• Require necessary licenses in I&D scheme rehabilitation and associated works from experience contractors • Require Method Statements for borrow pits and quarries, with details of location, working, closure etc. (tender documents). • Ban Use of Asbestos	• MARDWA	• During tender process	• Include in tender for contractor
PC9	Spoil Disposal	• Improper disposal and treatment of spoil dumps	• Require Method Statements for spoil disposal with details of authorisation, location, placement, closure etc. (tender documents) • Analyse soil quality in specialized laboratories • Involve REA and municipality on process development and evaluation •	• MARDWA • REA • Municipality	• During tender process	• Include in tender for contractor •
PC10	Siltation	• Sedimentation and blockage of I&D canals and waterways	• Require Method Statement for design and construction of sand traps to prevent siltation and sedimentation in I&D canals	• MARDWA	• During tender process	• Include in tender for contractor
PC11	Waste Management and Pollution	• Improper disposal of solid and liquid wastes; spills & inadequate clean-up	• Require Waste Management Plan to be prepared by the Contractor and approved by the Client. • SOPs for vehicle washing, refuelling, working in water, and Emergency Response Plan etc. (tender documents).	• MARDWA	• During tender process	• Include in tender for contractor
PC12	Human	• Potential Health and Safety hazards:	• Incorporate safety and environmental requirements in contract documents.	• MARDWA	• During tender process	• Include in tender for contractor

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
	Health and Safety		• Provide information on mitigating safety and warning measures; • Capacity building to emphasis need for safe working environment, good supervision, etc. • Careful planning and scheduling of work activities, • Include provision for driving code of conduct in tender documents	• Regional Hygienic Directorate		
PC13	Cultural Heritage	• Loss of archaeological heritage	• Include chance find procedure in tender document	• MARDWA	• During tender process	• Include in tender for contractor
	SOCIAL – ECONOMIC FACTORS					
PC14	Human Health	• Potential Health and Safety hazards:	• Involve communities, • Public awareness campaign, • Fence hazardous areas. • Correct design and safety procedures, • Correct disposal of waste, •	• MARDWA •	• Prior to construction	• Include in tender for contractor • To be provided by Municipality and inhabitants
PC15	Health – (Noise)	• Potential noise disturbance from Construction works	• Pre-Preparation of noise barriers (earthen banks and trees) to absorb noise	• MARDWA	• After tender but prior to commencement of I&D rehabilitation works	• Include in tender for contractor
PC16	Health – (Lighting)	• Potential light disturbance in specific areas of settlement	• Pre-preparation of specific screened areas by installing light barriers around construction sites, worker camps, workshops etc.	• MARDWA	• Prior to commencement of I&D scheme rehabilitation construction.	• Include in tender for contractor
PC17	Land Use	• Disturbance of land use and economic activities.	• Develop abbreviated RAP and implement the ARAP • Use of public/state land areas as much as possible; • Appropriate care and consideration provided to affected people. • Provide for alternative or regulated irrigated supply (if necessary)	• MARDWA	• Try and solve as soon as possible after public consultations and granting of permission, especially before construction.	• Not able to ascertain yet
	ENVIRONMENTAL FACTORS					

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
PC18	Habitats and Biodiversity	• Risk for contamination and/or eutrophication by use of pesticides, herbicides and fertilizers. • Potential loss of species that may be important through lack of baseline data.	• Implement an ecological impact assessment that can clearly define the expected impact of Pavlla water River Habitats by water extraction. • Implement baseline monitoring to Albanian water quality standards • Apply traditional agriculture - Provide realistic agreements with relevant responsibilities, cooperation instruments, penalties etc., between PA Administrators and Municipality to control use of pesticides, herbicides and fertilizers • Undertake appropriate baseline biodiversity survey within the affected area and search for data, however the works are within the footprint of the existing I&D scheme, so it is unlikely that there will be major finds. • Prepare conservation plan for protected species that may be endangered, exterminated or permanently destroyed • Inform workers on the policies regarding hunting and poaching control and penalties	• MARDWA • MOE • NEA • NP Administrator/NEA • Municipality	• Prior to commencement of I&D scheme rehabilitation construction.	• Covered under WRIP
PC19	Climate Change	• Climate extremes affect project area	• Apply measures contained in the 2nd National Communication on Climate Change (NCCC) (found in Tables 4.7 and 4.8 of the 2nd NCCC including improved monitoring, plan for tree planting wherever possible, plan for low powered on site lighting using renewable sources, promote stakeholder awareness. • Determine EIA guidelines for evaluation.	• MARDWA • MOE	• Prior to commencement of rehabilitation construction.	• Any measures needed to be included in tender document.
PC20	Cultural Heritage	• Potential loss of pre-historic/ archaeological sites that may be important due to lack of baseline knowledge.	• Undertaken appropriate archaeological survey within the affected area to determine the initial state, however the works are primarily within the footprint of the existing I&D scheme, so it is unlikely that there will be major finds.	• MARDWA	• Prior to commencement of I&D scheme rehabilitation construction.	• Covered under WRIP
	Construction					
	SOCIAL – ECONOMIC FACTORS					
C1	Contractor's Camps	• Temporary loss of land and impacts of inadequate physical and social management of camps and workforce	• Apply best practice for site management including social aspects	• Contractor (ref Gen Specs clause 1.19 and	• Throughout I&D scheme rehabilitation construction.	• Include under works contract

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
			• If private land take is necessary, then Contractor must negotiate with affected persons (e.g. farmer) who has right to refuse to rent such land. • Remove all temporary facilities and restore land to original condition or better • Hand over any contractor's facilities in good condition	Particular specs clause 3 – Site organisation)	• At end of contract	
C2	Human Health	• Work related accidents during construction.	• Maintain strict health and safety regulations in compliance with Albanian law and WB Health and Safety Guidelines. • Provide regular information/signage on danger spots on site regarding mitigating safety and warning measures; • Continued capacity building to emphasis need for safe working environment, good supervision, • Careful planning and scheduling of work activities during construction phase. • Maintain regular contact with communities, • Introduce strict policy for all workers to wear safety equipment, hart hats etc. • Fence all working areas and prevent children playing and swimming in irrigation channels • Keep emergency first aid kit easily accessible at all times • Undertake correct disposal of waste water and solid waste,	• Contractor ref Gen Specs clause 1.19 and Particular specs clause 3 – Site organisation)	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C3	Health – Road Safety	• Road accidents exacerbated by construction traffic	• Implement and maintain effective speed control measures.	• Contractor ref Gen Specs clause 1.19 and Particular specs clause 3 – Site organisation)	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C4	Health – (Noise/ Vibration)	• Noise and vibration disturbance from Construction works.	• Limit construction times to daylight hours. • Fit covers to all powered mechanical equipment, generators, compressors etc.	• Contractor ref Gen Specs clause 1.19 and Particular specs	• Throughout I&D scheme rehabilitation construction.	• Include under works contract,

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
			• Keep public informed for on-site activities likely to cause disturbance (using local media)	clause 3 – Site organisation)		• Cover for generators ~Euro200/ unit
C5	Health – (Dust)	• Dust in the atmosphere caused by blasting, quarrying and construction traffic.	• Use dust suppression techniques (access road watering) throughout hours of construction • Prohibit burning of construction/waste materials on site	• Contractor(ref Gen Specs clause 1.15.2) and Particular Specs Clause 3)	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C6	Health – (Lighting)	• Potential light disturbance in specific areas of settlement	• Use non-intrusive lighting in operational areas as much as possible.	• Contractor ref Particular specs clause 3 – Site organisation	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C7	Infrastructure	• Unsightly and vacated buildings in construction zone which can cause danger (if relevant)	• Strict adherence to RAP prescribed activities and measures. • Demolish and clear all buildings designated to be in zone of construction in accordance with the appropriate law (probably unlikely) • Make appropriate use of recycling materials wherever possible (i.e. cables, pipe work etc.).	• Contractor ref Particular specs clause 3 – Site organisation	• During construction	• Include under works contract
C8	Use of Raw Materials	• Uncontrolled exploitation of natural resources	• Use raw materials from approved suppliers with valid licences issued by REA or Municipality	• Contractor (ref Gen Specs clause 2.7) • REA • Municipality	• During construction	• Include under works contract
C9	Public Relations	• Breakdown of trust between stakeholders and the public.	• Full transparency between stakeholders and the public on all activities. • Appropriate training of part time Public Relation Officers	• MARDWA • Contractor	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C10	Resettlement or land acquisition (if relevant)	• Poor communication on the resettlement process • Trauma and stress of local population in the resettlement process	• Preparation and implementation of RAP. • Provision of sufficient information to communities and ensuring the proactive participation of the affected population in the resettlement process (if necessary).	• MARDWA	• Prior to construction	• Training course for GoA officers ~USD5,000

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
		• Limited institutional capacity of responsible authorities	• Appropriate care and respect to the resettlement of affected people (many who may be infirmed or elderly) to reduce the traumatic experience of moving (if necessary). • Ensure the necessary institutional capacity of responsible authorities/stakeholders involved in the expropriation/compensation and resettlement affairs.			
C11	Employment	• Large amount of existing unemployment	• Maximise/ prioritise employment opportunities for local people in the areas of I&D scheme rehabilitation	• MARDWA with cooperation of the Contractor	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C12	Agricultural Disruption	• Disruption of crops and livestock production by construction activities	• Give farmers early warning of potential disruption • Provide for compensation to affected Farmers	• MARDWA with cooperation of the Contractor	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C13	Disruption of Access	• Disruption of existing access to I&D areas due to construction	• Build all roads to all weather standard • Construct additional pedestrian and livestock crossings as needs become apparent	• Contractor (Ref Gen specs clause 1.11) • Responsible Municipality	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
	ENVIRONMENTAL FACTORS					
C14	Fish	• Barriers to fish passage • Fish entrainment in canal system	• Ensure flows in perennial rivers and keep irrigation channels clear • Build all structures to comply with fish pass criteria (if on perennial river)	• Contractor • REA	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C15	Flora	• Loss of indigenous vegetation due to rehabilitation construction works.	• Develop nursery for indigenous plants so that there is a wider variety (in terms of maturity) of planting available for affected areas and areas designated for landscaping. • In collaboration with RDPA, replant / reintroduce some indigenous species at appropriate sites	• Contractor • NP administration • REA	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C16	Flora	• Introduction of Invasive Species	• Keep all construction equipment and vehicles clean and wash in safe location to prevent seed dispersal	• Contractor (ref Gen specs clause 1.11.3) • REA	• Throughout I&D scheme rehabilitation construction.	• Include under works contract

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
C17	Soils	• Damage to soil structure due to material storage, construction traffic, etc. • Loss of topsoil during excavation works. • Erosion due to uncontrolled surface run off and wastewater discharge:	• Protect non-construction areas, avoid work in sensitive areas during highly adverse conditions, restore damaged areas • Strip topsoil as necessary and store, replace/reuse post construction • Design drainage +disposal facilities to ensure soil stability.	• Contractor (ref particular Specs clause 6.7) • REA	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C18	Soils and Water Management	• Impact of vertisols (clay heave) on structures	• Construct all structures to resist heave	• Contractor (ref Gen Specs clause 3.7) • Municipality • REA	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C19	Land	• Damage to land during construction, landslides on embankments, hillsides etc. • Impacts from excavation for disposal of soil and other materials.	• Protect non-construction areas. • Design works to minimise land affected. • Design slopes to and retaining structures to minimise risks, provide appropriate drainage, soil stabilisation/vegetation cover.	• Contractor (ref Gen Specs clause 1.13)	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C20	Water Resources and Water Quality	• Interruption of surface drainage patterns during construction, creation of unsightly areas of standing water • Contamination/pollution by construction, human and animal waste, including fuel and oil spills, hazardous waste, wastewater etc.	• Undertake careful design, maintain natural drainage where possible, and provide suitable wastewater drainage, • Safe and sanitary disposal of any hazardous wastes. • Wash construction vehicles and machinery only in designated areas where runoff will not create pollution and set up sediment traps • Adequate protection from / control of livestock, agriculture, casual human contact, hazardous materials – fuel oil etc. (including suitable storage) • All oily waste to be collected separately	• Contractor (ref Gen Specs clause 3.7) • Municipality • REA	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C21	Sedimentation	• Sedimentation of I&D channels.	• Construction of small-scale weirs/sediment traps in the upper catchments to trap earth and sands caused by heavy rainfall and subsequent removal.	• Contractor ref Gen Specs clause 3.7.2	• Throughout I&D scheme rehabilitation construction.	• include under works contract

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
C22	Erosion and landslides	• Erosion in Command Area due to clearing/excavation operations	• Vegetate all soil surfaces exposed during construction at first opportunity • Use material for restoration of degraded areas • Provide slope protection through bank compaction rip rapping • Ensure irrigation infrastructure is designed to prevent erosion and gulley formation	• Contractor ref Gen Specs clause 3.7.2 • Municipality • REA	• Towards end of construction	• Include under works contract
C23	Air Quality	• Dust and fumes during construction/ rehabilitation activities	• Control dust with water spraying, control construction methods and plant, • Fit covers/tarpaulins to lorries • Schedule work during more socially amenable times. • Ensure all septic tanks/ latrines are hermetically sealed • Control vehicle speeds in surrounding/ residential areas. • Prohibit burning of construction/waste materials on site • Ensure local community is kept fully informed about the rehabilitation construction activities and blasting routines (if found necessary)	• Contractor(ref Gen Specs clause 1.15.2) • Municipality • REA	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C24	Acoustic Environment	• Noise disturbance from construction works and traffic (if near houses) • Also disturbance to animal	• Time work to minimise disturbance. • Appropriate construction methods + equipment with covers to generators • Restrict through traffic in residential areas. • Careful siting and/or design of long term construction plant, • Provide noise baffle barriers i.e. embankments, tree bands.	• Contractor (ref Particular Specs clause 2.6) • REA	• Throughout I&D scheme rehabilitation construction.	• Include under works contract • Generator cover around Euro 200/ unit
C25	Historical / Cultural Sites	• Disturbance or degradation to known cultural sites (considered unlikely)	• Careful siting alignment of construction/ rehabilitation works. • Special measures to protect known cultural resources	• Contractor • Regional Directorate of Culture	• Throughout I&D scheme rehabilitation construction.	• Include under works contract
C26	Cultural Heritage / Chance Finds	• Irretrievable loss of heavy damage to important artefacts and historical knowledge of the surrounding area	• Early screening by Directorate of Cultural Heritage and IoA • Record including photos and filming the details of the chance find	• Agency of Archaeological Services	• Throughout I&D scheme rehabilitation construction.	• To be determined can delay the works

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
			• Make modification to proposed works if the finds are not moveable	• Contractor • Municipality • National Center for Inventory of Cultural Assets		
C27	Cultural Heritage - Graves	• Disturbance of burial places within settlements affected. (unlikely)	• Appropriate consideration to graveyard (involving re-interment) that may be affected by the inundation. This is considered very unlikely as I&D schemes are existing facilities. • To be undertaken in a considerate manner with full discretion and respect to the affected families and relatives.	• Agency of Archaeological Services • Contractor • Municipality • National Center for Inventory of Cultural Assets	• Prior to construction	• To be determined
C28	Solid Waste	• Minimize disturbance from Solid Waste disposal • Prevent pollution to groundwater and animal health risk	• Mitigate and prevent against solid waste pollution during construction phase • Construction workers to be properly briefed regarding garbage disposal and protection of the environment. • Organise appropriate refuse collection and disposal regime • Stimulate a recycling policy for re-use of debris and other solid waste if appropriate from a technical point of view	• Contractor (ref Gen Spec clause 1.15 and Particular Spec clause 3.8 • REA • Municipality	• Throughout I&D scheme rehabilitation construction.	• Include under works contract • Waste management fee about Euro 70/yr • Bins about Euro 140 each x 14 • Septic tank about Euro 1500 each
	Completion /Operation Phase					
	SOCIAL – ECONOMIC FACTORS					
CO1	Economy	• Economic benefits due to I&D scheme function	• Increase potential for irrigation, flood control, water supply and corresponding communities enjoying an improved standard of living. • Also important to assess the potential for improved groundwater, surface water management (especially downstream) due to the altered flow regimes (if relevant)	• Municipality • MARDWA • MOE	• At the start of operation	• To be determined
CO2	Infrastructure	• Degradation of existing infrastructure in the area	• Improvement to ancillary infrastructure associated with irrigation to enable maximum benefit to be obtained from	• Municipality • MARDWA	• At the start of operation	• To be determined

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
			local communities and consequent improvement in the standard of living of the indigenous inhabitants by the constructing new roads, improved tourism, and a road network to camps for improved eco-tourism. • upgrading recreation and sanitation facilities such as water supply and sewerage systems, water service networks and landfills etc.	• MOE		• Upgrading of WSS services to be linked with existing GoA policy
O3	Benefits and Equity	• Inequitable distribution of benefits • Women not fairly represented	• Train women during operation for I&D roles • Ensure women are fully represented in WUAs • Undertake training and improve operational capacity of WUA and WUO organisation.	• Municipality • MARDWA • WUAs	• Throughout operation	• To be determined
O4	Constraints between users of water from Pavlla River and reservoirs	• Conflicts between users of Pavlla river and reservoir waters (irrigation board, hydropower administrators, fishery)	• Sign an agreement with the range of operations and their rights between main actors, where responsibilities and rights to be clearly defined). Main actors include Institute of Geosciences, Energy, Water and Environment, Faculty of Natural Sciences, Biological Department, University of Agriculture, etc. • Involve RBC and MOE to ensure water resources are managed in an equitable way.	• MARDWA • Regional Drainage Boards, RBC • Municipality • MOE	• Before starting the operation	• Not additional direct costs
O5	Social/ Recreational activities along the river	• Sudden inundation downstream due to unforeseen natural flood events	• Introduce flood warning system downstream of reservoirs	• Municipality • MARDWA • MOE	• At the start of operation	• To be determined but depends on the extent of habitation downstream.
O6	Damage of agricultural products	• Contamination of agricultural soils or soil degradation using inappropriate waters	• Interrupt irrigation in case of contamination • Control pollution sources • Ensure appropriate water quality for irrigation	• MARDWA • Municipality	• At the start of operation and in dry season	• To be determined by technical team
O7	Human Health	• Exposure of farmers and labourers to pesticide and other hazardous substances	• Provide training on the risks, hazards, safe practices for handling, storing, using and disposal of pesticides. • Provide training in sustainable pest management based on IPM approach	• MARDWA • MARDWA (QTTB training centres)	• Throughout operation	• To be determined

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
				• Regional Directorate of Public Health		
	ENVIRONMENTAL FACTORS					
O8	Biodiversity Flora and Fauna	• Loss of some fish spawning grounds and other aquatic fauna/flora due to low flow regimes	• Control of illegal gravel extraction and limited licensing for gravel extraction on perennial rivers • Integrating low flow release strategies into I&D schemes and operation protocols/management RBMP plans	• Drainage Boards • Irrigation operator • Environmental Inspectorate	• To be determined	• To be determined
O9	Water Quality	• Reduction in irrigation water quality (high salinity) • Water quality problems for downstream users. • Eutrophication due to excessive fertilizer	• Define and enforce irrigation return water quality levels (including monitoring) to ensure compliance with OP 4.09 • Grow crops with higher saline tolerance. • Build separate disposal channels for irrigated water. • Establish evaporation ponds to capture/contain pollutants	• MARDWA) • NEA • PA Administration • Municipality • Drainage Boards	• Throughout operation	• To be determined
O10	Water pollution	• Pollution to surrounding Lagoon in Butrint Protected Area	• Maintain strict collaboration between PA and Agricultural administrators in local and national level • Enforce strict control of pesticide and fertiliser use within the traditional agricultural areas of the I&D scheme	• MARDWA • NEA • RDPA • NAPA	• Throughout operation	• to be determined
O11	Agrochemical Pollution	• Contamination by pesticide use , and • Danger to farm animals	• Raise awareness and promote IPM approach, strengthen monitoring capacity • Raise awareness on the risks, hazards, and safe practices for handling, storing, using and disposal of pesticides, herbicides and fertilizers	• MARDWA • IPH • Environmental Inspectorate	• Throughout operation	• to be determined
O12	Sedimentation	• Sedimentation of I&D channels. • Risk of floods by blocking of control and off take gates followed by contamination	• Construction of small-scale weirs/sediment traps in the upper catchments to trap earth and sands caused by heavy rainfall and subsequent removal.	• MARDWA • Irrigation operators • Municipality	• Throughout operation	• To be determined

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
			• Periodically flush I&D channels with irrigation reservoir water sufficient to distribute sediments evenly downstream. • React in proper time in cases of water storm to clean and clear the possible sediments at control gate sites on drainage channels • Employ the right number of surveyors and operators for management and control and off take gates	• Environmental Inspectorate		
O13	Soils	• Erosion of top soil after construction	• Re-cultivated exposed surfaces (using native vegetation) immediately after completion of rehabilitation work. • Encourage soil deposits from excavation/ extraction works to be re-used in the vicinity of the works either for landscaping works by the Contractor or by local farmers, inhabitants, community etc.	• MARDWA • Irrigation operators • Environmental Regional Inspectorate	• During defects liability period • At the start of operation	• Under contract • To be determined
O14	Soils and Water Management	• Inefficient water use • Inadequate drainage	• Convert to alternative irrigation technology such as sprinkler or drip irrigation (both more expensive than gravity), but that exist in some locations already. • Prioritise drain maintenance by WUA • Implement water management measures upstream	• MARDWA • Irrigation operators • WUAs	• Throughout operation	• To be determined
O15	Soils, Salinity and Water Management	• Groundwater rise/fall • Secondary salinization • Disturbance to traditional groundwater supplies	• Convert to alternative irrigation technology such as sprinkler or drip irrigation (both more expensive than gravity), but that exist at some locations already. • Consider water fees based on volume instead of irrigated areas. • Apply acidifying fertilisers if salinization is non-sodic and leach with surface water • Enforce adequate drain maintenance by WUA • Apply good irrigation water management protocols and routines • Assess the water supply needs of poor/disadvantaged people	• MARDWA • Irrigation operators • WUAs • Environmental Regional Inspectorate	• Throughout operation	• To be determined

Table 4-1: Environmental and Social Mitigation Plan for I&D Scheme Rehabilitation

Ref #	Topic/ Indicator	Possible Impact	Mitigation Measures	Responsibility	Schedule	Cost
O16	Soils and Water Management	• Decline in soil fertility • Impact of vertisols (clay heave) on structures	• Research and develop cross specific fertiliser recommendations and provide easy access to inorganic fertilisers • Inspect and maintain all structures	• MARDWA • Irrigation operators • WUAs	• Throughout operation	• To be determined
O17	Erosion	• Erosion in command area and sedimentation from upstream	• Maintain vegetation on all soil surfaces originally exposed and re-vegetated by contractors • Promote use of erosion tolerant grasses (vetiver grass) • Ensure the main drainage channels are fully maintained • Ensure vegetation established around all new structures • Periodically flush out /dislodge sediment with irrigation reservoirs water.	• Irrigation operators • WUAs	• Throughout operation	• To be determined
O18	Pests, diseases improper use of pesticides	• Crop losses and contamination from pesticides • Impacts to non-target organisms (i.e. birds) natural predators for pests	• Promote organic agriculture • Target research on pest and diseases • Raise awareness to pesticides and promote IPM approaches • Introduce training in risks and hazards and safe practices for handling, storing, using and disposal of pesticides and also in sustainable pest management based upon an IPM approach. • Strengthen internal capacity for pest management • Improve monitoring and evaluation	• MARDWA • National food agency • QTTB training centre • Institute for Public health • Regional Directorate of Public Health • Environmental Inspectorate	• Throughout operation	• To be determined
O19	Fish	• Fish entrainment in canal system • Impact of water pollution on fish	• Ensure flows in rivers and keep irrigation channels clear • Use separate drains for irrigation return water	• Irrigation operators • WUAs • Environmental Inspectorate	• Throughout operation	• To be determined
O20	Livestock Husbandry	• Conflicts between livestock and arable farmers.	• Establish corridors between I&D fields and pasture	• Irrigation operators • WUAs	• Throughout operation	• To be determined

5 DESCRIPTION OF MONITORING PROGRAMME

In accordance with Albanian Law there is a requirement for monitoring programmes during the construction and operations of the Xarra I&D scheme rehabilitation works. Monitoring also allows the actual environmental effects of implementing the works to be tested against those predicted. It thus helps to ensure that any problems that arise during implementation, whether or not they were foreseen, can be identified and future predictions made more accurately. Follow up monitoring is used to answer questions such as:

- Were the assessment's predictions of environmental effects accurate?
- Is the plan or programme at Xarra contributing to the achievement of desired environmental objectives and targets?
- Are the mitigation measures at Xarra performing as well as expected?
- Are there any adverse environmental effects? Are these within acceptable limits, or is remedial action desirable?

In describing the envisaged monitoring programme the following six steps are envisaged to design an outline of an appropriate monitoring program:

- Step 1: What needs to be monitored at Xarra?
- Step 2: What sort of information is required?
- Step 3: What are the existing sources of monitoring information for Xarra?
- Step 4: Are there any gaps in the existing information, and how can they be filled?
- Step 5: What should be done if adverse effects are found at Xarra?
- Step 6: Who is responsible for the various monitoring activities, when should these be carried out, and what is the appropriate format for presenting the monitoring results?

Monitoring will also be integral to compiling baseline information for future plans and programmes. Monitoring and evaluation of progress towards objectives and targets can form a crucial part of the feedback mechanism. Feedback from the monitoring process helps to provide more relevant information that can be used to pinpoint specific performance issues and significant effects, and ultimately leads to more informed decision-making.

An Environmental and Social Monitoring Plan/Programme (ESMoP) for the Xarra site, which forms a section of the overall ESMP document, needs to be considered by the stakeholders within the surrounding communes. The ESMoP is subdivided into socio-economic and environmental issues, but as the monitoring indicators essentially remain the same during the pre-construction, construction and operational periods of the project development they are listed together and are assumed to be necessary during all three phases (see Table 5-1). As mentioned in previous chapters a monitoring program especially for surface and groundwater quality is considered to be essential for Xarra I&D scheme in order to establish the existing baseline conditions and then regularly undertaken moving forward during the operation phase of the I&D scheme. Monitoring of water is specifically referred to underline ref "MON8 Water Pollution" in Table 5.1. When monitoring is contractor responsibility, cross reference to the specific clause of contractor specification (particular and general specifications) has also been included.

The Consultant has also provided on the ESMoP the impact, parameter, indicator, monitoring methodology, frequency, and broad indications of responsibilities although more consultation between the different stakeholders will be required prior to implementation; and finally cost or indication where costs would be applied. Many of the costs are not shown at present as it needs to be confirmed with the relevant stakeholders at Xarra and nationally who are responsible during the preconstruction, construction and operational periods of the development; for example some monitoring can be covered within the existing contractor budget (covered under the WRIP), but it will need to be ascertained how monitoring will be extended beyond construction. Other monitoring can be covered under current national monitoring programs by the Albanian Government.

Monitoring and supervision arrangements should be agreed by the WB and the borrower to: ensure timely detection of conditions requiring remedial measures in keeping with good practice; furnish information and the progress and results of mitigation and institutional strengthening measures; and, assess compliance with national and Bank safeguard policies.

5.1 Organisation of Monitoring

The implementation of Xarra I&D scheme rehabilitation will need to be monitored responsibly and in accordance with the Albanian legislative requirements currently in force.

Current responsibility for monitoring of indicators is split between many different stakeholders and also at national and municipal level. The Municipality, the National Environmental Agency (NEA) and the REA, the RDPA and the NAPA in Albania will play a prominent role in the setup of the monitoring plan for this I&D scheme rehabilitation project. NAPA Administrator/NEA need to decide what elements of monitoring are the Xarra I&D scheme contractor's responsibility and those that should be integrated into the national monitoring program for environmental status. Annex 8 of the document provides further details on monitoring responsibility across the environmental sector.

As mentioned previously, ascertaining the baseline condition for surface and groundwater quality in close proximity and within the Butrint Lagoon is considered very important. Hence there is need for an agreement between the municipality and Regional Directorate of Protected Areas (RDPA) (National Park are under state administration) and NAPA, before starting the project implementation, by setting a monitoring system for water quality of Butrint Lagoon (at last to be part of monitoring system applied by NEA), which can help to define how much the waters will be impacted. This agreement will require the obligation of the Municipality to control pesticide/herbicide use, upon the requirements of Butrint National Park Staff and with NAPA consent. Details on the practical guidance of undertaking this agreement are contained in section 4.3 of this document. A very crucial point remains frequent monitoring of Pavlla River quantity during water extraction for irrigation purposes. A detailed hydrological/ecological study should be done, to show if it is ecologically acceptable to extract more water from the Pavlla River, and if yes, by what amount. There is need to define a minimum level of (minimum ecological equilibrium) on which the Pavlla River can serve as a natural river. This level should be respected as the limit of water extraction in the river. After that, an agreement between the municipality, WUA, etc. together with National Environmental Agency providing the necessary permits and possible penalties for extraction of Pavlla River water for irrigation purposes.

Table 5-1: Environmental and Social Monitoring Plan for Xarra

Ref #	Impact	Parameter	Indicators	Methodology	Frequency	Responsibility	Cost
	Construction Phase						
MON1	Air Pollution	• Fugitive dust and exhaust fumes	• NO_2, SO_2, CO, TSP and PM_{10}.	• Instrumentation equipment including dust gauges and hand held meters.	• Daily	• Contractor (ref Gen Specs clause 1.15.2) • Regional Environmental Inspectorate • Regional Directorate of hygiene	• Include in I&D rehab contractor cost • Estimate Euro 5,000
MON2	Noise Pollution	• High background levels >90dB	• Decibels (dB)	• Instrumentation equipment including noise hand held meters.	• Daily	• Contractor (ref Particular Specs clause 2.6) • Regional Environmental Inspectorate • Regional Directorate of hygiene	• Under I&D rehabilitation contract
MON3	Water Borne Diseases	• Disease prevalence	• Increased cases of water borne diseases	• Review of health records	• Quarterly	• MARDWA • PHI • Regional Directorate of hygiene	• GoA budget during operation
MON4	Safety Hazards	• Safety to Humans and Livestock	• Reported cases of incidences and accidents • Colour, turbidity and change in seepage chemical content	• Review and evaluation of incidents and accidents register • Direct observation of seepage water	• Continuous monitoring of leakages, seepages through instrumentation	• Contractor (ref Gen Specs clause 1.10) • MARDWA • Regional Directorate of hygiene	• Covered under WRIP up to construction • To be determined
MON5	Earthquakes	• Safety to Humans and Livestock	• Outputs from seismograph stations	• Instrumentation equipment including; Accelerograph, survey theodolite etc.	• Continuous monitoring through instrumentation	• Institute of Geology, Energy, Water and Environment	• To be determined
MON6	Economic Development	• Agricultural production from the Xarra irrigation scheme	• Crop tonnages	• Take from Regional INSTAT, INSTAT Albania in Tirana and MARDWA records	• Annual	• MARDWA • Municipality	• Covered under WRIP up to construction. • GoA budget during operation

Ref #	Impact	Parameter	Indicators	Methodology	Frequency	Responsibility	Cost
MON7	Economic Development	• Employment within the communes surrounding Xarra	• No of employed • No of unemployed	• Ascertain current levels and structure of employment in Project area	• Annual	• MARDWA • Municipality	• Covered under WRIP up to construction. • GoA budget during operation
MON8	Water Pollution to comply with ESMP ref PC2 and PC18	• Water Quality within Xarra reservoirs (Mursi) • Water Quality within the Pavlla River upstream a • Water quality in the Butrint Lagoon	• Nutrient Load (Nitrates, phosphates, potassium, pesticide residue, COD & BOD, Turbidity, etc. • Maximum permissible concentration in accordance with relevant legislation in force (e.g. STASH or EU Directives)	• Monthly to start with so that baseline can be established • Bi-Annually during wet and dry season (samples should be taken from the inlet and outlet points of the developed area and on the Pavlla River and Butrint Lagoon	• Monthly • Seasonally	• Contractor (ref Particular Specs clause 3.6) • Regional Environmental Inspectorate • National Environmental Agency	• GoA budget during operation
MON9	Soil erosion	• Soil cover loss	• Soil productivity, gulleys, water turbidity	• Observation	• Continuous	• MARDWA • Regional Environmental Inspectorate • Municipality	• GoA budget during operation
MON10	Soil Quality	• Soil cover loss	• Soil productivity, gulleys, water turbidity	• Observation	• Continuous	• MARDWA • Regional Environmental Agency • Regional Environmental Inspectorate	• GoA budget during operation
MON11	Flooding	• Area inundated	• Floods downstream of project area	• Observation and reported cases of flooding	• Continuous	• MARDWA • Municipality • Regional Environmental Agency	• GoA budget during operation
MON12	Water wastage	• Water availability	• Insufficient water amount for irrigation purposes, compares with volumes expected	• Install water meters	• Continuous	• MARDWA • Municipality • Regional Environmental Agency • Regional Environmental Inspectorate	• Covered under WRIP up to construction. • GoA budget during operation

Ref #	Impact	Parameter	Indicators	Methodology	Frequency	Responsibility	Cost
MON 13	Destruction of Pavlla river habitats and river water biodiversity deterioration	• Water quantity in Pavlla river downstream from the extraction point	• Insufficient water amount for the minimum ecological equilibrium	• Install water meters at extraction points	• Summer season	• MARDWA • Municipality • Regional Environmental Agency • Regional Environmental Inspectorate	• Covered under WRIP up to construction. • GoA budget during operation

6 INSTITUTIONAL ARRANGEMENTS - CAPACITY BUILDING

This section defined the responsibilities for mitigation and monitoring along with arrangements for information flow, especially for coordination between agencies responsible for mitigation. This section of the ESMP also indicates who is responsible for undertaking the mitigating and monitoring measures, e.g., for enforcement of remedial actions, monitoring of implementation, financing, and reporting.
The proposed WRIP responds to requests from MARDWA and DSDC, and integrates strategic support for IWRM and institutional support and investments in the rehabilitation of I&D scheme infrastructure, to be implemented by MARDWA. The WRIP is being undertaken using World Bank financing in the form of a loan.

The roles and responsibilities of different levels of government and stakeholders have been described in the ESFD. The institutional arrangements proposed for the successful mainstreaming of the environmental and social considerations are as follows:

- The MARDWA and MOE/NEA need to ensure that the dependant agricultural agencies and REA as well as Regional Environmental Inspectorate, have the necessary staff allocated for the project once the construction starts at Xarra I&D scheme and to ensure that the mitigation measures proposed within the Xarra ESMP are included in the Bidding document, including the Bill of Quantities, and that a specific budget is allocated for implementing the mitigation measures.
- The Xarra I&D scheme rehabilitation works will be built by contractors commissioned through a tender process. During the construction period and defects liability period, the contractor will be supervised, on behalf of the MARDWA, by a supervision engineering consultant.
- When the Xarra I&D scheme has been rehabilitated and the irrigations schemes have been commissioned the local Water Board will take over O&M on behalf of MARDWA.

6.1 Capacity Building

A key component of the success of the Xarra ESMP depends of effective capacity building of the MARDWA, the training of staff and all others stakeholder organisations (including social monitoring organisation) covering the Xarra area involved in the ESMP, which is planned under WRIP Component 2 Item B. This will also include the construction contractor responsible for rehabilitating the Xarra I&D scheme, and the supervision engineering consultant (SEC). It is proposed that these activities could be assisted by the implementation of technical assistance (TA) from outside consultants on an as required basis.

It is obvious that all those responsible for the management, implementation and operation of any aspect of the ESMP shall be adequately trained for their role. It is proposed that training records should be kept for all stakeholder employees, to provide evidence for auditing/inspection purposes. This is considered a very useful indicator of the overall project achievements.

Capacity Building can be considered for the following organizations:

6.2 Ministry of Agriculture, Rural Development and Water Administration

The MARDWA will reassign an environmental engineer to oversee the preparation, implementation and oversight of the ESMP and its associated sub plans (e.g. ESMiP and ESMoP) as the WRIP progresses and beyond, assisted by an independent environmental monitoring consultant (see below). MARDWA could consider utilising some of the allocated budget under WRIP Component 2 part B for this.
.
The MARDWA reassigned environmental engineer should be provided with enough technical and financial resources to complete this management role; external resources through TA may be required on occasions.
The capacity building requirement for the environmental engineer includes the following:

- Principles and procedures for environmental impact assessment;

- Fundamentals of environmental management;
- Compliance assessment, monitoring and follow-up;
- Environmental audits;
- Social impact assessment and public consultation; and
- Expertise in water quality testing and analysis).

6.2.1 Supervising Engineering Consultant

The SEC hired for the supervision of the Xarra rehabilitation must have environmental staff trained to ensure contractor compliance with ESMP requirements. Alternatively, the SEC can sub-contract this responsibility to adequately trained personnel on the approval of MARDWA. The requirements for the SECrole are as follows:

- Principles and procedures for environmental impact assessment;
- Fundamentals of environmental management;
- Compliance assessment, monitoring and follow-up;
- Air, soil and water sampling procedures;
- Construction impacts, including civil works, sediment and erosion control, soil handling and vegetation removal;
- Waste management;
- Fuel and hazardous materials management;
- Fundamentals of aquatic ecology;
- Construction camp management; and
- Auditing and follow-up

6.2.2 The Rehabilitation Construction Contractor

The rehabilitation construction contractor (RCC) for Xarra shall have environmental staff trained to ensure contractor and all subcontractor compliance with ESMP requirements. The RCC shall maintain all records for inspection by the MARDWA. The environmental requirements for the RCC are as follows:

- Fundamentals of environmental management;
- Compliance assessment, monitoring and follow-up;
- Air, soil and water sampling procedures;
- Construction impacts, including civil works, sediment and erosion control, soil handling and vegetation removal;
- Waste management;
- Fuel and hazardous materials management;
- Construction camp management;
- Community relations and public consultation procedures; and
- Auditing and follow-up.

6.2.3 Independent Environmental Monitoring Consultant

The Independent Environmental Monitoring Consultant (IEMC) contracted to oversee the rehabilitation should be well versed in the oversight and compliance assessment of the Xarra I&D scheme rehabilitation infrastructure projects, including the preparation of compliance reports and environmental sampling procedures, including the following:

- Principles and procedures for environmental impact assessment;
- Fundamentals of environmental management;
- Compliance assessment, monitoring and follow-up;
- Air, soil and water sampling procedures;

- Construction impacts, including civil works, sediment and erosion control, soil handling and vegetation removal;
- Waste management;
- Fuel and hazardous materials management;
- Construction camp management;
- Community relations and public consultation procedures; and
- Auditing and follow-up

6.2.4 Technical Assistance

In addition to capacity building, technical assistance (TA) using outside consultants has been included into the ESMP budget. TA could be full-time onsite within the MARDWA or include short visits by outside consultants to provide training seminars and workshops etc.

All costs for Xarra are estimated in Chapter 8.

7 IMPLEMENTATION PLAN - REPORTING PROCEDURES

7.1 Implementation Schedule

The timing, frequency and duration of mitigation measures and monitoring for Xarra should be included in an implementation schedule, showing phasing and coordination with procedures. After referring to the Updated Feasibility Study (FS) and most recently the Preliminary Design prepared by JV Consultant RENARDET et al, the maximum period planned for construction is no more than 24 months for Xarra.

Notwithstanding, it is important that the works at Xarra are carefully timed to ensure that they do not interfere with the ongoing agricultural livelihoods of the farmers, especially during the critical times when irrigation is necessary. There is a dilemma here however as work on the canals is best undertaken during the driest season when there is less water around, but this is likely to be the time when farmers need the irrigation canals to be operational. It therefore follows that weather is a significant consideration, especially with earthmoving works and should be avoided during the wetter months.

The existing FS and the preliminary design do not actually specify any date for start-up of the Xarra I&D scheme rehabilitation works, but they give indications of preferred months of operations due to the reasons outlined in the previous paragraph. In order to obtain an implementation schedule Figure 7-1 shows the current thinking on the Xarra I&D scheme rehabilitation construction works schedule and indicates that works for construction would commence in 2017. Of course such a schedule needs to be confirmed by the relevant stakeholders and MARDWA. It is assumed these issues will become more concrete after the detailed design has been made and the tender floated.

Figure 7-1: Construction Schedule- Xarra I&D Scheme Rehabilitation Project (taken from the FS)

	DESCRIPTION	MONTHS																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A	Site mobilization																								
B	Land acquisition																								
C	Weir and intake																								
D	Feeder channel (L = 4,700 m)																								
E	Bufi pumping station																								
F	Bufi canal lining (L = 12,100 m)																								
G	Xarre canals lining (L_tot = 42,873 m)																								
	Primary irrigation canals (L = 23,464 m)																								
	Secondary irrigation canals (L = 19,409 m)																								
H	Tests and commitioning																								

7.2 Reporting procedures

7.2.1 Construction

Ultimately, the Contractors for the Xarra I&D scheme construction rehabilitation, in accordance with the Contract provision, will be accountable for the implementation of the majority of the mitigation measures during the construction phase.

In the schedule of works, the Contractors must include all proposed mitigation measures, and the Supervising Engineers should also ensure that the schedules and monitoring plans are complied with. This will lend a sense of ownership to the Contractors. Diligence on the part of the Contractors and proper supervision during both the construction and defects liability period are crucial to the success of mitigating impacts. It is expected that all experts proposed for the implementation works will have appropriate certification and accreditation with the relevant Albanian Government departments and institutions.

The progress reports to be prepared by the Consultant will include data and information on health and safety (accidents and incidents), environmental protection (spill and non-compliance), labour (numbers, grades, problems), community relations (complaints, issues), and relevant training.

The supervision consultant will need to check the Xarra contractor's reports and forward them to the Employer (presumably MARDWA), including any additional records concerning implementation of the project's RAP and ESMP.

It is important that the Employer's, SEC and the Contractor's staff on the Xarra site establish and maintain effective communication links between each other and other stakeholders (i.e. the communes) to ensure easy two-way flow of information. This is best undertaken through formation of a committee comprising MARDWA representative (a PIU member), a local government representative and a member from the scheme (a farmer or another concerned individual). Such a committee needs to meet on a regular basis to be effective during the construction phase.

Table 7-1 below describes the proposed lines of communication for local residents, construction workers, employees and other project-related individuals with respect to filing grievances or incidences throughout the construction and operation of the rehabilitation projects. This proposed communication pathway can be fine-tuned once the Xarra construction project commences.

Table 7-1: Proposed Communication Pathway

Type of Stakeholder	Potential Interest / Concern	Means of Contact	Key Contact
Xarra Local residents directly affected by the development works and downstream users	• Adequate compensation package (financial assistance, etc.) • Disturbance from construction camp and associated activities (alcohol, environmental issues, etc.) • Loss of productive lands, fisheries, etc. • Access to community services (medical, education, telephone, market, etc.) • Maintenance of cultural heritage • Safety and security of local villages and communes • Information broadcasts on potential hazards (blasting, road closures, reduced river access, etc.)	• Complaints/concerns shall be communicated to local village leaders and then onwards to authorities through a grievance process. (Grievance Redress Mechanism that needs to be created). • Such complaints and concerns can be raised through a Committee comprising of concerned stakeholders (PIU/local government and I&D scheme representative • Information broadcasts and project updates shall be provided by the Contractor to local residents	To be discussed
Potential Employees	• Employment opportunities • Adequate accommodation/ subsistence provided • resources (food, water, etc.) and shelter • Competitive wages	• Recruitment of locals at the project site through word of mouth (give this priority) • Issues shall be conveyed to site foremen	Contractor
Government Stakeholders	• Persistent environmental and socio-economic impacts	• Monitoring committee comprising of agreed forum of members (for discussion)	To be discussed
Construction workers and camp sites	• Worker code of conduct • Social conflicts between local residents and workers • Behaviour issues (gambling, drunkenness, etc.)	• Weekly meetings with construction workers • Individual meeting with disorderly workers	Contractor

	• Environmental issues (exploitation of natural resources, etc.)		

7.2.2 Operation

Once the Xarra I&D scheme is operational, maintenance will be a key factor in protecting the environment. During this time, a large number of environmentally and socially related measures and programmes will be implemented, by different organisations. Reporting on these will be un-coordinated unless a single management organisation is established to manage and track all aspects of the project. In practical terms, this would be done most easily by the Regional Water Board and the Regional Environment Agency.

7.2.3 Reporting Plan

Reports shall be produced through the course of implementation of monitoring programs during the construction and operations phases of the Xarra project and will include such things as, collecting incident/ grievances forms, consulting with local residents and project-affected communes and auditing performance of existing programs/mitigation measures under the WRIP.

The MARDWA should provide the World Bank with report updates in line with the Project Appraisal Document and the IBRD Loan (Section II). Frequency of reporting to the World Bank will vary depending on the nature of the non-compliance and with the agreed monitoring schedule. Table 7-2 describes the types of reports that shall be produced and gives indications of the reporting responsibilities.

Table 7-2: Suggestions of External Reporting

Responsibility	Type of Report	Purpose of Reporting	Frequency of Submission	Submit to:
Contractor's HSE Officer	Accidents/ Incident Report	Filing/notification of accidents or unplanned events	Within 24 hours of the incident	MARDWA
	Non-compliance Report	Detail the cause, nature and effect of any environmental and/or socio-economic non-compliant act performed	Within one week of the event	MARDWA
	Monthly Compliance Report	Report to the Construction Engineering Consultant	Report of compliance and non-compliance measures on a monthly basis	MARDWA
Supervising Engineering Consultant	Daily Compliance Checklist	Checklist of environmental and social compliance of construction	Daily	Internal
	Monthly Compliance Report	Monthly report of compliance within 10 days of receipt of report from Contractor	Monthly	MARDWA
Independent Environmental Monitoring Consultant	EMP updates, including any changes in management or monitoring procedures	For approval prior to implementation	Prior to implementation	MARDWA
	Key changes in project activities that may trigger Environmental Approvals	Ensure compliance with environmental regulatory approvals	Prior to implementation	MARDWA

	Environmental monitoring reports	Notification of non-compliance with standard environmental guidelines and parameters	Dependent on environmental parameter: weekly, monthly, quarterly or annually (see Annex)	MARDWA NEA REA

8 COST ESTIMATES AND SOURCE OF FUNDS

8.1 Cost Estimates

The Xarra ESMP as well as the Updated Feasibility Study and the Preliminary Design have provided an indication of costs, both in terms of initial investments and recurring expenses for implementing all the measures defined in the Plan that can then be integrated into the total project costs and factored into financing negotiations.

Calculated costs for the initial implementation of the Xarra ESMP are presented below in Table 8-1. Costs have been defined on an initial set up basis and will be included where relevant into the Contractor's tender (those shaded in blue). It is proposed that MARDWA would revise these costs and develop annual operating costs for the Xarra ESMP on an annual basis.

Table 8-1: Preliminary Estimates of Xarra ESMP Costs

ESMP Components	Comments	Estimate Costs USD
ESMP mitigation measures to be built into Contractor's contract specifications	Based on a percentage of total construction costs	75,016
Supervising Engineering Consultant – environment – to be built into the Contractors contract	Based on a number of SEC Consultants working on the scheme for environment and on the contract duration	24,000
Environmental Quality Monitoring during Construction	Environmental quality monitoring based on sampling at start and end of construction and every 6 months during construction	4,000
Independent Environmental Monitoring during Operation	Based on 2 lots of monitoring each year (winter/summer) over 3 years at the established WQ monitoring points	4,800
Technical Assistance	1/13 of USD 75,000 (over 3 years of operation)	5,769
• Provision of outside consultants		
• Manual of functions and procedures		
• Assist in development of environmental database		
• Special issues – e.g. water quality		
• EMP protocols and procedures		
• Assist MARDWA reassigned environmental engineer		
• Assist in implementation of updated management plans		
• Contractor liaison		
• TORs		
Implementation of Pesticide Management Plan (See Separate Annex in ESMP)	1/13 of USD 96,500 (over 3 years of operation	7,423
TOTAL	**USD**	**121,008**

Overall I& D Scheme Construction Cost	USD3.750.781 USD 3,938,320 incl. 5% physical contingency
Percentage of Construction costs of ESMP Mitigation measures	2.0%
No of SEC Consultants working on the Scheme for Environment	1
Construction Time in months	24
No of WQ Monitoring Points within I&D scheme	2

As mitigating costs may occur at points during project implementation, construction or operations, indications of cash flow are provided but may need to change after stakeholder review. It is important to capture

all costs – including administrative, design and consultancy, and O&M costs – resulting from meetings that require changes to standards or modifications to project design.

Many of the measures in the Xarra ESMP relate to project planning and preparation, or are standard best practice during construction, as a management overhead. The Consultant has assumed that the ESMP measures would cost around 2% of the total construction costs for the I&D scheme rehabilitation.

It is further assumed that the SEC fees would be related to environmental monitoring and that the SEC contract would be provided from the construction costs. There would also be a separate cost for environmental quality monitoring.

In addition there would be a further sum for independent environmental monitoring over a three year period, training and technical assistance.

The total cost of the environmental and social mitigation and enhancement measures at Xarra including monitoring is estimated at **USD 121,008 over 3 years**. This total excludes:

- Any temporary land acquisition and compensation cost are to be detailed in the RAP for Xarra. If it is found that the I&D scheme including the pumping station cannot be rebuilt along the existing footprints of the schemes then this will involve substantially more work as new land would be required;
- Health measures and health monitoring - full details of these activities are to be developed by the appropriate health authority; a nominal sum of USD 1,000 has been included for health and safety during construction, as well as USD 1,000 for the public awareness campaigns during construction which are included in the above table.
- A number of measures identified as important for project success but which are not strictly environmental and social mitigation measures, including (a) capital investments, (b) enhanced support for Water User Association formation and operation, (c) agricultural and agronomic activities (research, extension and training, implementation of the necessary livestock, mechanisation and pest management plans, (d) contributions to regional initiatives i.e., fisheries (i.e. hatcheries), and (e) community development activities.

8.2 Source of Funds

Funds for paying for the activities associated with the Xarra I&D scheme rehabilitation will come from the World Bank WRIP Loan. As mentioned previously, the majority of the mitigation measures and most of the monitoring for the EMSP will be integrated within the contracts for I&D scheme rehabilitation. This implies that there is funding cover during the construction. It may also be possible to include some mitigation/ monitoring in the Defects Liability Period (DLP) that will extend for 12 months beyond the completion dates for the contracts.

The proposed mitigation measures and monitoring intended for the operational phase of the I&D schemes will be achieved by central government and local government collaboration and the source of funding will be from WRIP IBRD loan during construction and from the state budget and local government budget during the operation phase

The WRIP (Component 4 part B) provides for the establishment of a monitoring and evaluation system but only on key performance output and impact indicators.

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9 PUBLIC CONSULTATION AND PUBLIC HEARING

In accordance with the TOR and with MARDWA and World Bank policy, public consultations were organized by the Consultant in conjunction with MARDWA to inform the public of the planned developments, to fill in the gaps in information and to generally clarify ideas. The earlier report deliverable on stakeholder consultation had prepared the ground for these meetings by defining and classifiying focus groups, completing prepared questionnaires and realising many interviews across a broad spectrum of stakeholder groups for the I&D schemes.

For the organization of the public hearing for Xarra, initially were announced in the municipal authorities of Konispol and Administrative Unit of Xarra. On 22nd May the announcement of the intended meeting was made in the newspapers "Panorama" and "Sot News". Then, on 29th May 2017 in the territory of the administrative unit of Xarra notices were posted at municipal building informing the population for the purpose of the meeting, date, place and time. After the collection of the opinions of the community and other interested parties the Consultant experts together with MARDWA organized the Public Hearing in Mursi for Xarra I&D scheme. The meeting for Xarra was held on 31st May 2017 between 11:00 and 12:30 hours

The focus of the public hearing were to fully inform the community and any other interested parties and most importantly to ascertain stakeholder opinion on the environmental status and expected effects of the project, like pollution of in channels and reservoir, issues that can be generated by overusing of chemicals, sedimentation, risk of floods, solid and waste water management etc, as well as on the social issues like ways to way to incite community employment during construction and operation/maintenance procces, RAPs, almost for the rights of the owners or users, greviance mechanisms and complaints, the importance of inclusiveness of gender and the crucial role of woman, etc.

Before the public hearing was organized, the Consultant undertook a detailed campaign in the field, meeting with interested persons, focus groups such as farmers, ecologists, woman's organisations, students, elders and younger persons, etc. The Consultant explained the importance of the Public Hearing, the support they have from the WB and from the Albanian Governement, how the project will support their rights and their potential benefits, their ownership and the necessary activities that are required to meet with the WB policies and Albanian legislation.

During this campaign the Consultant had the full support from MARDWA and the Local Authorities. MARDWA and the Konsipol Municipality invited all interested groups to the meeting. This comprised environmental and agricultural experts, heads on administrative units of Konsipiol Municipality, heads of the affected villages and farmers, other rural inhabitants, Water Associations, Water Board, Environmental authorities of respective REAs, women groups etc. The Consultant also invited other parties such as environmental NGOs/NPOs, affected women households etc.

The public hearing process comprised several steps including:

1. Fixing public notices (announcements) in public places (notice boards) near to the Konsipol administrative unit buiding. These notices provided information on the focus of the meeting, the date, the place and the time of the meeting as well as the organising authorities etc.
2. Providing the announcements of the same details mentioned in (1) within the notices section of local newspapers"Panorama" and "Sot News", and
3. Providing the same details on the electronic web page of MARDWA related to public announcements.

The Consultant prepared a summarized report (approved by MARDWA and WB), to better orientate the participants and focus them on the objectives of the meeting. The Consultant also prepared in advance a “Power Point” Presentation, and presented it with the support of the Konsipol Municipality.

The meeting was well attended by interested parties (there were a total of 20 persons that signed the attendance sheet) and heads/representatives of affected villages, from the surrounding areas, by local and

national authorities, by rural inhabitants that are dealing with agriculture as well as by groups of farmers and women, etc.

The meeting was organized on 31st May 2017, and the participation was considered at a satisfactory level with good attendance. The meeting was opened by Administrator of Xarra, Mrs. Athina Pando, who noted the importance of reconstruction of irrigation schemes for rural area of Konispol Municipality, and the impact on social and economic life of farmers. She noted also that the rehabilitation works should not cause environmental and social problems.

Mrs. Elida Xhuveli, specialist of irrigation in MARDWA, informed the participants at the meeting on the extension of the Xarra scheme to be rehabilitated and the future development of other schemes.

Mr. Bardhyl Qilimi presented the summarised version of the ESMP for Xarra scheme focusing mainly on the positive and negative impacts on the environment, the procedures for resettlement if it will be necessary during the implementation of rehabilitation works etc.

The main outcomes from the public hearing was the following:

Mrs. Athina Pando. Unit administrative of Cukalat stated that the administrator of Xarra was responsible for solving any problems that may arise during the rehabilitation work of the scheme. She raised the concern of quality of rehabilitation work. The Administrator explained that the channel scheme is far from the inhabited area, so the risk of dust pollution is minimal

Mrs. Pando proposes that the technical project foresees the spillage of irrigation water to the sea as far as the Butrinti lagoon. Secondly, she proposes that the administrative unit be involved in the supervision of the works and finally she proposed the signing of an agreement with the construction firm for women's employment.

Mr Foto Kote. Specialist of agriculture, Municipality Konispol raised the concern of use of chemical fertilizers. This area has tradition in agriculture and there is a risk of excessive use of fertilizers. Consequently, there is concern that there will be pollution in the soil and agricultural crops during the irrigation process.

He proposed drafting an agreement between the Agriculture Directorate and Farmers for the use of fertilizers and pesticides.

Mr. Dhimo Kote from the Farmers association raised the concern of the employment of residents during the rehabilitation works of irrigation scheme. He stressed that there is no risk of sewage pollution in area of irrigation schemes.

He also demanded reparation if the construction firm would have damaged land or agricultural crops.

Mr. Kote proposed preparation of environmental action plan by the construction firm and secondly, preparation of an agreement between the participants in the project

Mr Vasil Xhai, a local farmer raised the concern of quality control of rehabilitation works. He asked that a resident's representation to be part of the work control. Poor quality of work can cause decay in the irrigation channels, flooding of roads, pollution and flooding of land, etc. impacts in the groundwater etc. Therefore he proposed community participation in the supervision of the rehabilitation works.

In the meeting discussed about these issues and Mr. Kristi Mello, farmer, Mr.Miho Buzuqi, Farmer and Mrs.Vasilika Cavo, specialist.

During the public hearing, the participants asked many questions regarding the scope of the Xarra scheme and the impact on the environment during the field work.

Mr. Bardhyl Qilimi explained to the participants on every issue that arose based on the ESMP. This included:

- The importance of the management of wastewaters and solid waste, to improve irrigation water quality and control contamination in sites with urban development,
- Better management of water use,
- Using sediment barriers in upstream of the channels and reservoirs
- Integration of woman in employment and training as important social and economic factors as well as crucial instruments on environmental protection,
- The coordinated role of National/Local authorities, associations and Boards for better use of irrigation water,
- Include local community and Municipality in supervison process of construction

Separate annexes from each Public Hearing conducted containing full details and documentation, will be included in the Public Consultation Report, which is a deliverable that the Consultant will provide upon completion of the ESMP and ARAP reports.

10 ANNEXES

10.1 Annex 1: Albanian Air Quality Standards for some pollutants

Based upon the DCM, Nr.803, dated 4.12.2003 "On air quality norms"

Criteria pollutant	Averaging time	Primary standards	Secondary standard
Carbon monoxide	24 hour average	2 mg/m^3	
	8 hour average	10 mg/m^3	
	1 hour average	40 mg/m^3	
Nitrogen dioxide	Annual (Arithmetic Mean)	60µg/m^3	Same as primary
	4 hour average		95 µg/m^3
	1 hour average	250 µg/m^3	
Sulphur dioxide	Annual (Arithmetic Mean)	60µg/m^3	35 µg/m^3
	24 hour average	120 µg/m^3	
	1 hour average		360 µg/m^3
Ozone	Annual (Arithmetic Mean)	none	65 µg/m^3
	8 hour average	120 µg/m^3	Same as primary
	1 hour average	230 µg/m^3	Same as primary
Particulate matter (PM10)	Annual (Arithmetic Mean)	60 µg/m^3	Same as primary
	24 hour average	150 µg/m^3	Same as primary
Particulate matter (PM2.5)	Annual (Arithmetic Mean)	15 µg/m^3	Same as primary
	24 hour average	66 µg/m^3	Same as primary
Lead	Annual (Arithmetic Mean)	1 µg/m^3	Same as primary
	24 hour average	1,5 µg/m^3	
Benzene	8 hour average	5 µg/m^3	Same as primary
Toluene	24 hour average	420 µg/m^3	Same as primary
Xilene	Annual (Arithmetic Mean)	1200 µg/m^3	none

10.2 Annex 2: Details on Butrint National Park

Location and History

Butrint Lagoon/lake is located in the south of Albania. Buthrotum (Albanian: *Butrint*; Latin: *Buthrōtum.* In modern times is an archaeological site in Sarandë District, Albania, some of 14 kilometres south of Sarandë and close to the Greek border. It is located on a hill overlooking the Vivari Channel and part of the Butrint National Park. Inhabited since prehistoric times, Buthrotum was a city of the Chaonians, South Ilirian Tribe, later a Roman colony and a bishopric. It entered into decline in Late Antiquity, before being abandoned during the Middle Ages after a major earthquake flooded most of the city.

Research and Protection

The first modern archaeological excavations began in 1928 when the government of Benito Mussolini's Italy sent an expedition to Buthrotum. The leader was an Italian archaeologist, Luigi Maria Ugolini. Ugolini died in 1936, but the excavations continued until 1943 and the Second World War. They uncovered the "Lion Gate" and the "Scaean Gate". After the communist government of Enver Hoxha took Albania over in 1944, Albanian archaeologists continued the researches. The Albanian Institute of Archaeology began larger scale excavations in the 1970s. Since 1993, further major excavations have taken place led by the Butrint Foundation in collaboration with the Albanian Institute of Archaeology. Recent excavations in the western defences of the city have revealed evidence of the continued use of the walls, implying the continuation of life in the town. The walls themselves certainly seem to have burnt down in the 9th century, but were subsequently repaired.

In 1992, Butrint were included in the UNESCO list of World Heritage Sites. UNESCO placed it on the List of World Heritage in Danger because of looting, lack of protection, management and conservation. Archaeological missions during 1994–9 uncovered further Illyrian cultures, Roman villas and an early Christian church. With the support of Albanian institutions, The Butrint Foundation, The World Bank and UNESCO the situation was improved to the point that UNESCO removed the site from the danger list by 2005. The National Park was also made a UNESCO World Heritage Site during these years as well as a Ramsar Site.

Archaeological riches

The sanctuary of Asclepius complex, founded in 4th century BC rises on a series of terraces from a paved area in front of the present theatre. The earliest Sanctuary comprised a temple to the God, a "stoa" (covered walkway) and a treasury to hold the offerings made to the god. By the 3rd century BC, the Sanctuary had been modified to include a theatre and a perisytyle building (probably a pilgrim's hostel). A "temenos" wall to define the precinct of the Sanctuary enclosed the complex. The theatre with its line of statues is another great archaeological and historical value. New aqueduct and bridge across the Vivary channel, walls, construction for public services, gymnasium, mosaics, fountains, villas, late Baptist decorations, city towers, passageways, water gates etc., Butrint Church and early fortification, lion gate, etc., make this ancient site one of the most important worldwide sites from historical and archaeological point of view. Nowadays the site has its own museum, where worldwide thousands of visitors are coming every year.

General Description of National Park

In the National Park of Butrint, an UNESCO archaeological and natural heritage site visited annually by more than 60.000 visitors, it is easy to identify many benefits due to diversity of wildlife of Butrint lake (especially in Vivari channel), the economic values gained by the usage of water resources for fisheries and those for tourism operators. The cultural values of archaeological site are combined with the richness of the lagoon creating a unique heritage, which should be carefully preserved. Overgrazing due to increasing number of livestock, weak performance of park Management Committee, and the pressure of tourism industry to build further Ksamili area were point out as the main risks threatening this park.

Photo 2: Butrint Amphitheatre, the biggest amphitheatre in the Balkans

The area around the antique town of Butrint in southern Albania is not only home to several globally threatened species, but also has a rich cultural history, justifying its designation as a UNESCO World Heritage site.

The wetland core of the area is Butrint Lagoon, a tectonic lagoon surrounded by forested hills, mountains, freshwaters and brackish marshes. It is sometimes called Butrint "Lake", due to its large surface and high depth (max 22 m; average 14 m). The lagoon has access to the sea through the natural channel of Vivari, which is up to 100 metres wide.

The National Park comprises a high diversity of natural, semi-natural and artificial habitats, such as freshwater marshes, reed beds, Mediterranean forests and maquis, arable lands and fruit tree terraces, as well as coastal waters with rocky and sandy coast, open halophytic lands, etc. These habitats shelter a high diversity of animals and plants, including species of global and regional concern, which make the Butrint area one of the most important areas for biodiversity in Albania.

From a historical and cultural perspective, the antique town of Butrint (the ancient Buthrotum), a famous archaeological site and an important coastal and port centre from the Hellenistic to Ottoman periods, is remarkable. The town was found to date back to the Neolithic period and traces of its centuries-long Roman domination remain intact.

The Butrint area has several statuses: the town of Butrint was first proclaimed as a Cultural Monument in 1948. In 1999, it was registered in the World Heritage list of UNESCO; in 2003 the wetland complex, including a part of the lagoon and the coastal area of Butrint – Stillo Cape – was proclaimed a Ramsar Site and a National Park (Category II of the IUCN Protected Area Management Categories).

The total surface of the protected area is 8591 hectares, of which 1600 hectares belong to the Butrint Lagoon. The area from Butrint to Stillo Cape represents the most southern coastal segment of Albania, close to the coastal border with Greece, approximately 285 kilometres from Tirana, the capital of Albania, and 20 kilometres south of Saranda, the closest Albanian city from Butrint.

Photo 3: View of the Butrint Lagoon

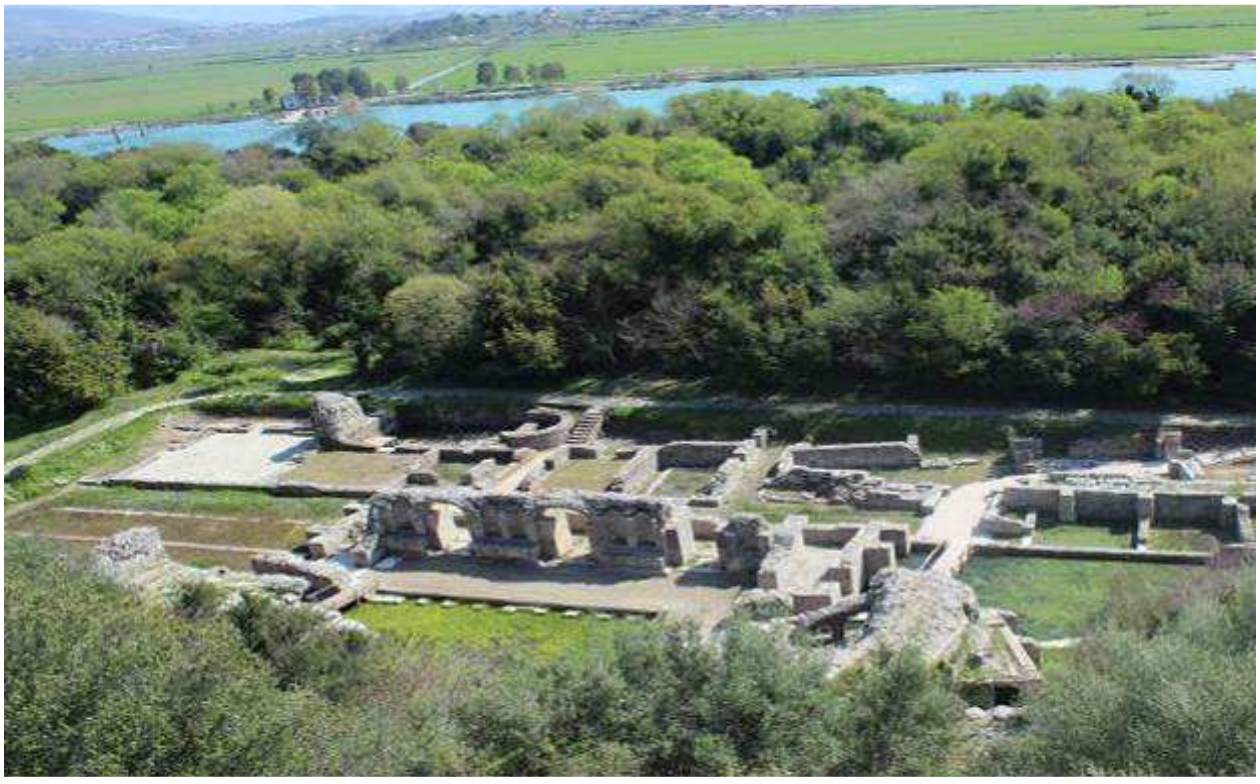

Photo 4: Archaeological ruins in Butrint National Park

Flora and fauna

The Butrint - Stillo Cape area shelters interesting animal species, some of them threatened or of biogeographical and economic value. About 33 animal species are of global conservation concern, 136 species are of European conservation concern and 109 species are of national conservation concern. Among the most important globally endangered species are the marginated tortoise (*Testudo marginata*), the Hermann's tortoise (*Testudo hermanni*), the loggerhead turtle (*Caretta caretta*), the white-tailed eagle (*Haliaetus albicilla*), the lesser kestrel (*Falco naumanni*), the Mediterranean horseshoe bat (*Rhinolophus euryale*) and the long-fingered bat (*Myotis capaccinni*).

Butrint National Park is one of the most diverse sites for mammals in Albania. Globally threatened mammals like the otter (*Lutra lutra*), the bottlenose dolphin (*Tursiops truncates*) and Bechstein's Bat (*Myotis bechsteinii)* have been recorded in the area.

For migrating birds, the Butrint area is an essential flyway stepping-stone between the Mediterranean/Adriatic/Ionian seas and the Sahara desert. It is nationally important for at least nine species of wintering water birds, sheltering more than 11% of the national population.

The area is equally significant for its richness in amphibian and reptile species, hosting about 67% of amphibians and 69% of reptiles of all of Albania. Species such as the Epirote frog (*Rana epirotica*), marginated tortoise (*Testudo marginata*), the sand boa (*Eryx jaculus*) and the Balkan wall lizard (*Podarcis taurica jonica*) are found in few places elsewhere in the country.

Due to the diversity of its aquatic habitats (freshwater, brackish, hypersaline and marine waters), a high diversity of fish species has been recorded in Butrint – Stillo Cape area. The 105 species of fish known in the area, among them mugilids (*Chelon labrosus and Mugil cephalus*), sparids (*Sparus aurata, Sparus pagrus, Sparus caeruleostictus*) and the European eel (*Aguilla anguilla*), represent one third of all Albanian fish species.

Benthic fauna of Butrint lagoon is poorly known. Butrint has long been famous and continues to be a suitable habitat for the growth of the blue mussel (*Mytilus galloprovincialis*). Mussels have been exploited since 1968, but their commercial cultivation started in 1970, with production reaching up to 5000 tons per year in 1990.

The flora of Butrint – Stillo Cape habitats is rich and diverse, with about 900 higher plant species. About 32 species of these are listed in the Albanian Red Data Book as having an unfavourable conservation status.
The Mediterranean forest inside the Archaeological Park is composed of more than 80 species of higher plants, with the wood layer dominated by elm (*Ulmus minor*), ash (*Fraxinus angustifolia*), common oak (*Quercus robur*) and white poplar (*Populus alba*); in some areas, laurel tree (*Laurus nobilis*) and holm (*Quercus ilex*) prevail. The brushwood layer is represented by species such as Wild blackberry (*Rubus ulmifolius*), Common hawthorn (*Crataegus monogyna*) and Silk vine (*Periploc graeca*).

The aquatic vegetation of the lagoon is very limited, with the bottom below 6 to 8 metres of depth being anaerobic and characterized by strong sedimentation of organisms in decomposition. In marine coastal waters, especially in the Stillo Cape area, there are well-developed seagrass meadows of Posidonia oceanic, and the northern part of the Butrint lagoon features reed beds, dominated by Phragmites communis and Typha angustifolia. Plants that are adapted to high salt concentrations are typical for the wetland area.

Threats
It is worth stressing that pollution of domestic or industrial origin in Butrint wetland system is very limited. There is relatively mild agricultural pollution through pesticides and fertilizers.

Ksamili, a village that gets over 25,000 summer tourists yearly, is situated on the coast, about 5 km to the north of Butrint, but it is not included in the protected area, with only minor tourism impacts on the coastal part of the protected area.

In 1959, the deviation of the main tributary of the lagoon, Bistrica River, reduced the surface of Butrint lagoon and its wetlands, also decreasing the freshwater input and resulting in an increase of mineralization. In 1990, a part of the Bistrica's water was returned to the northern part of the lagoon. Nevertheless, the lack of freshwater intake into the lagoon results in mild eutrophication with release of hydrogen sulphide, which is further

exacerbated by the continuous blockage of Vivari channel. During the hot summers, the hydrodynamic exchange reaches a minimum, decreasing the depth of the oxygenated layer (epilimnion) to sometimes no more than two meters.

Cultivation of the Blue Mussel *(Mytilus galloprovincialis*) does not have direct impact on the lagoon, as it is done in natural conditions, without using artificial food or other chemicals. However, the mussel harvesting activity has increased human presence and boat traffic in the lagoon.

Illegal fishing and hunting occurs sporadically in the lagoon and on the marine coast, but it has been limited in recent years, compared to the uncontrolled situation during 1992 – 2005.

In the marine coastal habitats, especially in the Stillo Cape, illegal collection of molluscs occurs sporadically, such as for the Date Mussel (*Lithophaga lithophaga*), the Warty Venus (*Venus verrucosa*), and for Limpets (*Patella*).

A fish farm established at Stillo Cape potentially may incite water eutrophication in that area

10.3 Annex 3: Population data

The population data from the prefecture that encompasses Xarra I&D scheme is shaded in green in the following tables.

Average Population by Sex and Prefecture

Prefecture	2010			2011			2012		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Albania	**2,913,019**	**1,457,661**	**1,455,358**	**2,904,776**	**1,455,073**	**1,449,703**	**2,900,487**	**1,455,904**	**1,444,583**
Berat	151,375	76,225	75,150	148,161	74,564	73,597	145,943	73,608	72,335
Dibër	146,134	74,283	71,851	142,491	72,535	69,956	139,619	71,276	68,344
Durrës	267,712	134,352	133,360	272,021	136,754	135,267	274,865	138,621	136,244
Elbasan	308,298	155,333	152,966	306,040	153,975	152,065	304,130	153,260	150,870
Fier	327,621	165,269	162,352	322,540	163,050	159,490	319,159	161,724	157,435
Gjirokastër	80,322	40,508	39,814	76,563	38,745	37,818	74,174	37,621	36,553
Korçë	232,040	116,826	115,214	228,794	115,562	113,232	226,805	114,782	112,024
Kukës	90,313	45,439	44,874	88,621	44,651	43,970	87,198	44,046	43,153
Lezhë	140,245	70,002	70,243	139,363	69,673	69,690	138,671	69,555	69,116
Shkodër	227,344	112,444	114,900	224,021	111,131	112,891	221,977	110,341	111,636
Tiranë	755,366	373,420	381,946	772,290	381,963	390,327	785,075	388,926	396,149
Vlorë	186,252	93,563	92,690	183,874	92,471	91,403	182,874	92,146	90,728

Average Population by Sex and Prefecture

Prefecture	2013			2014			Density /km² (2014)
	Total	Male	Female	Total	Male	Female	
Albania	**2,897,365**	**1,458,648**	**1,438,717**	**2,894,476**	**1,460,984**	**1,433,492**	**100.7**
Berat	145,167	73,436	71,731	143,888	73,003	70,886	80.0
Dibër	138,386	70,855	67,531	137,399	70,669	66,730	53.1
Durrës	275,338	139,274	136,065	275,698	139,804	135,895	359.9
Elbasan	302,974	153,134	149,840	302,112	153,331	148,782	94.4
Fier	317,951	161,591	156,360	316,406	161,200	155,206	167.4
Gjirokastër	73,592	37,437	36,155	72,879	37,113	35,766	25.3
Korçë	226,174	114,803	111,372	225,116	114,593	110,523	60.7
Kukës	86,514	43,831	42,683	85,967	43,696	42,271	36.2
Lezhë	138,282	69,568	68,714	137,514	69,456	68,058	84.9
Shkodër	221,347	110,362	110,986	219,879	109,833	110,047	61.7
Tiranë	788,730	391,920	396,810	794,658	395,718	398,940	481.0
Vlorë	182,914	92,441	90,473	182,963	92,572	90,391	67.6

Population Structure 2014

Prefecture	TOTAL			MALE			FEMALE		
	0-14	15-64	65+	0-14	15-64	65+	0-14	15-64	65+
Albania	**546,473**	**1,993,770**	**354,232**	**284,766**	**1,005,921**	**170,298**	**261,708**	**987,850**	**183,935**
Berat	27,568	98,660	17,660	14,308	50,164	8,530	13,260	48,495	9,130
Dibër	26,815	93,644	16,940	13,943	48,437	8,289	12,872	45,207	8,650
Durrës	50,571	191,604	33,523	26,958	96,642	16,204	23,614	94,962	17,319
Elbasan	58,156	206,819	37,137	30,098	105,291	17,941	28,058	101,528	19,196
Fier	60,790	216,745	38,871	31,624	110,726	18,850	29,166	106,019	20,021
Gjirokastër	13,859	50,090	8,929	7,255	25,529	4,329	6,605	24,561	4,600
Korça	43,326	154,123	27,667	22,499	78,687	13,407	20,827	75,435	14,261
Kukës	16,617	58,774	10,575	8,591	29,989	5,115	8,026	28,785	5,460
Lezhë	25,826	94,885	16,803	13,510	47,861	8,085	12,316	47,024	8,719
Shkodër	42,057	150,841	26,981	21,515	75,486	12,831	20,542	75,354	14,150
Tirana	146,791	551,046	96,821	76,514	273,249	45,956	70,278	277,797	50,865
Vlorë	34,097	126,540	22,326	17,953	63,858	10,761	16,144	62,682	11,565

Urban and Rural Population 2010-2014

Prefectures	2010			2011			2012		
	Total	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Albania	**2,913,018**	**1,541,308**	**1,371,710**	**2,904,776**	**1,564,138**	**1,340,638**	**2,900,486**	**1,595,699**	**1,304,787**
Berat	151,375	66,631	84,744	148,160	65,252	82,908	145,942	64,207	81,735
Dibër	146,135	36,709	109,426	142,491	36,373	106,118	139,619	36,209	103,410
Durrës	267,712	198,618	69,093	272,021	205,995	66,025	274,865	214,689	60,176
Elbasan	308,298	120,305	187,993	306,039	119,132	186,907	304,130	118,536	185,594
Fier	327,621	128,469	199,152	322,540	128,232	194,307	319,159	128,609	190,550
Gjirokastër	80,321	38,866	41,454	76,562	38,133	38,429	74,173	37,591	36,583
Korça	232,041	91,074	140,966	228,794	89,945	138,848	226,805	89,259	137,545
Kukës	90,313	29,604	60,709	88,620	29,690	58,930	87,198	29,920	57,278
Lezhë	140,244	73,891	66,353	139,363	76,657	62,706	138,671	79,915	58,755
Shkodër	227,342	98,728	128,614	224,021	98,454	125,567	221,977	98,663	123,314
Tirana	755,366	538,315	217,051	772,291	555,040	217,251	785,075	575,137	209,938
Vlorë	186,251	120,099	66,152	183,873	121,232	62,641	182,873	122,964	59,909

Prefectures	2013			2014		
	Urban	Rural	Urban	Rural	Urban	Rural
Albania	**2,897,365**	**1,633,617**	**1,263,748**	**2,894,476**	**1,653,100**	**1,241,376**
Berat	145,167	63,381	81,786	143,888	62,974	80,915
Dibër	138,386	36,158	102,228	137,399	36,134	101,265
Durrës	275,338	224,413	50,925	275,698	229,406	46,293
Elbasan	302,974	118,317	184,657	302,112	118,216	183,897
Fier	317,951	129,391	188,560	316,406	129,792	186,614
Gjirokastër	73,592	37,174	36,418	72,879	36,969	35,910
Korça	226,174	88,863	137,311	225,116	88,670	136,446
Kukës	86,514	30,245	56,269	85,967	30,409	55,558
Lezhë	138,282	83,562	54,720	137,514	85,435	52,080
Shkodër	221,347	99,192	122,156	219,879	99,463	120,416
Tirana	788,730	597,821	190,909	794,658	609,444	185,214
Vlorë	182,914	125,102	57,811	182,963	126,190	56,772

Population Projections 2011 – 2031

Prefecture	TOTAL PROJECTIONS					FEMALE PROJECTIONS					MALE PROJECTIONS				
	2011	2016	2021	2026	2031	2011	2016	2021	2026	2031	2011	2016	2021	2026	2031
Albania	**2,907,362**	**2,888,996**	**2,863,311**	**2,827,569**	**2,782,309**	**1,451,690**	**1,423,372**	**1,405,910**	**1,390,550**	**1,369,680**	**1,455,672**	**1,465,624**	**1,457,401**	**1,437,019**	**1,412,629**
Berat	149,672	138,625	129,354	121,017	113,370	74,392	67,241	62,158	58,047	54,201	75,280	71,384	67,196	62,970	59,169
Dibër	144,195	129,434	116,812	105,741	95,680	70,884	62,136	55,431	49,956	44,928	73,311	67,298	61,381	55,785	50,752
Durrës	269,784	275,017	278,305	279,954	279,796	134,370	134,462	135,119	135,793	135,596	135,414	140,555	143,186	144,161	144,200
Elbasan	306,939	290,680	276,326	263,059	250,275	152,512	142,305	134,650	128,278	122,001	154,427	148,375	141,676	134,781	128,274
Fier	324,864	308,070	293,223	279,070	265,633	160,767	148,353	139,672	132,579	125,714	164,097	159,717	153,551	146,491	139,919
Gjirokastër	78,405	70,532	64,136	58,478	53,508	38,753	34,433	31,256	28,594	26,235	39,652	36,099	32,880	29,884	27,273
Korça	230,261	224,872	217,996	210,114	201,976	114,001	110,111	106,662	103,231	99,548	116,260	114,761	111,334	106,883	102,428
Kukës	89,400	80,635	73,423	67,220	61,341	44,398	39,627	35,878	32,776	29,835	45,002	41,008	37,545	34,444	31,506
Lezhë	139,733	131,871	125,959	120,986	116,345	69,992	64,538	61,118	58,619	56,226	69,741	67,333	64,841	62,367	60,119
Shkodër	225,547	213,992	204,898	196,915	188,816	113,706	106,884	102,035	98,133	94,133	111,841	107,108	102,863	98,782	94,683
Tirana	763,560	833,088	888,786	932,349	965,108	385,921	419,058	446,941	469,902	487,430	377,639	414,030	441,845	462,447	477,678
Vlorë	185,002	192,180	194,093	192,666	190,461	91,994	94,224	94,990	94,642	93,833	93,008	97,956	99,103	98,024	96,628

10.4 Annex 4: Employment and Unemployment Data

The employment and unemployment data from the prefecture that encompasses Xarra I&D scheme is shaded in green in the following tables.

10.4.1 Employment

Employment - public administration

Prefectures	2010	2011	2012	2013	2014
Albania	**166,337**	**165,100**	**164,400**	**163,900**	**163,885**
Berat	8,527	8,409	8,413	8,347	8,295
Dibër	9,301	8,772	8,974	8,992	8,835
Durrës	12,915	12,995	12,473	11,754	11,700
Elbasan	13,521	14,035	13,783	13,703	13,599
Fier	14,285	13,658	14,561	13,636	13,596
Gjirokastër	6,283	5,939	5,802	5,801	5,721
Korça	10,501	10,113	9,773	9,823	9,682
Kukës	5,869	5,736	5,295	5,264	5,102
Lezhë	6,823	6,578	6,679	6,764	6,683
Shkodër	11,989	11,505	11,547	11,553	11,213
Tirana	55,676	57,052	57,070	58,079	59,444
Vlorë	10,647	10,308	10,029	10,184	10,015

Employment - non-agricultural sector

Prefectures	2010	2011	2012	2013	2014
Albania	**241,836**	**256,287**	**268,690**	**290,763**	**318,571**
Berat	6,699	6,853	7,827	8,275	8,828
Dibër	4,305	3,578	3,634	3,293	4,190
Durrës	23,166	31,414	33,680	36,825	38,000
Elbasan	13,426	13,399	13,685	13,845	13,990
Fier	16,754	16,092	16,159	16,424	17,671
Gjirokastër	5,715	6,315	3,500	4,030	4,936
Korça	12,351	12,422	12,790	12,650	12,685
Kukës	1,828	2,095	1,968	2,076	2,040
Lezhë	7,906	8,078	8,515	8,541	9,256
Shkodër	13,457	13,727	13,665	13,764	13,882
Tirana	119,428	124,389	135,341	153,014	173,360
Vlorë	16,801	17,924	17,928	18,024	19,732

Employment - agricultural private sector

Prefectures	2010	2011	2012	2013	2014
Albania	**491,361**	**526,412**	**526,260**	**462,253**	**442,883**
Berat	41,202	40,424	42,022	33,957	30,670
Dibër	37,376	39,410	38,114	42,462	34,344
Durrës	27,776	25,017	17,540	11,847	32,820
Elbasan	86,853	78,609	81,568	83,971	89,489
Fier	92,609	80,191	84,588	81,194	77,373
Gjirokastër	12,705	13,652	13,900	15,067	14,892
Korça	63,446	58,164	61,435	46,664	39,838
Kukës	12,998	21,864	20,335	17,065	21,738
Lezhë	27,846	36,682	35,599	24,592	17,440
Shkodër	36,103	38,498	37,378	38,962	38,229
Tirana	37,571	62,903	63,413	44,090	24,040
Vlorë	14,876	30,999	30,369	22,383	22,009

Employment - public local administration

Prefectures	2010	2011	2012	2013	2014
Albania	**13,785**	**13,941**	**14,684**	**14,988**	**15,065**
Berat	995	964	968	966	967
Dibër	645	704	678	682	688
Durrës	985	1,025	1,042	1,027	998
Elbasan	1,448	1,454	1,498	1,498	1,498
Fier	1,597	1,548	1,660	1,745	1,691
Gjirokastër	679	709	709	717	679
Korça	1,178	1,190	1,217	1,212	1,202
Kukës	831	828	897	897	897
Lezhë	775	777	873	873	873
Shkodër	1,157	1,154	1,191	1,191	1,191
Tirana	2,676	2,770	2,741	2,970	3,163
Vlorë	819	818	1,210	1,210	1,218

Employment - public local administration - communes

Prefectures	2010	2011	2012	2013	2014
Albania	**6,815**	**6,844**	**7,250**	**7,302**	**7,276**
Berat	515	471	480	486	487
Dibër	415	441	417	418	423
Durrës	352	344	374	365	377
Elbasan	766	765	779	779	779
Fier	932	903	950	1,047	1,024
Gjirokastër	409	395	402	410	408
Korça	703	687	727	727	712
Kukës	349	349	357	357	357
Lezhë	327	329	345	345	345
Shkodër	695	692	732	732	732
Tirana	1,033	1,146	1,123	1,072	1,062
Vlorë	319	322	564	564	570

Employment - public local administration - municipalities

Prefectures	2010	2011	2012	2013	2014
Albania	**5,542**	**5,583**	**5,890**	**6,144**	**6,281**
Berat	348	357	348	340	340
Dibër	160	176	174	177	178
Durrës	536	584	582	574	545
Elbasan	570	577	607	607	607
Fier	563	538	601	590	559
Gjirokastër	190	192	185	185	190
Korça	387	415	402	397	402
Kukës	365	362	368	368	368
Lezhë	320	320	403	403	403
Shkodër	321	321	320	320	320
Tirana	1,449	1,412	1,406	1,689	1,867
Vlorë	333	329	494	494	502

Employment - public local administration - prefectures

Prefectures	2010	2011	2012	2013	2014
Albania	**1,428**	**1,514**	**1,544**	**1,542**	**1,508**
Berat	132	136	140	140	140
Dibër	70	87	87	87	87
Durrës	97	97	86	88	76
Elbasan	112	112	112	112	112
Fier	102	107	109	108	108
Gjirokastër	80	122	122	122	81
Korça	88	88	88	88	88
Kukës	117	117	172	172	172
Lezhë	128	128	125	125	125
Shkodër	141	141	139	139	139
Vlorë	167	167	152	152	146

10.4.2 Unemployment

registered unemployed jobseekers 2014

Prefecture	total	female	youth 15-24	primary	upper 2ary general	upper 2ary vocational	Tertiary
Albania	**141,998**	**72,467**	**22,282**	**76,929**	**39,299**	**17,627**	**8,143**
Berat	6,140	3,049	605	3,290	1,433	1,231	186
Dibër	6,004	2,718	1,313	3,500	1,386	770	348
Durrës	9,734	4,650	1,590	5,386	2,590	1,021	737
Elbasan	16,308	7,774	2,797	9,032	5,263	1,773	241
Fier	16,755	9,485	2,767	8,445	3,678	3,337	1,296
Gjirokastër	4,820	2,395	638	2,367	1,603	408	441
Korça	9,929	5,144	1,104	5,583	2,548	1,204	594
Kukës	10,727	5,353	2,056	5,252	3,740	1,397	338
Lezhë	13,978	6,921	2,136	8,266	4,193	923	597
Shkodër	16,449	7,719	2,089	8,004	5,537	2,120	788
Tirana	21,675	12,229	3,514	12,589	4,769	2,724	1,594
Vlorë	9,479	5,029	1,673	5,216	2,560	720	983

registered unemployed jobseekers 2013

Prefecture	total	female	youth 15-24	primary	upper 2ary general	upper 2ary vocational	Tertiary
Albania	**142,648**	**73,696**	**22,318**	**77,759**	**41,243**	**17,690**	**5,956**
Berat	6,492	3,425	694	3,557	1,494	1,294	147
Dibër	6,416	2,959	1,330	3,872	1,539	814	192
Durrës	9,001	4,665	1,236	5,230	2,420	987	365
Elbasan	16,288	7,780	2,744	8,882	5,244	1,980	182
Fier	16,490	9,309	2,845	8,408	3,660	3,302	1,120
Gjirokastër	5,036	2,725	628	2,369	1,867	394	405
Korça	9,911	5,224	1,080	5,726	2,583	1,136	466
Kukës	11,210	5,530	2,175	5,425	4,085	1,431	269
Lezhë	15,317	7,612	2,434	9,151	4,622	927	618
Shkodër	18,901	8,910	2,799	8,103	7,603	2,570	625
Tirana	20,508	11,578	3,192	12,481	4,443	2,507	1,076
Vlorë	7,078	3,978	1,162	4,556	1,684	347	491

registered unemployed jobseekers 2012

Prefecture	total	female	youth 15-24	primary	upper 2ary general	upper 2ary vocational	Tertiary
Albania	**142,530**	**73,290**	**22,129**	**77,870**	**41,145**	**17,879**	**5,635**
Berat	6,694	3,530	726	3,544	1,630	1,351	170
Dibër	6,956	3,184	1,321	4,199	1,664	906	187
Durrës	8,876	4,722	1,318	5,072	2,363	1,014	428
Elbasan	16,174	7,726	2,663	8,741	5,203	2,012	218
Fier	16,124	8,767	2,584	8,173	3,765	3,205	981
Gjirokastër	5,068	2,833	596	2,357	1,916	370	425
Korça	9,260	4,922	1,013	5,352	2,446	1,026	436
Kukës	10,018	4,872	1,861	4,930	3,714	1,298	76
Lezhë	14,699	7,308	2,294	8,921	4,367	846	565
Shkodër	19,893	9,171	3,615	8,457	7,973	2,731	733
Tirana	21,819	12,369	3,082	13,097	4,839	2,805	1,079
Vlorë	6,950	3,885	1,055	5,027	1,269	317	337

registered unemployed jobseekers 2011

Prefecture	total	female	youth 15-24	primary	upper 2ary general	upper 2ary vocational	Tertiary
Albania	**142,484**	**72,943**	**23,569**	**77,750**	**41,459**	**18,100**	**5,176**
Berat	6,504	3,386	711	3,540	1,528	1,311	125
Dibër	7,319	3,456	1,412	4,416	1,864	930	109
Durrës	8,899	4,916	1,204	5,066	2,371	1,003	458
Elbasan	16,209	7,756	2,800	8,754	5,154	2,075	226
Fier	15,700	8,410	2,574	8,061	3,861	2,975	802
Gjirokastër	5,326	2,832	662	2,447	1,994	389	496
Korça	9,159	4,911	1,010	5,259	2,441	1,007	452
Kukës	9,457	4,570	1,713	4,614	3,561	1,246	37
Lezhë	14,233	6,970	3,107	8,801	4,175	792	465
Shkodër	21,166	9,590	4,551	8,965	8,404	3,004	792
Tirana	21,732	12,368	2,790	12,908	4,792	3,086	946
Vlorë	6,782	3,779	1,036	4,918	1,312	281	271

registered unemployed jobseekers 2010

Prefecture	total	female	youth 15-24	primary	upper 2ary general	upper 2ary vocational	Tertiary
Albania	**143,876**	**72,857**	**23,835**	**76,978**	**42,912**	**18,897**	**5,089**
Berat	6,557	3,395	772	3,561	1,628	1,237	131
Dibër	7,851	3,544	1,438	4,491	2,431	830	99
Durrës	8,980	4,940	1,150	5,089	2,445	1,013	433
Elbasan	16,382	7,816	3,029	8,942	4,991	2,221	228
Fier	16,258	8,503	2,820	8,269	4,271	2,978	740
Gjirokastër	5,328	2,924	609	2,424	1,889	527	488
Korça	9,432	4,612	984	5,263	2,563	1,116	490
Kukës	9,408	4,989	1,707	4,400	3,519	1,451	38
Lezhë	14,104	6,766	3,244	8,699	4,083	879	443
Shkodër	21,211	9,451	4,628	8,900	8,399	3,127	786
Tirana	21,599	12,151	2,546	12,548	5,014	3,096	941
Vlorë	6,765	3,766	909	4,392	1,681	421	272

registered jobseekers long term unemployment

Prefecture	2010	2011	2012	2013	2014
Albania	**89,269**	**88,768**	**86,975**	**87,276**	**82,133**
Berat	4,213	4,369	4,788	4,696	4,174
Dibër	4,569	4,006	3,403	3,018	2,570
Durrës	3,074	3,096	3,715	4,263	3,872
Elbasan	10,262	9,960	9,882	9,933	9,953
Fier	12,490	11,865	11,288	11,501	11,584
Gjirokastër	3,848	3,655	3,330	3,241	3,131
Korça	5,246	5,383	5,594	6,248	6,579
Kukës	2,360	2,607	2,595	2,990	3,472
Lezhë	9,074	9,420	9,798	9,775	8,275
Shkodër	15,812	15,700	14,512	13,807	11,077
Tirana	14,761	14,986	14,865	14,744	14,754
Vlorë	3,560	3,720	3,206	3,060	2,694

registered jobseekers long term unemployment - female

Prefecture	2010	2011	2012	2013	2014
Albania	**44,123**	**44,085**	**43,261**	**43,636**	**41,929**
Berat	2,143	2,246	2,440	2,386	2,105
Dibër	1,559	1,396	1,405	1,255	1,017
Durrës	1,660	1,650	1,769	1,687	1,656
Elbasan	4,698	4,598	4,556	4,550	4,568
Fier	6,494	6,231	6,101	6,368	6,381
Gjirokastër	2,234	2,086	1,843	1,714	1,639
Korça	2,801	2,882	2,995	3,276	3,436
Kukës	1,184	1,244	1,248	1,426	1,786
Lezhë	4,962	5,183	4,791	4,843	4,157
Shkodër	6,656	6,618	6,241	6,035	5,324
Tirana	7,896	8,007	8,202	8,472	8,386
Vlorë	1,836	1,943	1,671	1,625	1,476

registered jobseekers receiving unemployment -benefit

Prefecture	2010	2011	2012	2013	2014
Albania	**9,265**	**8,537**	**9,772**	**7,824**	**7,395**
Berat	260	301	412	223	313
Dibër	563	476	471	355	414
Durrës	701	630	708	530	398
Elbasan	818	846	974	793	785
Fier	294	360	562	315	315
Gjirokastër	233	220	299	216	200
Korça	939	757	885	850	625
Kukës	1,153	1,032	982	1,008	764
Lezhë	699	555	474	331	273
Shkodër	1,225	1,133	1,110	962	748
Tirana	1,957	1,867	2,420	1,942	2,200
Vlorë	423	361	476	299	361

registered jobseekers receiving unemployment -benefit - female

Prefecture	2010	2011	2012	2013	2014
Albania	**4,692**	**4,305**	**4,794**	**3,947**	**3,590**
Berat	113	126	183	109	132
Dibër	244	225	215	134	125
Durrës	417	345	357	267	203
Elbasan	382	396	443	357	343
Fier	154	152	195	143	139
Gjirokastër	154	136	182	117	92
Korça	577	453	505	457	298
Kukës	402	370	338	409	302
Lezhë	358	291	260	186	151
Shkodër	720	617	465	385	270
Tirana	1,006	1,061	1,465	1,283	1,418
Vlorë	165	133	186	100	117

average monthly wages in public sector ALL

Prefecture	2010	2011	2012	2013	2014
Albania	**44,376**	**46,665**	**50,092**	**51,250**	**53,025**
Berat	42,376	44,672	46,836	48,855	50,327
Dibër	43,158	45,245	48,612	50,090	52,126
Durrës	44,152	46,611	48,811	50,355	52,513
Elbasan	43,407	45,818	47,925	49,715	50,127
Fier	44,354	46,863	49,921	52,115	52,301
Gjirokastër	45,038	47,505	49,811	51,773	51,827
Korça	43,862	46,537	50,250	51,650	51,888
Kukës	47,430	49,946	48,850	50,252	52,293
Lezhë	41,223	44,061	46,153	47,651	49,141
Shkodër	44,761	47,033	49,500	51,544	51,911
Tirana	48,131	51,515	56,037	59,450	59,966
Vlorë	44,616	47,125	49,500	51,551	52,380

average number families benefiting social assistance

Prefecture	2010	2011	2012	2013	2014
Albania	**96,867**	**99,493**	**98,810**	**104,398**	**78,072**
Berat	5,340	5,084	4,562	4,527	2,882
Dibër	13,764	14,480	14,317	14,981	13,045
Durrës	1,439	1,438	1,402	1,403	1,116
Elbasan	12,626	13,445	13,616	14,458	10,277
Fier	3,966	4,187	4,190	4,547	3,411
Gjirokastër	2,154	2,466	2,577	2,898	2,000
Korça	9,674	10,463	9,417	10,258	8,248
Kukës	11,419	11,674	12,327	12,842	10,611
Lezhë	7,967	7,610	7,159	7,423	5,932
Shkodër	15,585	15,536	15,375	15,401	11,982
Tirana	11,069	11,274	12,073	13,656	7,055
Vlorë	1,865	1,838	1,796	2,004	1,513

average monthly social assistance fund by prefectures 000 ALL

Prefecture	2010	2011	2012	2013	2014
Albania	**334,437**	**362,579**	**360,921**	**387,987**	**297,447**
Berat	17,339	16,889	14,394	14,225	10,270
Dibër	48,067	54,863	51,473	54,851	47,328
Durrës	5,638	5,770	5,315	5,264	5,026
Elbasan	39,509	41,979	43,170	44,962	36,920
Fier	13,825	14,793	15,045	15,865	10,735
Gjirokastër	8,074	9,556	8,898	9,351	6,555
Korça	25,930	29,877	28,319	28,398	25,503
Kukës	44,126	46,618	47,786	53,227	43,487
Lezhë	31,378	30,727	28,447	28,266	23,969
Shkodër	57,859	58,317	62,672	61,949	47,638
Tirana	36,149	45,894	49,172	64,670	34,282
Vlorë	6,544	7,295	6,230	6,960	5,733

10.5 Annex 5: Education Data by Prefecture

The education data from the prefecture that encompasses Xarra I&D scheme is shaded in green in the following tables.

Schools of Basic Education

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Urban	Total	Urban	Total	Urban	Total	Urban	Total	Urban
Albania	**1,600**	**452**	**1,496**	**445**	**1,473**	**435**	**1,472**	**434**	**1,464**	**434**
Berat	103	26	97	25	94	25	94	25	94	25
Dibër	97	13	98	12	98	12	97	12	97	11
Durrës	113	45	107	46	105	43	105	43	105	43
Elbasan	219	36	213	34	197	34	198	34	198	35
Fier	176	46	170	47	172	46	171	45	169	44
Gjirokastër	61	15	48	14	47	14	47	14	46	13
Korça	131	28	127	27	127	27	125	25	125	26
Kukës	105	9	83	10	82	9	82	9	83	10
Lezhë	84	23	76	22	77	21	79	23	80	23
Shkodër	147	36	136	37	136	37	138	38	137	40
Tirana	248	136	238	132	239	127	235	126	230	123
Vlorë	116	39	103	39	99	40	101	40	100	41

No Teachers in Schools basic education

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Urban	Total	Urban	Total	Urban	Total	Urban	Total	Urban
Albania	**27,241**	**11,965**	**25,973**	**11,544**	**25,584**	**11,291**	**25,263**	**11,146**	**25,051**	**11,069**
Berat	1,464	610	1,424	574	1,388	553	1,317	501	1,343	534
Dibër	1,750	410	1,581	358	1,556	361	1,528	353	1,510	341
Durrës	2,267	1,207	2,171	1,188	2,119	1,125	2,084	1,108	2,031	1,091
Elbasan	3,221	980	3,071	960	2,991	906	2,979	924	2,984	941
Fier	3,196	1,056	3,008	1,045	2,984	1,026	2,979	1,038	2,924	994
Gjirokastër	911	405	897	394	860	373	867	385	863	392
Korça	2,015	657	2,118	707	2,042	709	2,000	675	1,977	675
Kukës	1,252	309	1,132	294	1,115	281	1,104	279	1,115	289
Lezhë	1,476	547	1,335	520	1,289	509	1,271	506	1,241	488
Shkodër	2,463	1,049	2,321	1,003	2,278	979	2,296	991	2,266	967
Tirana	5,474	3,736	5,273	3,558	5,329	3,532	5,257	3,476	5,219	3,450
Vlorë	1,752	999	1,642	943	1,633	937	1,581	910	1,578	907

Pupils Enrolled Basic Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**439,995**	**211,142**	**420,684**	**201,046**	**403,704**	**192,146**	**390,837**	**185,387**	**377,074**	**178,604**
Berat	21,703	10,529	20,382	9,839	19,466	9,379	18,740	9,002	18,000	8,639
Dibër	26,830	12,908	25,166	12,054	23,725	11,232	22,405	10,529	21,200	9,897
Durrës	43,357	20,771	41,811	19,936	40,372	19,240	39,568	18,774	38,247	18,059
Elbasan	48,066	23,219	45,138	21,767	42,841	20,534	41,341	19,670	39,022	18,678
Fier	48,519	23,188	45,985	21,928	43,837	20,755	42,096	19,918	40,512	19,124
Gjirokastër	9,685	4,692	9,121	4,369	8,656	4,177	8,330	3,957	8,112	3,877
Korça	30,251	14,570	28,717	13,775	27,387	13,065	26,794	12,779	25,897	12,282
Kukës	18,584	8,807	17,621	8,311	16,736	7,798	15,811	7,331	14,948	6,862
Lezhë	23,623	11,424	22,461	10,738	21,178	10,018	20,136	9,457	19,296	9,005
Shkodër	37,008	17,650	35,086	16,724	33,198	15,798	31,375	14,948	29,578	14,067
Tirana	107,226	51,377	104,866	50,085	102,673	48,998	101,255	48,136	99,902	47,468
Vlorë	25,143	12,007	24,330	11,520	23,635	11,152	22,986	10,886	22,360	10,646

Pupils Enrolled Primary Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	224,781	106,917	215,660	102,276	206,617	97,583	198,897	93,774	195,720	92,609
Berat	10,961	5,273	10,300	4,930	9,733	4,661	9,373	4,471	9,193	4,414
Dibër	13,939	6,631	13,126	6,200	12,116	5,615	11,096	5,081	10,564	4,795
Durrës	22,535	10,703	21,800	10,319	20,953	9,869	20,463	9,626	20,174	9,502
Elbasan	23,895	11,381	22,454	10,693	21,234	10,155	20,239	9,626	19,840	9,528
Fier	24,165	11,479	23,008	10,879	22,153	10,408	21,311	9,964	21,064	9,881
Gjirokastër	4,736	2,336	4,498	2,154	4,298	2,084	4,172	1,983	4,247	2,037
Korça	15,318	7,337	14,593	6,971	13,813	6,511	13,500	6,437	13,418	6,366
Kukës	9,752	4,574	9,160	4,279	8,594	3,949	8,020	3,677	7,486	3,400
Lezhë	12,012	5,632	11,463	5,360	10,698	4,911	10,008	4,594	9,686	4,509
Shkodër	18,853	8,930	17,682	8,406	16,624	7,905	15,469	7,365	14,619	6,986
Tirana	55,842	26,571	55,215	26,271	54,255	25,848	53,285	25,346	53,533	25,516
Vlorë	12,773	6,070	12,361	5,814	12,146	5,667	11,961	5,604	11,896	5,675

Pupils Enrolled Public Basic Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**418,754**	**201,332**	**399,504**	**191,158**	**382,870**	**182,452**	**370,238**	**175,682**	**356,347**	**168,842**
Berat	21,164	10,306	19,881	9,636	18,945	9,168	18,231	8,793	17,498	8,416
Dibër	26,765	12,890	25,142	12,048	23,719	11,230	22,405	10,529	21,200	9,897
Durrës	41,202	19,741	39,597	18,902	38,065	18,162	37,188	17,674	35,768	16,895
Elbasan	47,517	22,918	44,636	21,516	42,428	20,319	40,946	19,471	38,616	18,470
Fier	45,459	21,879	43,156	20,671	41,171	19,586	39,629	18,797	38,060	18,035
Gjirokastër	9,443	4,577	8,948	4,286	8,432	4,068	8,044	3,813	7,743	3,691
Korça	29,128	14,049	27,515	13,218	26,199	12,524	25,629	12,227	24,895	11,815
Kukës	18,528	8,791	17,564	8,293	16,736	7,798	15,811	7,331	14,948	6,862
Lezhë	22,811	11,067	21,500	10,305	20,162	9,557	19,095	8,978	18,214	8,498
Shkodër	33,596	16,072	31,645	15,057	29,911	14,214	28,144	13,344	26,400	12,514
Tirana	99,987	47,943	97,594	46,635	95,376	45,577	93,969	44,696	92,436	43,953
Vlorë	23,154	11,099	22,326	10,591	21,726	10,249	21,147	10,029	20,569	9,796

Pupils Enrolled Public Primary Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**213,109**	**101,606**	**204,027**	**97,009**	**195,279**	**92,492**	**187,860**	**88,670**	**184,410**	**87,393**
Berat	10,624	5,133	9,976	4,804	9,389	4,522	9,027	4,327	8,843	4,253
Dibër	13,895	6,617	13,109	6,195	12,110	5,613	11,096	5,081	10,564	4,795
Durrës	21,244	10,103	20,485	9,720	19,613	9,259	19,110	9,000	18,746	8,842
Elbasan	23,603	11,219	22,189	10,561	21,017	10,046	20,029	9,519	19,612	9,415
Fier	22,777	10,900	21,702	10,309	20,898	9,872	20,161	9,453	19,876	9,387
Gjirokastër	4,535	2,237	4,325	2,071	4,088	1,984	3,920	1,858	3,948	1,888
Korça	14,577	6,978	13,835	6,628	13,114	6,205	12,855	6,124	12,878	6,117
Kukës	9,719	4,564	9,134	4,269	8,594	3,949	8,020	3,677	7,486	3,400
Lezhë	11,415	5,366	10,782	5,053	9,992	4,588	9,307	4,264	8,982	4,178
Shkodër	17,191	8,185	16,116	7,699	15,198	7,270	14,122	6,731	13,245	6,345
Tirana	51,858	24,731	51,135	24,395	50,166	23,991	49,260	23,479	49,318	23,542
Vlorë	11,671	5,573	11,239	5,305	11,100	5,193	10,953	5,157	10,912	5,231

Pupils Graduated in Basic Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**52,287**	**25,834**	**51,186**	**25,155**	**50,380**	**24,579**	**47,819**	**23,164**	**44,139**	**21,294**
Berat	2,723	1,406	2,573	1,238	2,523	1,223	2,372	1,144	2,288	1,145
Dibër	3,161	1,490	3,015	1,475	2,850	1,399	2,624	1,256	2,528	1,206
Durrës	4,790	2,240	4,826	2,360	4,634	2,286	4,632	2,278	4,461	2,151
Elbasan	5,831	2,959	5,511	2,822	5,414	2,690	5,544	2,698	4,906	2,406
Fier	5,989	2,969	5,890	2,894	5,861	2,773	5,274	2,545	4,856	2,292
Gjirokastër	1,189	553	1,258	608	1,224	594	1,061	462	969	486
Korça	3,674	1,828	3,654	1,825	3,421	1,649	3,276	1,577	2,468	1,200
Kukës	2,015	937	1,939	920	2,083	993	1,850	891	1,825	862
Lezhë	2,974	1,541	2,799	1,406	2,700	1,336	2,491	1,260	2,358	1,142
Shkodër	4,345	2,146	3,811	1,865	4,216	2,095	4,011	1,972	3,680	1,746
Tirana	12,647	6,319	12,868	6,225	12,355	6,063	11,790	5,697	11,209	5,378
Vlorë	2,949	1,446	3,042	1,517	3,099	1,478	2,894	1,384	2,591	1,280

Pupils Graduated in Public Basic Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**49,766**	**24,604**	**48,551**	**23,887**	**47,853**	**23,318**	**45,350**	**21,913**	**41,729**	**20,098**
Berat	2,660	1,373	2,518	1,216	2,472	1,200	2,325	1,122	2,255	1,128
Dibër	3,153	1,487	3,008	1,474	2,850	1,399	2,624	1,256	2,528	1,206
Durrës	4,559	2,116	4,608	2,257	4,379	2,153	4,361	2,158	4,153	2,009
Elbasan	5,779	2,928	5,439	2,787	5,357	2,657	5,488	2,669	4,864	2,383
Fier	5,465	2,713	5,360	2,643	5,402	2,568	4,880	2,365	4,509	2,121
Gjirokastër	1,185	552	1,258	608	1,224	594	1,061	462	969	486
Korça	3,591	1,795	3,564	1,778	3,338	1,619	3,163	1,519	2,358	1,147
Kukës	2,015	937	1,931	920	2,083	993	1,850	891	1,825	862
Lezhë	2,945	1,525	2,711	1,365	2,646	1,313	2,420	1,226	2,278	1,096
Shkodër	3,927	1,952	3,325	1,618	3,738	1,857	3,506	1,694	3,190	1,486
Tirana	11,761	5,884	12,033	5,821	11,541	5,625	10,985	5,271	10,407	5,001
Vlorë	2,726	1,342	2,796	1,400	2,823	1,340	2,687	1,280	2,393	1,173

Number of Secondary Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	General	Total	General	Total	General	Total	General	Total	General
Albania	**500**	**430**	**508**	**445**	**507**	**437**	**511**	**444**	**512**	**447**
Berat	28	23	28	24	29	25	28	24	28	24
Dibër	23	22	23	21	23	21	24	22	25	24
Durrës	33	28	34	30	34	28	36	30	36	31
Elbasan	55	48	54	48	54	48	54	49	53	48
Fier	63	56	63	58	62	56	64	59	64	59
Gjirokastër	21	18	22	19	22	19	22	19	22	19
Korça	46	38	46	38	46	38	45	37	46	38
Kukës	20	20	21	21	20	20	20	20	19	19
Lezhë	24	21	25	23	25	22	25	22	25	22
Shkodër	46	38	47	38	48	39	49	40	47	38
Tirana	97	81	103	89	103	85	103	86	103	86
Vlorë	44	37	42	36	41	36	41	36	44	39

Number of Public Upper Secondary Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	General	Total	General	Total	General	Total	General	Total	General
Albania	**382**	**326**	**384**	**328**	**383**	**327**	**385**	**331**	**386**	**332**
Berat	24	19	24	20	24	20	24	20	24	20
Dibër	22	21	22	20	22	20	23	21	24	23
Durrës	22	18	22	18	22	18	23	19	23	19
Elbasan	49	43	48	42	48	42	48	43	48	43
Fier	41	37	42	38	42	38	43	39	43	39
Gjirokastër	21	18	21	18	21	18	21	18	21	18
Korça	40	32	40	32	40	32	40	32	40	32
Kukës	18	18	19	19	19	19	19	19	19	19
Lezhë	21	20	21	20	21	19	21	19	21	19
Shkodër	39	31	39	31	39	31	39	31	37	29
Tirana	53	42	55	44	55	44	54	44	56	45
Vlorë	32	27	31	26	30	26	30	26	30	26

Teachers in Secondary Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**8,250**	**5,080**	**8,179**	**5,088**	**8,473**	**5,295**	**8,610**	**5,476**	**8,606**	**5,462**
Berat	477	259	458	256	458	257	450	257	460	260
Dibër	329	169	318	173	327	172	343	186	345	184
Durrës	613	389	619	398	666	446	695	455	664	445
Elbasan	850	510	843	496	855	515	854	514	850	520
Fier	1,008	624	929	591	926	581	931	594	934	561
Gjirokastër	281	144	278	137	301	160	250	129	285	150
Korça	661	364	666	373	672	371	679	381	666	380
Kukës	222	121	227	119	238	127	254	142	253	150
Lezhë	401	237	383	229	412	260	425	270	445	282
Shkodër	780	471	748	455	799	484	790	476	788	489
Tirana	2,038	1,423	2,143	1,502	2,246	1,568	2,364	1,710	2,310	1,666
Vlorë	590	369	567	359	573	354	575	362	606	375

Teachers in Public Upper Secondary Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**6,858**	**4,215**	**6,702**	**4,145**	**6,907**	**4,316**	**6,971**	**4,407**	**7,107**	**4,491**
Berat	454	248	435	244	434	246	425	248	435	252
Dibër	320	165	311	170	326	172	342	186	345	184
Durrës	480	301	481	310	508	333	524	341	525	342
Elbasan	789	474	785	464	800	486	805	488	806	495
Fier	751	483	694	451	690	436	723	462	735	436
Gjirokastër	268	144	270	136	293	159	244	128	279	149
Korça	613	338	591	327	592	326	596	337	601	350
Kukës	220	120	222	117	235	125	251	141	253	150
Lezhë	389	231	374	224	388	243	391	250	393	255
Shkodër	599	351	603	354	603	360	599	359	595	360
Tirana	1,504	1,063	1,496	1,063	1,595	1,146	1,614	1,170	1,689	1,225
Vlorë	471	297	440	285	443	284	457	297	451	293

Pupils enrolled in Upper Secondary Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**140,657**	**65,854**	**150,134**	**69,388**	**152,182**	**70,165**	**154,425**	**70,891**	**151,937**	**69,301**
Berat	8,414	3,698	8,970	3,828	8,570	3,634	8,837	3,684	8,323	3,464
Dibër	6,720	3,276	7,381	3,362	7,497	3,402	7,308	3,501	6,925	3,436
Durrës	11,654	5,567	13,901	6,229	15,153	6,705	15,551	6,841	15,152	6,728
Elbasan	13,768	6,819	14,514	6,827	14,919	6,971	15,246	7,023	15,152	7,019
Fier	15,679	7,387	15,886	7,529	15,579	7,421	15,873	7,412	15,797	7,224
Gjirokastër	3,638	1,757	4,011	1,822	3,847	1,805	3,765	1,728	3,482	1,622
Korça	9,957	4,555	10,733	4,873	11,182	5,032	11,403	5,097	11,416	5,038
Kukës	5,372	2,504	6,227	3,021	6,070	2,849	5,901	2,806	5,479	2,558
Lezhë	6,987	3,653	7,555	3,909	7,774	4,009	7,734	3,950	7,590	3,775
Shkodër	11,346	5,216	12,249	5,652	11,929	5,523	12,399	5,662	11,951	5,471
Tirana	38,602	17,254	39,924	18,062	40,689	18,632	41,243	18,943	40,532	18,594
Vlorë	8,520	4,168	8,783	4,274	8,973	4,182	9,165	4,244	10,138	4,372

Pupils enrolled in Public Upper Secondary Schools

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**128,360**	**59,596**	**136,188**	**62,544**	**136,329**	**62,796**	**137,105**	**63,033**	**133,794**	**60,999**
Berat	8,176	3,545	8,775	3,711	8,234	3,497	8,366	3,520	7,816	3,309
Dibër	6,677	3,252	7,196	3,307	7,288	3,351	7,084	3,446	6,717	3,392
Durrës	10,531	4,918	12,128	5,408	12,310	5,619	12,062	5,482	11,568	5,225
Elbasan	13,426	6,716	14,138	6,723	14,563	6,873	14,873	6,923	14,822	6,927
Fier	13,002	6,007	13,138	6,032	12,764	5,907	13,076	5,989	12,881	5,738
Gjirokastër	3,608	1,732	3,976	1,822	3,816	1,805	3,734	1,728	3,454	1,622
Korça	9,445	4,259	10,073	4,492	10,429	4,609	10,716	4,708	10,666	4,612
Kukës	5,352	2,495	6,205	3,013	6,046	2,842	5,885	2,801	5,479	2,558
Lezhë	6,864	3,605	7,401	3,826	7,522	3,858	7,309	3,720	7,034	3,515
Shkodër	9,856	4,317	10,577	4,658	10,126	4,443	10,446	4,563	9,945	4,311
Tirana	34,242	15,273	35,149	15,948	35,737	16,560	35,889	16,682	35,135	16,281
Vlorë	7,181	3,477	7,432	3,604	7,494	3,432	7,665	3,471	8,277	3,509

Pupils enrolled in Gymnasium

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**120,651**	**59,662**	**131,437**	**64,590**	**133,002**	**65,906**	**130,137**	**65,594**	**124,619**	**63,456**
Berat	7,322	3,398	7,978	3,616	7,574	3,464	7,509	3,455	6,912	3,233
Dibër	5,967	2,776	6,643	2,956	6,891	3,119	6,725	3,206	6,459	3,201
Durrës	9,919	5,266	11,952	5,909	13,016	6,355	12,970	6,477	12,478	6,368
Elbasan	11,541	6,167	12,553	6,394	13,042	6,689	12,762	6,601	12,231	6,527
Fier	14,208	6,994	14,631	7,321	14,358	7,308	14,362	7,291	14,142	7,108
Gjirokastër	3,228	1,612	3,679	1,720	3,498	1,717	3,328	1,630	3,011	1,514
Korça	8,191	4,060	9,051	4,458	9,406	4,635	8,725	4,474	8,324	4,325
Kukës	5,031	2,278	5,952	2,892	5,880	2,782	5,677	2,724	5,287	2,500
Lezhë	6,271	3,259	6,865	3,556	7,093	3,692	6,811	3,589	6,556	3,428
Shkodër	9,390	4,712	10,425	5,270	10,104	5,138	9,989	5,130	9,422	4,876
Tirana	32,338	15,302	34,039	16,458	34,449	17,049	33,799	17,050	32,146	16,433
Vlorë	7,245	3,838	7,669	4,040	7,691	3,958	7,480	3,967	7,651	3,943

Pupils enrolled in Public Gymnasium

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**109,893**	**53,861**	**118,842**	**58,079**	**118,566**	**58,886**	**114,224**	**57,995**	**107,948**	**55,407**
Berat	7,084	3,245	7,783	3,499	7,238	3,327	7,038	3,291	6,405	3,078
Dibër	5,924	2,752	6,458	2,901	6,682	3,068	6,501	3,151	6,251	3,157
Durrës	8,821	4,633	10,187	5,093	10,252	5,321	9,519	5,137	8,938	4,890
Elbasan	11,211	6,073	12,186	6,295	12,686	6,591	12,389	6,501	11,901	6,435
Fier	11,673	5,693	11,969	5,868	11,558	5,805	11,573	5,870	11,235	5,622
Gjirokastër	3,198	1,587	3,644	1,720	3,467	1,717	3,297	1,630	2,983	1,514
Korça	7,679	3,764	8,391	4,077	8,653	4,212	8,038	4,085	7,574	3,899
Kukës	5,011	2,269	5,930	2,884	5,856	2,775	5,661	2,719	5,287	2,500
Lezhë	6,232	3,238	6,745	3,492	6,856	3,549	6,459	3,364	6,155	3,174
Shkodër	7,975	3,832	8,861	4,303	8,448	4,116	8,211	4,084	7,568	3,764
Tirana	29,076	13,595	30,304	14,556	30,540	15,163	29,406	14,928	27,693	14,252
Vlorë	6,009	3,180	6,384	3,391	6,330	3,242	6,132	3,235	5,958	3,122

Pupils graduated in Upper Secondary Education

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**34,823**	**18,727**	**40,354**	**20,094**	**40,927**	**20,801**	**45,899**	**22,625**	**35,254**	**18,882**
Berat	2,043	1,130	2,324	1,122	2,250	1,044	2,676	1,226	1,882	959
Dibër	1,762	968	2,022	1,011	1,954	945	2,228	1,081	1,844	987
Durrës	2,418	1,379	3,274	1,623	3,411	1,877	4,174	2,064	3,367	1,770
Elbasan	3,572	2,090	3,903	2,038	3,970	2,051	4,622	2,321	3,312	1,928
Fier	4,450	2,371	4,556	2,274	4,536	2,313	5,134	2,511	4,126	2,196
Gjirokastër	1,063	545	1,273	587	1,105	583	1,156	572	690	406
Korça	2,637	1,321	3,021	1,422	2,879	1,459	3,284	1,600	2,283	1,324
Kukës	1,241	673	1,558	759	1,603	761	1,733	902	1,645	837
Lezhë	1,737	1,005	2,206	1,196	2,180	1,204	2,402	1,321	1,932	1,089
Shkodër	2,545	1,309	3,261	1,620	3,247	1,700	3,612	1,807	3,083	1,579
Tirana	9,060	4,685	10,612	5,206	11,454	5,645	12,416	5,933	9,520	4,957
Vlorë	2,295	1,251	2,344	1,235	2,338	1,219	2,462	1,287	1,570	850

Pupils graduated in Public Upper Secondary Education

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**30,904**	**16,677**	**35,821**	**17,901**	**35,890**	**18,372**	**40,091**	**20,059**	**30,297**	**16,587**
Berat	1,937	1,062	2,251	1,080	2,179	997	2,575	1,180	1,779	914
Dibër	1,715	948	1,942	992	1,849	919	2,098	1,052	1,755	960
Durrës	2,120	1,210	2,791	1,387	2,833	1,605	3,167	1,673	2,551	1,399
Elbasan	3,472	2,049	3,782	2,005	3,821	2,015	4,474	2,280	3,192	1,893
Fier	3,452	1,867	3,545	1,764	3,435	1,733	3,940	1,965	2,928	1,628
Gjirokastër	1,056	545	1,258	587	1,097	583	1,146	572	684	406
Korça	2,523	1,256	2,870	1,346	2,621	1,315	3,055	1,468	2,045	1,186
Kukës	1,241	673	1,550	756	1,590	757	1,733	902	1,642	837
Lezhë	1,717	995	2,173	1,177	2,164	1,195	2,321	1,266	1,803	1,009
Shkodër	2,147	1,059	2,788	1,327	2,714	1,368	2,999	1,468	2,479	1,222
Tirana	7,691	4,030	8,963	4,451	9,763	4,902	10,631	5,194	7,931	4,308
Vlorë	1,833	983	1,908	1,029	1,824	983	1,952	1,039	1,508	825

Pupils graduated in Gymnasium

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**29,984**	**16,450**	**35,553**	**18,236**	**38,083**	**19,924**	**41,577**	**21,451**	**32,118**	**17,940**
Berat	1,785	1,004	2,059	1,027	2,091	1,006	2,417	1,184	1,761	933
Dibër	1,474	753	1,741	798	1,861	911	2,085	989	1,716	907
Durrës	2,143	1,266	2,833	1,530	3,288	1,829	3,686	1,949	3,078	1,731
Elbasan	3,076	1,827	3,387	1,834	3,719	2,003	4,103	2,210	3,149	1,920
Fier	4,099	2,210	4,239	2,158	4,418	2,289	4,906	2,484	3,956	2,176
Gjirokastër	942	481	1,161	538	1,028	548	1,068	542	649	378
Korça	2,212	1,154	2,702	1,325	2,656	1,392	2,906	1,491	2,097	1,247
Kukës	1,132	589	1,442	684	1,603	761	1,706	875	1,611	818
Lezhë	1,543	886	2,010	1,062	2,062	1,139	2,277	1,239	1,810	1,008
Shkodër	2,156	1,172	2,855	1,519	2,948	1,625	3,188	1,712	2,677	1,469
Tirana	7,450	3,979	9,075	4,629	10,260	5,250	10,981	5,525	8,206	4,529
Vlorë	1,972	1,129	2,049	1,131	2,149	1,171	2,254	1,251	1,408	824

Pupils graduated in Public Gymnasium

Prefecture	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Albania	**26,512**	**14,590**	**31,415**	**16,191**	**33,324**	**17,569**	**36,059**	**18,929**	**27,422**	**15,694**
Berat	1,679	936	1,986	985	2,020	959	2,316	1,138	1,658	888
Dibër	1,427	733	1,661	779	1,756	885	1,955	960	1,627	880
Durrës	1,860	1,107	2,358	1,299	2,710	1,557	2,679	1,558	2,262	1,360
Elbasan	2,983	1,792	3,276	1,805	3,570	1,967	3,955	2,169	3,029	1,885
Fier	3,171	1,741	3,279	1,673	3,328	1,719	3,717	1,941	2,758	1,608
Gjirokastër	935	481	1,146	538	1,020	548	1,058	542	643	378
Korça	2,098	1,089	2,551	1,249	2,398	1,248	2,677	1,359	1,859	1,109
Kukës	1,132	589	1,434	681	1,590	757	1,706	875	1,608	818
Lezhë	1,536	880	1,996	1,054	2,062	1,139	2,196	1,184	1,681	928
Shkodër	1,758	922	2,382	1,226	2,415	1,293	2,611	1,381	2,099	1,121
Tirana	6,401	3,441	7,725	3,971	8,820	4,562	9,436	4,819	6,818	3,911
Vlorë	1,532	879	1,621	931	1,635	935	1,753	1,003	1,380	808

10.6 Annex 6: Prefecture Health Data

The health data from the prefecture that encompasses Xarra I&D scheme is shaded in green in the following tables.

Health Centres

Prefectures	2009	2010	2011	2012	2013
Albania	**624**	**475**	**456**	**421**	**409**
Berat	37	27	23	23	23
Dibër	39	40	40	34	34
Durrës	46	46	45	26	26
Elbasan	64	79	65	53	54
Fier	50	48	49	45	49
Gjirokastër	38	32	31	37	31
Korça	39	39	40	39	39
Kukës	29	29	29	27	27
Lezhë	59	32	32	22	25
Shkodër	59	37	37	37	36
Tirana	133	36	35	48	35
Vlorë	31	30	30	30	30

Polyclinics

Prefectures	2009	2010	2011	2012	2013
Albania	**46**	**46**	**46**	**46**	**46**
Berat	3	3	3	3	3
Dibër	3	3	3	3	3
Durrës	2	2	2	2	2
Elbasan	4	4	4	4	4
Fier	3	3	3	3	3
Gjirokastër	3	3	3	3	3
Korça	5	5	5	5	5
Kukës	2	2	2	2	2
Lezhë	3	3	3	3	3
Shkodër	2	2	2	2	2
Tirana	14	14	14	14	14
Vlorë	2	2	2	2	2

Health Posts

Prefectures	2009	2010	2011	2012	2013
Albania	**1,812**	**1,927**	**1,970**	**1,946**	**1,998**
Berat	131	144	147	147	147
Dibër	158	133	133	164	163
Durrës	87	87	84	85	86
Elbasan	233	223	246	246	246
Fier	195	187	170	143	147
Gjirokastër	172	176	170	168	170
Korça	219	219	221	214	214
Kukës	118	123	123	125	125
Lezhë	136	133	133	155	155
Shkodër	148	141	159	153	175
Tirana	108	199	224	224	224
Vlorë	107	162	160	122	146

Consultation clinics for children

Prefectures	2009	2010	2011	2012	2013
Albania	**2,061**	**2,090**	**2,142**	**2,113**	**2,100**
Berat	135	141	154	154	155
Dibër	188	163	163	163	187
Durrës	127	128	128	127	127
Elbasan	261	262	262	259	259
Fier	238	238	205	205	164
Gjirokastër	178	180	180	180	180
Korça	239	237	252	250	249
Kukës	61	63	63	62	62
Lezhë	167	166	168	169	169
Shkodër	138	137	137	137	136
Tirana	191	203	258	240	240
Vlorë	138	172	172	167	172

Consultation clinics for women

Prefectures	2009	2010	2011	2012	2013
Albania	**2.016**	**2.030**	**2.077**	**2.072**	**2.099**
Berat	139	140	150	150	152
Dibër	188	163	163	163	187
Durrës	118	113	112	111	111
Elbasan	251	252	252	249	249
Fier	226	226	205	205	205
Gjirokastër	167	167	167	167	167
Korça	231	236	244	245	244
Kukës	61	61	59	62	62
Lezhë	165	164	164	164	164
Shkodër	138	137	137	137	136
Tirana	195	200	253	253	253
Vlorë	137	171	171	166	169

No of Hospitals and Beds

Prefectures	No of Hospitals					No of Beds				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Albania	**44**	**44**	**44**	**44**	**44**	**8,805**	**8,707**	**8,711**	**8,723**	**8,283**
Berat	4	4	4	4	4	424	416	378	378	360
Dibër	3	3	3	3	3	542	536	552	536	512
Durrës	2	2	2	2	2	476	475	474	474	471
Elbasan	6	6	6	6	6	1,089	1,104	1,096	1,085	1,025
Fier	3	3	3	3	3	706	712	706	706	664
Gjirokastër	3	3	3	3	3	409	386	399	399	373
Korça	4	4	4	4	4	772	767	767	772	752
Kukës	3	3	3	3	3	367	372	372	372	372
Lezhë	3	3	3	3	3	348	340	344	340	353
Shkodër	2	2	2	2	2	705	650	705	705	598
Tirana	7	7	7	7	7	2,217	2,199	2,189	2,241	2,157
Vlorë	4	4	4	4	4	750	750	729	715	646

No Hospitalised and Beds / 10,000 inhabitants

Prefectures	No Hospitalised					Beds per 10,000 inhabitants				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Albania	**265,200**	**258,407**	**240,562**	**247,391**	**260,727**	**30**	**30**	**30**	**30**	**29**
Berat	16,438	14,103	13,930	10,832	12,290	27	27	25	26	25
Dibër	13,469	13,144	11,580	11,313	16,406	35	36	38	38	37
Durrës	16,685	17,814	17,725	17,716	18,345	18	18	18	17	17
Elbasan	22,191	20,589	20,442	21,155	19,727	35	36	36	36	34
Fier	23,449	22,538	19,635	20,770	24,781	21	22	22	22	21
Gjirokastër	9,833	8,163	7,477	7,059	6,814	48	47	51	53	51
Korça	15,449	15,764	15,163	16,489	16,837	33	33	33	34	33
Kukës	8,742	7,947	7,193	6,994	8,068	39	41	42	42	43
Lezhë	12,869	11,359	10,216	9,407	9,859	24	24	25	24	26
Shkodër	16,249	14,877	13,781	14,236	13,407	30	28	31	32	27
Tirana	88,375	89,212	84,139	91,966	95,860	30	29	29	29	27
Vlorë	21,451	22,897	19,281	19,454	18,333	40	40	39	39	35

10.7 Annex 7: Integrated Pest Management Plan

10.7.1 Introduction

The WRIP being implemented under MARDWA has been classified by the World Bank as an environment category B and triggers OP 4.01 on Environmental Assessment. However, in addition, as the rehabilitation and modernisation of the I&D schemes will likely lead to more growth in intensified agriculture, this can lead to increased use of agro chemicals including pesticides. The project approach towards awareness raising activities and promotion of integrated pest management approaches in pesticide handling was included in the ESFD document already prepared under WRIP by the Consultant COWI/CEIA. In accordance with this ESFD documentation it is mandatory that an integrated pest management plan (IPMP) be included as part of the site specific ESMPs for the I&D schemes. Furthermore, WRIP will work with MARDWA in strengthening its internal capacity for pest management as well as outreach and training activities to the farmers reliant upon the irrigation systems.

Although the use of pesticides within the rehabilitated I&D schemes may contribute to increased agricultural production and improved human health, inappropriate or excessive use of pesticides often results in a reduction of agricultural production or its sustainability, increases in disease vectors, adverse environmental and health effects, and negative effects on other economic activities (e.g. fisheries, tourism). This, in turn, leads to increased economic costs, both at the farmer level and for the country as a whole.

Adequate measures are therefore required to promote the appropriate management of pests and pesticides. This is to ensure that increased and sustainable agricultural production and farm incomes are achieved; that vector-borne diseases are managed in a sustainable manner, and that the risks to human health and the environment associated with pesticide use are kept to an acceptable minimum.

10.7.2 Requirement of World Bank Operational Policy 4.09

The purposes of OP 4.09 include the following:

- To maximize the use of biological or environmental control methods and minimize the use of chemical pesticides.
- To ensure that the beneficiary country's regulatory framework includes instruments for the promotion and support of safe, effective and environmentally sound pest management, and if not, support the development of national capacity.
- To minimize the environmental and health hazards related to pesticide usage.

10.7.3 Requirements for Albania Law for Pesticide Use

The main legislation concerning plant protection products (PPP) in Albania can be summarised as follows:

- Law No. 9362, dated 24.03.2005, "On Plant Protection Service", amended in 2008 (Official Journal (OJ) no. 29, dated 3.5.2005).
- Decision of the Council of Ministers No. 1188, dated 20.8.2008, "On the approval of the rules for importing, trade, transporting, storing, using and elimination of PPP (OJ no. 141, dated 11.9.2008).
- Decision of the Council of Ministers No. 1555, dated 12.11.2008, "On approval of rules for PPP registration and evaluation criteria" (OJ no.183, dated 22.12.2008).
- Decision of the Council of Ministers No. 791, dated 24.9.2010,"On changes and additions to the Decision of the Council of Ministers No. 1555, dated 12.11.2008,"On the approval of rules for PPP registration and evaluation criteria" (OJ no.183, dated 22.12.2008).
- Law No. 71/2013 amending and supplementing Law No. 9362 on the Plant Protection Service which amends and supplements articles 2, 4, 28 and 29 of Law 9362 of 2005 with regard to the inspection rules and rules of procedure. The National Food Authority is the responsible entity for issuing measures in cases of infringements. Proposed measures may be appealed according to the law on inspection
- Law No. 105/2016 on plant protection which repeals Law No 9362 and aims at protecting plants and plant products from parasites, preventing entrance and distribution of parasites to the Albanian territory, and protecting the health of humans, animals, and environment from the products used for plant protection

The Albanian Law on Crop Protection no. 9362 of 2005, amended in 2008, sets out rules on chemicals that can be imported, traded and used in Albania. It indicates in Article 4 that it is the responsibility of the Directorate of Plant Protection Service to cooperate and coordinate its work with the General Directorate of Standardizing to adapt the international and European standards in the field of Plant Protection Service. Article 22 indicates that products to be used in Albania are only the ones that undergo registration. These are the ones in compliance with EU Council Directive 79/117/EEC prohibiting the placing on the market and use of plant protection products containing certain active substances and Council Directive 91/414/EEC concerning the placing of plant protection products on the market.

The updated lists from October 2016 of both allowed and not allowed Crop Protection products are presented in Appendix 1 at the back of this Annex.

A new Plant Protection Product Strategy (PPP) has been introduced into Albania in 2012 in order to comply with EU requirements for accession. To comply, Albania was required to complete a detailed questionnaire sent by the EU. Part of this questionnaire deals with Plant Health and PPP, including pesticides (point 54). In order to address this issue and respect the EU legislation a new decision of the council of ministers (DCM) was prepared that considers separately the trade, disposal and transport of pesticides and other chemicals and a separate Guide of the Council of Ministers (GCM) will be prepared separately for pesticide use criteria – no legal act has yet been drafted on pesticide use.

While the PPP strategy provides a comprehensive framework for addressing trade, use, storage and disposal of pesticides, the strategy falls short in addressing pesticides in a more comprehensive way through a strategy on integrated pest management (IPM). In this respect, the EU recently adopted a Framework Directive 128/2009 on the sustainable use of pesticides. The Government of Albania (GOA) has indicated that it intends to follow this directive, and that a strategy for IPM will be prepared by 2014. The strategy to be adopted by GOA will be consistent with the EU Directive to achieve more sustainable use of pesticides and will include

- reducing the risks and impacts of pesticide use on human health and the environment
- promoting the use of IPM and of alternative approaches such as non-chemical alternatives
- establishing National Action Plans (NAPs) with targets, measures and timetables to reduce risks and use of certain products
- provide for access to training for professional users, farmers, distributors, advisors
- awareness raising for the general public
- regular inspection of application equipment in professional use
- prohibition of aerial spraying
- protection of the aquatic environment and drinking water (buffer zones, low-drift equipment, reduction of use when risks of run-off)
- prohibition or minimisation of pesticide use in specific areas
- safe handling, storage and waste of pesticides
- calculation of risk indicators to monitor progress
- promotion of low pesticide input farming and IPM

10.7.4 Managing Pesticides

Integrated pest management (IPM) practices are not well known in Albania and pesticide use is still quite low as indicated in Section 2.24 of this report. A few big farms have started to implement some IPM elements. Mechanisms for importing, registering, packaging, labelling, and using pesticides are implemented effectively, but enforcement of regulations for disposing of surplus and outdated pesticides is weak.

Some of the potential pest and pest management issues, impacts and mitigation measures are indicated in the following Table 10-1.

Table 10-1: Pest Management Issues

Potential Issue	Activity	Mitigation Measure
Pest management	Inability to recognize need for proper pest management may lead to improper use of pesticides	Awareness on pesticide use to be built in farmers and capacity building in alternative methods of pest management provided
Increase productivity	Increased reliance on chemicals for pest management and fertilization	Raise awareness in pesticide use and implement IPMP ; Training in agricultural intensification and consequent changes in practices
Improper pesticide use by untrained farmers	Use of pesticides by untrained farmers in agricultural activities.	Ensure farmers are trained and are aware of pesticides risk. Train them on IPMP and list of allowed pesticides.
Availability of pesticides to untrained farmers poses a risk	Use of pesticides by untrained farmers in agricultural activities.	Ensure farmers attend training, conduct monitoring and evaluation, clearly communicate lists of recommended versus lists of banned pesticides
Storage of pesticides, waste management of pesticides and their packaging	Use of pesticides by untrained farmers in agricultural activities.	Training of farmers for pesticide storage and waste management.
Marketing and export of agricultural products	Improper Pesticides use may limit the markets of agricultural products	Raising of farmers awareness to market problems tied to pesticide usage

A proper integrated pest management cycle includes the following components:

- Identification of the actual pest management need
- Promotion of alternative methods of pest management
- Selection of appropriate pesticides
- Safe transportation and storage of pesticides
- Correct application of pesticides
- Adequate management of remaining pesticides and their packaging
- Education of farmers for all phases of pest management (from establishing the need to management of pesticide wastes)

The WRIP intends to support IPM by including a session on IPM approaches in its farmers/WUAs training program. Issues that will be covered in this training include:

- IPM strategies and techniques,
- integrated crop management strategies and techniques,
- organic farming principles,
- biological pest control methods,
- information on the general principles and crop or sector-specific guidelines for IPM,
- alternative crop husbandry measures to prevent and/or suppress harmful organisms by:
  - crop rotation,
  - use of adequate cultivation techniques (e.g. sowing dates and densities, under-sowing, conservation (zero) tillage, pruning and direct sowing),
  - use, where appropriate, of resistant/tolerant cultivars and standard/certified seed and
  - planting material,
- use of balanced fertilisation,
- liming and irrigation/drainage practices,
- preventing the spreading of harmful organisms by hygiene measures (e.g. by regular cleansing of machinery and equipment) and
- protection and enhancement of important beneficial organisms, e.g. by adequate plant protection measures or the utilisation of ecological infrastructures inside and outside production sites.

10.7.5 IPM Plan

The Consultant has prepared an outline IPM plan for consideration. It is assumed that MARDWA would be the responsible body for implementing this plan, which will commence upon the completion of the I&D scheme rehabilitation. This has been planned to run for three years and to contain five main activities which are:

1. IPM Training
2. Develop regulations on Pesticide Management
3. Conduct National Awareness Program
4. Establish Monitoring and Early Warning System and
5. IPM Monitoring and Evaluation

The indicative costs of this three-year program are around USD 96,500 covering for all the 13 I&D schemes under WRIP. Dividing this equally between the I&D schemes equates to around USD 7,423, however if it was to be divided into the six districts then this would be USD16,083 per district. The IPM Plan is shown in Figure 10-1 below.

No	ACTIVITY	YEAR 1				YEAR 2				YEAR 3				COST (USD)
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
1	IPM Training													**36,500**
1.1	Hire consultant to develop IPM manual													5,000
1.2	Organise technical meeting to share manual													1,500
1.3	Translate Manual into Albanian													2,500
1.4	Publish and distribute manual to WUAs and Farmers													3,500
1.5	Organise skilled training workshops to districts													5,000
1.6	Organise field visits to supplement workshops in IPM practices													5,000
1.7	Organise training of trainers in IPM to disseminate to WUAs													4,000
1.8	Train farmers on application of IPM													5,000
1.9	Train farmers on safe use and handling of pesticides													5,000
2	Develop regulations on pesticide management													**16,000**
2.1	Organise national workshop on Albanian legislation regarding IPM													2,500
2.2	Hire consultant to develop new regulations on pesticide management													5,000
2.3	Organise national workshop to discuss new regulations													2,500
2.4	Translate new regulations into Albanian													2,500
2.5	Publish and distribute new regulations													3,500
3	Conduct National awareness programme on IPM practices													**24,000**
3.1	Prepare and conduct TV/ Radio programs on IPM													10,000
3.2	Prepare and distribute brochures and posters on IPM													14,000
4	Establish monitoring and early warning system for pest outbreaks													**7,500**
4.1	Define and organise system structure and definition of responsibility													2,500
4.2	System estabslishment and testing													5,000
5	IPM Plan Monitoring													**12,500**
5.1	Conduct regular evaluation and monitoring visits													7,500
5.2	Analyse impact of IPM Plan													5,000
	OVERALL TOTAL COST OF IPM PLAN													**96,500**

Figure 10-1: IPM Plan for I&D Schemes under WRIP

10.7.6 Appendix to Annex 7 - List of Permitted Crop Protection products (i.e. Pesticides)

List 1: Those allowed to be imported, traded and used in Albania (October 2016)

No	Commercial name	Active ingredient	Classification	Applicant	No	Date of registration
2	ACROBAT WG	Dimethomorph+mancozeb	Fungicid	BASF SE	168/2	18.03.2011
3	ACTARA 25 WG	Thiamethoxam	Insekticid	Syngenta Crop Protection AG	164/1	25.05.2005
4	ACTELLIC 50 EC	Pirimiphos methyl	Insekticid	Syngenta Crop Protection AG	5/2	14.11.2008
5	AFALON 45 SC	Linuron	Herbicid	ADAMA Agriculrure BV	338	21.11.2007
6	AFFIRM 095 SG	Emamectin benzoate	Insekticid	Syngenta Crop Protection AG	30/1	17.09.2014
7	AGIBELIN 18 TB	Gibberellic acid	Rreg. ritje	Nufarm SAS	552	02.05.2014
8	AGRIA-MANCOZEB 80 WP	Mancozeb	Fungicid	Zenith CropSciences Bulgaria	441	16.03.2012
9	AGROFOS 5 GR	Chlorpyriphos	Insekticid dezinf	Ypsilon S.A	251/1	14.11.2011
10	ALFIL	Fosetyl aluminium	Fungicid	Industrias Afrasa SA	556	04.07.2014
11	ALFIL WG	Fosetyl aluminium	Fungicid	Industrias Afrasa SA	571	17.09.2014
12	ALIAL 80 WP	Fosetyl aluminium	Fungicid	Cheminova Agro	512	08.01.2013
13	ALIEN	Tebuconazole	Fungicid	SIPCAM	495	02.10.2012
14	ALLIANCE WG	Metsulfuron-Methyl+diflufenican	Herbicid	Nufarm S.A.S	605	07.07.2015
15	ALLIETTE FLASH	Fosetyl aluminium	Fungicid	Bayer CropScience SA	65/1	14.11.2008
16	ALPHAMEX 100 EC	Alphacypermethrin	Insekticid	MAC-GmbH	491	02.10.2012
17	ALTACOR 35 WG	Chloranthraniliprole	Insekticid	Du Pont International Operations SarL	537	14.06.2013
18	ALTAR 8-64	Metalaxyl + Mancozeb	Fungicid	Orius S.r.l.	630	23.06.2016
19	ALUMEX 80 WG	Fosetyl aluminium	Fungicid	MAC-GmbH	536	14.06.2013
20	ALUMEX 80 WP	Fosetyl aluminium	Fungicid	MAC-GmbH	533	14.06.2013
21	ALVERDE	Metaflumizone	Insekticid	BASF SE	383	18.03.2011
22	AMINOPIELIK 600 SL	2.4 D acid	Herbicid	ADAMA Agriculture BV	485	02.10.2012
23	AMISTAR OPTI	Azoxystrobin+chlorothalonil	Fungicid	Syngenta Crop Protection AG	337	21.11.2007
24	ANTRACOL 70 WG	Propineb	Fungicid	Bayer CropScience SA	73/1	23.02.2007
25	APACHE	Abamectin	Insekticid-akaricid	Industrias Afrasa SA	557	04.07.2014
26	APPLAUD 25 WP	Buprofezin	Insekticid	Nyhon Nohyaku Co. Ltd	459	16.03.2012
27	ARAGOL L 40	Dimethoate	Insekticid	SIPCAM	16	18.03.2011
28	ARIES	Metaldehyde	Moluskicid	Tragusa	531	14.06.2013
29	ARMETIL C	Metalaxyl+oxiklorur Cu	Fungicid	Industrias Qiumicas del Valles SA	356	29.12.2010
30	ARMETIL COMBI	Metalaxyl+folpet	Fungicid	Industrias Químicas del Vallés SA	577	17.09.2014
31	ARMETIL M	Metalaxyl+mancozeb	Fungicid	Industrias Químicas del Vallés SA	357	29.12.2010
32	ARVAK	Iprodione	Fungicid	Cheminova Agro S.A	609	07.07.2015
33	ARVALIN LR	Fosfid zinku	Rodenticid	Detia Freyberg GmbH	582	10.12.2014
34	AVAUNT 15 EC	Indoxacarb	Insekticid	DuPont International Operations Sarl	284/1	02.10.2012
35	AVIATOR	Dimethomorph+mancozeb	Fungicid	ADAMA Agriculture BV	489	02.10.2012
36	AXIAL 50 EC	Pinoxaden	Herbicid	Syngenta Crop Protection AG	310	18.03.2011
37	BANJO	Fluazinam	Fungicid	ADAMA Agriculture BV	486	02.10.2012
38	BASTA 15	Glufosinate ammonium	Herbicid	Bayer CropScience SA	278	26.02.2010
39	BELEM 0.8 MG	Cypermethrin	Insekticid dezinf	Elanco Hellas SACI	610	07.07.2015
40	BELTHIRUL	Bacillus thuringiensis	Insekticid biologjik	Probelte SA	450	16.03.2012
41	Bi - 58	Dimethoate	Insekticid	BASF SE	54/2	02.10.2012
42	BIOCEBO	Proteina te hidrolizuara	Tërheqës	Bioiberica SA	565	04.07.2014
43	BIORED OIL	Ilicin+capsaicin+vaj bërsish rrushi	Insekticid repelent	Biored SrL	613	07.07.2015
44	BIOSULF 96 DP	Squfur	Fungicid	Nitrofarm SA	555	02.05.2014
45	BLUESTONE- KANCHEVI	Sulfat Cu	Fungicid	Kanchevi Ltd	519	02.03.2013
46	BORDEAUX MIXTURE	Sulfat Cu, perzierje me Ca	Fungicid-baktericid	Manica SpA	250	08.10.2010
47	BORDO MICRO	Sulfat Cu, perzierje me Ca	Fungicid-baktericid	Industrias Qiumicas del Valles SA	140	11.11.2009

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48	BOXER 800 EC	Prosulfocarb	Herbicid	Syngenta Crop Protection AG	270	08.10.2010
49	BRAVO 500 SC	Chlorothalonil	Fungicid	Syngenta Crop Protection AG	154/1	14.11.2008
50	BRIK 24 EC	Myclobutanil	Fungicid	Sharda Europe BVBA	426	14.11.2011
51	BUMPER 25 EC	Propiconazol	Fungicid	ADAMA Agricultural BV	593	07.07.2015
52	CABRIO DUO	Dimethomorph+pyra-clostrobin	Fungicid	BASF SE	540	14.06.2013
53	CABRIO TEAM	Pyraclostrobin+dimetho-morph	Fungicid	BASF SE	578	17.09.2014
54	CABRIO TOP	Metiram+pyraclostrobin	Fungicid	BASF SE	168/2	18.03.2011
55	CALDO BORDOLES	Sulfat Cu, perzierje me Ca	Fungicid-baktericid	Industrial Quimica Key SA	545	02.05.2014
56	CALLISTO 48 SC	Mesotrione	Herbicid	Syngenta Crop Protection AG	156/2	14.11.2008
57	CALYPSO SC 480	Thiacloprid	Insekticid	Bayer CropScience SA	197/1	04.07.2014
58	CANTUS	Boscalid	Fungicid	BASF SE	53/1	02.03.2013
59	CAPTAN 80 WG	Captan	Fungicid	Arysta LifeScience	32/3	26.05.2011
60	CARAKOL	Metaldehyde	Moluskicid	Kollant SrL	500	02.10.2012
61	CERA TRAP	Proteina te hidrolizuara	Tërheqës	Bioiberica SA	566	04.07.2014
62	CHAMP DP	Hidroxid Cu	Fungicid-baktericid	Nufarm SAS	499	02.10.2012
63	CHAMPION 50	Hidroxid Cu	Fungicid-baktericid	Nufarm SAS	239/1	18.03.2011
64	CHORUS 50 WG	Cyprodinil	Fungicid	Syngenta Crop Protection AG	155/1	14.11.2008
65	CHROMOGOR	Dimethoate	Insekticid	Sharda Europe BVBA	586	10.12.2014
66	CIKEYMAN	Cymoxanil+mancozeb	Fungicid	Industrial Química Key SA	470	23.07.2012
67	CLINIC 36 SL	Gliphosate	Herbicid	Nufarm SAS	165	16.07.2010
68	CLIO SUPER	Topramezone+dimethena-mid-P	Herbicid	BASF SE	541	14.06.2013
69	COBRE KEY	Oksiklorur Cu	Fungicid-baktericid	Industrial Quimica Key SA	546	02.05.2014
70	COCCISTOP	Chlorpyrifos	Insekticid	Orius S.r.l.	626	23.06.2016
71	COLLIS	Boscalid+kresoxim-methyl	Fungicid	BASF SE	358	29.12.2010
72	COMRADE	Azoxystrobin + cyprocona-zole	Fungicid	Sharda Europe BVBA	637	23.06.2016
73	CONFIDOR SL 200	Imidacloprid	Insekticid	Bayer CropScience SA	567	17.09.2014
74	CONFIDOR WG 70	Imidacloprid	Insekticid	Bayer CropScience SA	216/1	18.03.2011
75	COOPERBLAU-N 50 WP	Hidroxid Cu	Fungicid-baktericid	Nitrofarm SA	525	02.03.2013
76	COPPER OXYCHLORIDE 50 WP	Oxiklorur Cu	Fungicid-baktericid	Zenith CropSciences Bul-garia	442	16.03.2012
77	COPPER SULPHATE MANICA 25 SC	Cu metalik (Sulfat Cu)	Fungicid	Manica SpA	200	26.02.2010
78	COPROXIDE	Hidroxid Cu	Fungicid-baktericid	VAPCO	322	21.11.2007
79	CORAGEN 20 SC	Chlorantraniliprole	Insekticid	Du Pont International Op-erations SarL	384	18.03.2011
80	COSAVET DF	Squfur	Fungicid	Sulphur Mills Limited	202	26.02.2010
81	COTRAN MIX	Cymoxanil+mancozeb+folpet	Fungicid	Tragusa	420	14.11.2011
82	COTRAN PLUS	Cymoxanil+mancozeb+sulfat	Fungicid	Tragusa	498	02.10.2012
83	CRIPTAN 50 WP	Captan	Fungicid	VAPCO	321	21.11.2007
84	CUPRABLAU Z WP	Oksiklorur Cu	Fungicid-baktericid	Cinkarna Celje Inc	558	04.07.2014
85	CUPROFIX 30 DISPERSS	Mancozeb+sulfat Cu	Fungicid	Cerexagri SA	257/1	14.11.2011
86	CUPROFIX F DISPERSS	Folpet+bordolez	Fungicid	United Phosphorus Lim-ited	611	07.07.2015
87	CUPROSATE GOLD M 72 WP	Cymoxanil+mancozeb	Fungicid	Zenith CropSciences Bul-garia	446	16.03.2012
88	CUPROSULF	Sulfat Cu	Fungicid	Industrias Qiumicas del Valles SA	110	11.11.2009
89	CURENOX 50	Oxiklorur Cu	Fungicid-baktericid	Industrias Qiumicas del Valles SA	103	11.11.2009
90	CURZATE M 44 WP	Cymoxanil+mancozeb	Fungicid	DuPont International Op-erations Srl	514	08.01.2013
91	CURZATE M 68 WG	Cymoxanil+mancozeb	Fungicid	DuPont International Op-erations Srl	258/1	23.07.2012
92	CURZATE R	Cymoxanil+oxiklorur Cu	Fungicid	Du Pont de Nemours SA	139/1	29.12.2010
93	CYMOXANIL 45 % WG	Cymoxanil	Fungicid	Globachem nv	456	16.03.2012
94	CYPERMEX PLUS 550 EC	Chlorpyriphos+cypermethrin	Insekticid	MAC-GmbH	465	23.07.2012
95	CYTHRIN 100 EC	Cypermethrin	Insekticid	Agriphar SA	140	16.07.2010
96	DACONIL 72 SC	Chlorothalonil	Fungicid	Syngenta Crop Protection AG	33/2	08.10.2010

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97	DACOR	1,7-dioxaspiro-(5.5)-un-decane+lambda-cyhalothrin	Tërheqës	Orius S.r.l	602	07.07.2015
98	DACUS BAIT 100	Proteina te hidrolizuara	Feromon	Nitrofarm SA	479	23.07.2012
99	DAMINE 500 SL	2.4 D acid	Herbicid	Agriphar SA	227	01.02.2006
100	DANEEL 700 WDG	Dithianon	Fungicid	BASF Agro BV	259/1	02.03.2013
101	DANTOP 50 WG	Clothianidin	Insekticid	Sumitomo Chemical	324	21.11.2007
102	DECIS 2.5 EC	Deltamethrin	Insekticid	Bayer CropScience SA	49/1	01.02.2006
103	DELFOS 48 EC	Chlorpyriphos	Insekticid	Industrial Química Key, S.A.	549	02.05.2014
104	DEFEND WG	Squfur	Fungicid	Quimetal Internacional Registros e Inversiones Sociedad Limitada.	618	20.01.2016
105	DELTA M 2.5 EC	Deltamethrin	Insekticid	MAC-GmbH	492	02.10.2012
106	DEVRINOL	Napropamide	Herbicid	UPL Europe Ltd	642	23.06.2016
107	DICARZOL 50 SP	Formetanate hcl	Insekticid-akaricid	Comercio International e Servicos	528	02.03.2013
108	DIFCOR 250 EC	Difenoconazole	Fungicid	Globachem nv	457	16.03.2012
109	DIFEND	Difenoconazole	Fungicid dezinf	Globachem nv	517	08.01.2013
110	DIFO 25 EC	Difenoconazole	Fungicid	Sharda Europe BVBA	414	26.05.2011
111	DIMAN 69 WP	Mancozeb+dimethomorph	Fungicid	Zenith CropSciences Bul-garia	594	07.07.2015
112	DIMAN GLOBE 69 WG	Mancozeb+dimethomorph	Fungicid	Zenith CropSciences Bul-garia	595	07.07.2015
113	DIMETHON	Dimethoate	Insekticid	Industrial Química Key SA	466	23.07.2012
114	DIREX 7.5 GR	Chlorpyriphos	Insekticid	Kollant SRL	496	02.10.2012
115	DITHANE 75 WG	Mancozeb	Fungicid	Efthymiadis SA	362	29.12.2010
116	DITHANE M-45 blue 72 WP	Mancozeb	Fungicid	Efthymiadis SA	422	14.11.2011
117	DIVIDEND 030 FS	Difenoconazole	Fungicid dezifekt	Syngenta Crop Protection AG	178/2	08.01.2013
118	DRIZA WG	Iprodione	Fungicid	Industrias Afrasa SA	572	17.09.2014
119	DUETT ULTRA	Epoxiconazole+thiophanate methyl	Fungicid	BASF SE	538	14.06.2013
120	DURSBAN 480 EC	Chlorpyriphos-ethyl	Insekticid	Efthymiadis SA	364	29.12.2010
121	ECHO-TRAP RB	1,7 dioxaspiro+deltamethrin	Feromon	Vioryl SA	223	25.05.2005
122	EFDACON 40 EC	Dimethoate	Insekticid	Efthymiadis SA	162/1	21.11.2007
123	ELECTIS 75 WG	Mancozeb+zoxamide	Fungicid	Gowan Comercio Interna-tional e Servicos	529	02.03.2013
124	ELECTIS CX	Zoxamide + Cymoxanil	Fungicid	Elanco Hellas S.A.C.I.	632	23.06.2016
125	ELUMIS 105 OD	Mesotrione+nicosulfuron	Herbicid	Syngenta Crop Protection AG	515	01.08.2013
126	ENERVIN TOP	Metiram+ametoctradin	Fungicid	BASF SE	559	04.07.2014
127	ENOVIT METHYL	Thiophanate methyl	Fungicid	SIPCAM	11/2	14.11.2008
128	ENVIDOR SC 240	Spirodiclofen	Insekticid-akaricid	Bayer CropScience SA	240/1	18.03.2011
129	EQUATION PRO	Famoxadone+cymoxanil	Fungicid	Du Pont de Nemours SA	157/2	29.12.2010
130	EQUIP	Foramsulfuron+isoxadifen-ethyl	Herbicid	Bayer CropScience SA	241	26.04.2006
131	ERCOLE	Lambda-cyhalothrin	Insekticid dezinf	SIPCAM	585	12.10.2014
132	ESCARAT	Bromadiolone	Rodenticid	Cisaadriatica SaS	478	23.07.2012
133	ESTERON 60 EC	2.4 D acid	Herbicid	Efthymiadis SA	366	29.12.2010
134	ETHOMEX 480 SL	Ethephon	Reg. rritje	MAC-GmbH	576	17.09.2014
135	FABAN 500 SC	Dithianon + Pyrimethanil	Fungicid	BASF SE.	635	23.06.2016
136	FALCON EC 460	Spiroxamin+tebuconazol+tri-adimenol	Fungicid	Bayer CropScience SA	209/2	17.09.2014
137	FANTIC F WG	Benalaxil-M + folpet	Fungicid	Isagro SpA	327	21.11.2007
138	FANTIC M WP	Benalaxil-M + mancozeb	Fungicid	Isagro SpA	328	21.11.2007
139	FASTAC 10 EC	Alphacypermethrin	Insekticid	BASF Agro BV	28	12.02.2008
140	FOCUS ULTRA	Cycloxydim	Herbicid	BASF SE	61/2	08.01.2013
141	FOLICUR EW 250	Tebuconazole	Fungicid	Bayer CropScience SA	242/1	18.03.2011
142	FOLIO GOLD 537.5 SC	Metalaxyl-M+chlorothalonil	Fungicid	Syngenta Crop Protection AG	17/1	11.11.2009
143	FOLIZOL	Tebuconazole	Fungicid	Tragusa	402	26.05.2011
144	FOLLOW 80 WG	Folpet	Fungicid	Sharda Europe BVBA	596	07.07.2015
145	FOLPAN 80 WDG	Folpet	Fungicid	ADAMA Agriculture BV	400	26.05.2011
146	FORCE 0.5 G	Tefluthrin	Insekticid- dizinf	Syngenta Crop Protection AG	2/2	08.01.2013
147	FORTIN	Gliphosate	Herbicid	Industrial Química Key SA	469	23.07.2012
148	FORUM GOLD	Dimethomorph+dithianon	Fungicid	BASF Agro BV	539	14.06.2013

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149	FOSBEL 80 WG	Fosetyl aluminium	Fungicid	Probelte SA	451	16.03.2012
150	FOSBEL PLUS	Fosetyl aluminium+man-cozeb	Fungicid	Probelte SA	452	16.03.2012
151	FRUGICO	Diethofencarb	Fungicid	Globachem nv	562	04.07.2014
152	FRUMIDOR	Thiophanate methyl+maneb	Fungicid	SIPCAM	12/2	14.11.2008
153	FUNGURAN OH 50 WP	Hidroxid Cu	Fungicid-baktericid	Spiess Urania Chemicals GmbH	253/1	26.05.2011
154	FURY 10 EC	Zeta cypermethrin	Insekticid	FMC Corporation	21/2	18.03.2011
155	FUSILADE FORTE 15 EC	Fluazifop-p-butyl	Herbicid	Syngenta Crop Protection AG	105/2	16.03.2012
156	GALBEN C 4-33	Benalaxil+oxiklorur Cu	Fungicid	FMC Corporation	187/1	14.11.2008
157	GALBEN F 8-44	Benalaxil+folpet	Fungicid	FMC Corporation	188/1	14.11.2008
158	GALBEN M 8-65	Benalaxil+mancozeb	Fungicid	FMC Corporation	189/1	14.11.2008
159	GALILEO 40 ME	Tetraconazole	Fungicid	Isagro SpA	180/1	07.07.2015
160	GARANTEX	Bromadiolone	Rodenticid	Detia Degesch GmbH	308/2	23.07.2012
161	GARDENE	Metaldehyde	Moluskicid	Zapi SpA	554	02.05.2014
162	GASTROTOX E	Metaldehyde	Moluskicid	SIPCAM	612	07.07.2015
163	GIBB PLUS	Gibberellin A4.A7	Rreg. ritje	Globachem nv	501	02.10.2012
164	GLISTER 36 SL	Gliphosate	Herbicid	Sinon Corporation	592	07.07.2015
165	GLYFOR	Gliphosate	Herbicid	Orius Srl	590	12.10.2014
166	GLYPH UP 36 SL	Gliphosate	Herbicid	Efthymiadis SA	408	26.05.2011
167	GRAND 48 SL	Ethephon	Reg. rritje	Efthymiadis SA	292/1	23.07.2012
168	GRISU	Iprodione	Fungicid	SIPCAM	506	08.01.2013
169	GUFOS	Chlorpyriphos	Insekticid	Tragusa	350	29.12.2010
170	GUFOS 5 G	Chlorpyriphos	Insekticid dezinf	Tragusa	416	26.05.2011
171	GYPSO 50 GD	Oxiklorur Cu	Fungicid-baktericid	Arysta LifeScience SAS	263	30.10.2006
172	HELIOS 480 EC	Chlorpyriphos	Insekticid	Sharda Europe BVBA.	636	23.06.2016
173	HERSAN-I	2.4-D kripe acide	Herbicid	Industrial Quimica Key SA	550	02.05.2014
174	ICANOS 4 OD	Nicosulfuron	Herbicid	Nufarm SAS	527	02.03.2013
175	IMIDAMEX 70 WG	Imidacloprid	Insekticid	MAC-GmbH	473	23.07.2012
176	IMIDAN 50 WP	Phosmet	Insekticid-akaricid	Gowan Comercio Interna-tional e Servicos	530	02.03.2013
177	INDAR 5 EW	Fenbuconazole	Fungicid	Efthymiadis SA	409	26.05.2011
178	INFINITO	Propamocarb-hcl+fluopico-lide	Fungicid	Bayer CropScience SA	190	26.02.2010
179	INSECTICIDA KEY	Vaj mineral	Insekticid-akaricid	Industrial Quimica Key SA	584	10.12.2014
180	IPROMEX 500 SC	Iprodione	Fungicid	MAC-GmbH	535	14.06.2013
181	KAISO	Lambda-cyhalothrin	Insekticid	Nufarm SAS	463	23.07.2012
182	KALTERN	Dithianon	Fungicid	Orius S.r.l.	629	23.06.2016
183	KARATE ZEON 5 SC	Lambda-cyhalothrin	Insekticid	Syngenta Crop Protection AG	87/1	14.11.2008
184	KARATHANE STAR 35 EC	Mepthyl-dinocap	Fungicid	Efthymiadis SA	386	18.03.2011
185	KASTOR	Captan	Fungicid	Sharda Europe BVBA	587	10.12.2014
186	KATHRINA	Deltametrine	Insekticid	Orius S.r.l.	624	23.06.2016
187	KENTAN WG	Hidroxid Cu	Fungicid-baktericid	Isagro S.p.A	296	23.02.2007
188	KOCIDE 2000	Hidroxid Cu	Fungicid-baktericid	Kocide LLC	297	23.02.2007
189	KOHINOR 200 SL	Imidacloprid	Insekticid	ADAMA Agriculture BV	568	17.09.2014
190	KONAN	Tebuconazole	Fungicid	Industrial Quimica Key SA	548	02.05.2014
191	KOX	Hidroxid Cu	Fungicid-baktericid	Tragusa	380	18.03.2011
192	KUMULUS WG	Squfur	Fungicid	BASF SE	55/2	23.06.2016
193	KUSABI 300 SC	Piriofenone	Fungicid	ISK Biosciences Europe NV	589/1	10.12.2014
194	LAMEX 100 CS	Lambda-cyhalothrin	Insekticid	MAC-GmbH	561	04.07.2014
195	LANDED 10 WG	Cyproconazole	Fungicid	Sharda Europe BVBA	588	10.12.2014
196	LANNATE 25 WP	Methomyl	Insekticid	Du Pont	201	26.02.2010
197	LASER 480 EC	Spinosad	Insekticid	Efthymiadis SA	367	29.12.2010
198	LONIL 75 WP	Chlorothalonil	Fungicid	KEMICHEM SWISS GmbH.	633	23.06.2016
199	LUMAX 537.5 SE	Mesotrione+terbuthylazin+S-metolachlor	Herbicid	Syngenta Crop Protection AG	516	08.01.2013
200	LUNA EXPERIENCE 400 SC	Fluopyram+tebuconazole	Fungicid	Bayer CropScience SA	600	07.07.2015
201	MAC-DIFENOCONAZOLE 250 EC	Difenoconazole	Fungicid	MAC-GmbH	521	02.03.2013
202	MAGMA TRIPLE	Fosetyl-al+folpet+cymoxanil	Fungicid	Industrias Afrasa SA	573	17.09.2014
203	MALLET 20 SL	Imidacloprid	Insekticid	Nufarm SAS	606	07.07.2015

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204	MANFIL 75 WG	Mancozeb	Fungicid	Indofil Chemicals Company	423	14.11.2011
205	MANFIL 80 WP	Mancozeb	Fungicid	Indofil Chemicals Company	424	14.11.2011
206	MATCH 050 EC	Lufenuron	Insekticid	Syngenta Crop Protection AG	163/2	08.01.2013
207	MAVRIK 2 F	Tau-fluvalinate	Insekticid	ADAMA Agriculture BV	487	02.10.2012
208	MERCURY 83 WP	Captan	Fungicid	Ypsilon SA	244/1	14.11.2011
209	MERPAN 80 WDG	Captan	Fungicid	ADAMA Agriculture BV	401	26.05.2011
210	MERPAN 80 WG	Captan	Fungicid	Alfa Agricultural Supplies SA	4/1	14.11.2008
211	MESUROL 2 RB	Methiocarb	Insekticid-moluskicid	Bayer CropScience SA	66/1	14.11.2008
212	MESUROL FS 500	Methiocarb	Insekticid-moluskicid	Bayer CropScience SA	575	17.09.2014
213	METALDEHYDE NITROFARM 5 GB	Metaldehyde	Moluskicid	Nitrofarm SA	532	14.06.2013
214	METALIM	Metaldehyde	Moluskicid	Cisaadriatica Sas	477	23.07.2012
215	METRIPHAR 70 WDG	Metribuzin	Herbicid	Agriphar SA	544	14.06.2013
216	MEVAXIL 25 WP	Metalaxyl	Fungicid	Industrias Qiumicas del Valles SA	449	16.03.2012
217	MICROTHIOL DISPERSS	Squfur	Fungicid	Cerexagri-UPL	245/1	14.11.2011
218	MIDAS	Imidacloprid	Insekticid	Tragusa	351	29.12.2010
219	MIDO 20 SL	Imidacloprid	Insekticid	Sharda Europe BVBA	405	26.05.2011
220	MIKAL FLASH	Fosetyl aluminium+folpet	Fungicid	Bayer CropScience SA	200.1	14.11.2008
221	MIKAL PREMIUM F	Folpet+fosetyl al.+iprovalicarb	Fungicid	Bayer CropScience SA	497	02.10.2012
222	MINUET GEO	Zeta cypermethrin	Insekticid dezinf	FMC Chemical Sprl	513	08.01.2012
223	MOSPILAN 20 SG	Acetamiprid	Insekticid	Nisso Chemical Europe	176/1	23.07.2012
224	MOVENTO SC 100	Spirotetramat	Insekticid	Bayer CropScience SA	518	08.01.2013
225	MOXIMATE	Cymoxanil+mancozeb	Fungicid	Indofil Chemicals	428	14.11.2011
226	MYSTIC 25 WG	Tebuconazole	Fungicid	Nufarm SAS	431	14.11.2011
227	NASA	Gliphosate	Herbicid	Zenith CropSciences Bulgaria	444	16.03.2012
228	NATIVO 75 WG	Tryfloxistrobin+tebuconazole	Fungicid	Bayer CropScience SA	283/1	04.07.2014
229	NAUTILE DG	Cymoxanil+mancozeb	Fungicid	Cerexagri-UPL	246/1	26.05.2011
230	NEMACUR 40 LE	Fenamiphos	Nematocid	ADAMA Agriculture BV	509	08.01.2013
231	NEORAM WG	Oxiklorur Cu	Fungicid-baktericid	Isagro SpA	302	23.02.2007
232	NEOTOPSIN 70 WG	Thiophanate methyl	Fungicid	Efthymiadis SA	411	26.05.2011
233	NICOMEX PLUS WG	Thifensulfuron-methyl+nicosulfuron	Herbicid	MAC-GmbH	520	02.03.2013
234	NICOSH 4 SC	Nicosulfuron	Herbicid	Sharda Europe BVBA	407	16.05.2011
235	NILBU	Myclobutanil	Fungicid	Industrial Química Key SA	503	08.01.2013
236	NIMROD 250 EC	Bupirimate	Fungicid	ADAMA Agriculture BV	569	17.09.2014
237	NISSORUN 10 WP	Hexythiazox	Akaricid	Nippon Soda Co.,Ltd	592	10.12.2014
238	NITROPOL S	Vaj mineral	Insekticid-akaricid	Nitrofarm SA	454	16.03.2012
239	NOGOS 50 EC	Pirimiphos methyl	Insekticid	KEMICHEM SWISS GmbH	634	23.06.2016
240	NOIDIO GOLD 10 EC	Penconazole	Fungicid	Agrimix SrL	255/1	26.05.2011
241	NUPRID SUPREME SC	Imidacloprid	Insekticid	Nufarm SAS	461	16.03.2012
242	NURELLE D	Chlorpyriphos+cypermethrin	Insekticid	Agriphar SA	50/1	26.05.2011
243	ODIN	Abamectin	Insekticid-akaricid	Tragusa	574	17.09.2014
244	OIL-GUR	Vaj mineral	Insekticid-akaricid	Tragusa	352	29.12.2010
245	OLICOBRE 70 SC	Oksiklorur bakri	Fungicid	Probelte SA.	614	20.01.2016
246	OLIVAR	Dimethoate	Insekticid	Orius S.r.l.	627	23.06.2016
247	ONIL	Triadimenol	Fungicid	Industrial Química Key SA	502	08.01.2013
248	OPTIX R DISPERSS	Fosetyl aluminium+Cu metalik	Fungicid	United Phosphorus Limited	385	18.03.2011
249	ORIUS 2 WS	Tebuconazole	Fungicid dizinf	ADAMA Agriculture BV	570	17.09.2014
250	ORIUS 25 EW	Tebuconazole	Fungicid	ADAMA Agriculture BV	510	08.01.2013
251	ORIUS 6 FS	Tebuconazole	Fungicid dizinf	ADAMA Agriculture BV	483	10.02.2012
252	ORTUS	Fenpyroximate	Akaricid	Nyhon Nohyaku Co. Ltd	475	13.07.2012
253	ORVEGO 525 SC	Ametoctradin+dimethomorph	Fungicid	BASF SE	542	14.06.2013
254	OVIPRON TOP	Vajra te parafinuara	Insekticid-akaricid	Cerexagri-UPL	432	14.11.2011
255	PARASOL	Hidroxid Cu	Fungicid-baktericid	Nufarm SAS	332	21.11.2007
256	PEAK 75 WG	Prosulfuron	Herbicid	Syngenta Crop Protection AG	271	10.08.2010
257	PEN 10 EC	Penconazole	Fungicid	Sharda Europe BVBA	425	14.11.2011
258	PENCOMEX 100 EC	Penconazole	Fungicid	MAC-GmbH	522	02.03.2013

No	Commercial name	Active ingredient	Classification	Applicant	No	Date of registration
259	PENCONAZOLE NITROFARM 10 EC	Penconazole	Fungicid	Nitrofarm SA	220	18.03.2011
260	PENCOZEB 75 DG	Mancozeb	Fungicid	Cerexagri-UPL	360	29.12.2010
261	PENDIMEX 330 EC	Pendimethalin	Herbicid	MAC-GmbH	474	23.07.2012
262	PHOSMET ELANCO 50 WP	Phosmet	Insekticid	Elanco Hellas S.A.C.I.	631	23.06.2016
263	PHOSTOXIN TABLETS	Aluminium phosphide	Insekticid fumigant	Detia Degesch GmbH	83/2	23.07.2012
264	PIRIMOR 50 WG	Pirimicarb	Insekticid	Syngenta Crop Protection AG	89/1	14.11.2008
265	PISON	Chlorpyriphos	Insekticid	ADAMA Agriculture BV	484	02.10.2012
266	POLECI	Deltamethrin	Insekticid	Sharda Europe BVBA	476	23.07.2012
267	POLITHIOL	Vaj mineral	Insekticid-akaricid	Cerexagri	293	23.02.2007
268	POLTIGLIA BORDOLESE DISPERSS BLU	Sulfat Cu, perzierje me Ca	Fungicid-baktericid	Cerexagri-UPL	249/1	26.05.2011
269	POLTIGLIA BORDOLESE SCARAMAGNAN BLU	Sulfat Cu, perzierje me Ca	Fungicid-baktericid	Industria Chimica Scara-magnan Alberto & Co	265	30.10.2006
270	POLYRAM WG	Metiram	Fungicid	BASF SE	57/2	16.03.2012
271	PREVICUR ENERGY	Propamocarb-hcl.+fosetyl al	Fungicid	Bayer CropScience SA	276	26.02.2010
272	PROCEED	Chlorothalonil+ cyprocona-zole	Fungicid	Sharda Europe BVBA.	638	23.06.2016
273	PROPAMEX 722 SL	Propamocarb-hydrochloride	Fungicid	MAC-GmbH	507	08.01.2013
274	PROPI SUPER 25 EC	Propiconazole	Fungicid	Sharda Europe BVBA	406	26.05.2011
275	PROPLANT	Propamocarb-hydrochloride	Fungicid	Agriphar SA	204/1	26.02.2010
276	PROTEUS 110 OD	Thiacloprid+deltamethrin	Insekticid	Bayer CropScience SA	601	07.07.2015
277	PROXANIL	Cymoxanil+propamocarb-hcl	Fungicid	Agriphar SA	361	29.12.2010
278	PULSAR 200 SL	Imidacloprid	Insekticid	Orius S.r.l.	620	23.06.2016
279	PYRIFOS 5 GR	Chlorpyriphos	Insekticid dezinf	Efthymiadis SA	607	07.07.2015
280	PYRIMEX 7.5 GR	Chlorpyriphos-ethyl	Insekticid	MAC-GmbH	534	14.06.2013
281	PYRINEX 48 EC	Chlorpyriphos-ethyl	Insekticid	ADAMA Agriculture BV	524	02.03.2013
282	PYRUS 400 SC	Pyrimethanil	Fungicid	Agriphar SA	235/1	26.05.2011
283	QUADRIS 25 SC	Azoxystrobin	Fungicid	Syngenta Crop Protection AG	108/2	16.03.2012
284	QUANTUM R	Dimethomorph+oxychlorur Cu	Fungicid	ADAMA Agriculture BV	583	10.12.2014
285	QUANTUM SC	Dimethomorph	Fungicid	ADAMA Agriculture BV	488	02.10.2012
286	QUICKPHOS	Aluminium phosphide	Insekticid fumigant	United Phosphorus Lim-ited	216	16.07.2010
287	RAMSIDE 20 WP	Sulfat Cu, perzierje me Ca	Fungicid-baktericid	Nitrofarm SA	429	14.11.2011
288	REGALIS PLUS	Prohexadione Calcium	Rreg. rritje	BASF SE.	641	23.06.2016
289	REGLONE	Diquat	Herbicid	Syngenta Crop Protection AG	90/1	14.11.2008
290	REGLONE FORTE	Diquat	Herbicid	Syngenta Crop Protection AG	76/1	21.11.2007
291	RELDAN 225 EC	Chlorpyriphos-ethyl	Insekticid	Efthymiadis SA	365	29.12.2010
292	REVUS 250 SC	Mandipropamid	Fungicid	Syngenta Crop Protection AG	10/1	17.09.2014
293	RIDOMILGOLD COMBI 45 WG	Folpet+metalaxyl-M	Fungicid	Syngenta Crop Protection AG	27	24.05.2004
294	RIDOMIL GOLD MZ 68 WG	Metalaxyl-M+mancozeb	Fungicid	Syngenta Crop Protection AG	151/1	30.10.2006
295	RIDOMIL GOLD PLUS 42.5	Metalaxyl-M+oxiklorur Cu	Fungicid	Syngenta Crop Protection AG	120/1	16.07.2010
296	RITMUS	Deltametrin	Insekticid	Probelte SA	615	20.01.2016
297	RIVAL 722 SL	Propamocarb-hydrochloride	Fungicid	Zenith CropSciences Bul-garia	597	07.07.2015
298	RIVAL DUO 450 SC	Propamocarb-hcl.+cymoxanil	Fungicid	Zenith CropSciences Bul-garia	598	07.07.2015
299	RIZA 25 WG	Tebuconazole	Fungicid	Cheminova A.S	462	16.03.2012
300	ROBAN WAX BLOCK	Difenacoum	Rodenticid	PelGar	119	16.07.2010
301	ROGOR L 40	Dimethoate	Insekticid	Cheminova A.S	186/1	14.11.2008
302	ROUNDUP	Gliphosate	Herbicid	Monsanto Europe SA	122/1	26.02.2010
303	SANAFRUT	Dodine	Fungicid	Orius S.r.l.	628	23.06.2016
304	SCABER	Fluazinam	Fungicid	Orius S.r.l.	625	23.06.2016
305	SCALA	Pyrimethanil	Fungicid	BASF Agro BV	579	17.09.2014
306	SCOMRID AEROSOL	Imazalil	Fungicid	Efthymiadis SA	608	07.07.2015
307	SCORE 250 EC	Difenoconazole	Fungicid	Syngenta Crop Protection AG	113/1	14.11.2008

No	Commercial name	Active ingredient	Classification	Applicant	No	Date of registration
308	SEKATOR OD	Amidosulfuron+iodosulfu-ron-methyl-sodium	Herbicid	Bayer CropScience SA	564	04.07.2014
309	SELECT SUPER	Clethodim	Herbicid	Arysta LifeScience	97/1	04.07.2014
310	SENCOR WG 70	Metribuzine	Herbicid	Bayer CropScience SA	111/1	14.11.2008
311	SHAPER	Gibberellina A4.7+6-ben-zyladenine	Rreg. ritje	Orius Srl	603	07.07.2015
312	SHARALPHOS	Fosfid aluminium	Insekticid	Sharda Europe BVBA	427	14.11.2011
313	SHARMET	Metaldehyde	Moluskicid	Sharda Europe BVBA	445	16.03.2012
314	SHAVIT F	Folpet+triadimenol	Fungicid	ADAMA Agriculture BV	433	16.03.2012
315	SIGNUM	Boscalid+pyraclostrobin	Fungicid	BASF SE	141	12.02.2008
316	SLUG GILL GB	Ferric phosphate	Moluskicid	Efthymiadis SA	413	26.05.2011
317	SOLUTION PRO	Cymoxanil+oxiklorur Cu	Fungicid	Zenith CropSciences Bul-garia	464	23.07.2012
318	SPARVIERO	Lambda-cyhalothrin	Insekticid	SIPCAM	505	01.08.2013
319	SPIT	Triadimenol	Fungicid	Tragusa	403	26.05.2011
320	SPRITZ-HORMIN 500	2.4 D sodium	Herbicid	Nufarm SAS	96/1	14.11.2008
321	STOMP 330 EC	Pendimethalin	Herbicid	BASF Agro BV	150	12.02.2008
322	STOMP AQUA	Pendimethalin	Herbicid	BASF Agro BV	543	14.06.2013
323	STROBY WG	Kresoxim-methyl	Fungicid	BASF SE	106/2	23.06.2016
324	SUCCESS TM 0.24 CB	Spinosad	Insekticid	Efthymiadis SA	368	29.12.2010
325	SULFOLAC 80 WG	Squfur	Fungicid	Agrostulln GmbH	202	26.02.2010
326	SULPHUR 80 WG	Squfur	Fungicid	Ypsilon SA	304	23.02.2007
327	SUMI-ALPHA 5 EC	Esfenvalerat	Insekticid	Sumitomo Chemical Co., Ltd	29/2	14.11.2011
328	SUN OIL 7 E	Vajra te parafinuara	Insekticid-akaricid	Efthymiadis SA	412	26.05.2011
329	SUPERCOP	Hidroksid bakri	Fungicid	Orius S.r.l.	623	23.06.2016
330	SWITCH 62.5 WG	Fludioxonil+cyprodinil	Fungicid	Syngenta Crop Protection AG	274	08.10.2010
331	SYLLIT 400 SC	Dodine	Fungicid	Agriphar SA	35/1	14.11.2011
332	SYSTEM	Fosetyl-al	Fungicid	Orius S.r.l.	619	23.06.2016
333	TAIFUN	Gliphosate	Herbicid	Feinchemie Schwebda GmbH	511	01.08.2013
334	TALENDO	Proquinazide	Fungicid	Du Pont de Nemours & Co	305	23.02.2007
335	TATTOO	Propamocarb-hcl+mancozeb	Fungicid	Bayer CropScience SA	201/1	14.11.2008
336	TEBUCONAZOLE 25 EW	Tebuconazole	Fungicid	Sharda Europe BVBA	415	26.05.2011
337	TELDOR SC 500	Fenhexamid	Fungicid	Bayer CropScience SA	196/1	04.07.2014
338	TEPPEKI	Flonicamid	Insekticid	ISK Biosciences Europe NV	581	17.09.2014
339	TERCEL	Dithianon+pyraclostrobin	Fungicid	BASF SE	211/1	02.03.2013
340	TERRAGUARD PLUS EC	Chlorpyriphos+cypermethrin	Insekticid	Zenith CropSciences Bul-garia	523	02.03.2013
341	THIANOSAN 80 WG	Thiram	Fungicid	Taminco Italia Srl	526	02.03.2013
342	THINNER	6-benzyladenine	Reg. rritje	Orius Srl	591	10.12.2014
343	THIOVIT JET 80 WG	Squfur	Fungicid	Syngenta Crop Protection AG	152/1	14.11.2008
344	TILT 250 EC	Propiconazole	Fungicid	Syngenta Crop Protection AG	36/3	17.09.2014
345	TINA	Abamectin	Insekticid-akaricid	Industrial Química Key SA	468	23.07.2012
346	TINAMEX	Abamectin	Insekticid-akaricid	Tragusa	353	29.12.2010
347	TITUS 25 WG	Rimsulfuron	Herbicid	Du Pont de Nemours SA	143/1	29.12.2010
348	TOMAR	Propamocarb hcl	Fungicid	Orius S.r.l.	621	23.06.2016
349	TOP PLUS 70 WP	Thiophanate methyl	Fungicid	Zenith CropSciences Bul-garia	599	07.07.2015
350	TOPAS 10 EC	Penconazole	Fungicid	Syngenta Crop Protection AG	36/2	08.10.2010
351	TOPENCO 100 EC	Penconazole	Fungicid	Globachem nv	563	04.07.2014
352	TORNADO 5 EC	Quizalofop-P-ethyl	Herbicid	Zenith CropSciences Bul-garia	443	16.03.2012
353	TOUCHDOWN WITH SYSTEM 4	Gliphosate	Herbicid	Syngenta Crop Protection AG	177	23.04.2003
354	TRAGLI	Gliphosate	Herbicid	Tragusa	354	29.12.2010
355	TRAXI	Oxiklorur Cu	Fungicid-baktericid	Tragusa	381	18.03.2011
356	TRIMEXA 75 WG	Tribenuron methyl	Herbicid	MAC-GmbH	508	08.01.2013
357	TRIOMAX 45 WP	Cymoxanil+oxiklorur Cu+mancozeb	Fungicid	Zenith CropSciences Bul-garia	447	16.03.2012
358	TRISCABOL DG	Ziram	Fungicid	Cerexagri	336	21.11.2007
359	TRISOL 40	Dimethoate	Insekticid	Tragusa	355	29.12.2010

No	Commercial name	Active ingredient	Classification	Applicant	No	Date of registration
360	TYLAL DOUBLE	Fosetyl-Al i pastër + Man-cozeb i pastër.	Fungicid	Cheminova Agro, S.A.	617	20.01.2016
361	U 46 M FLUID 500 GL	MCPA	Herbicid	Nufarm SAS	63/3	23.07.2012
362	UARDIN	Chlorpyriphos+cypermethrin	Insekticid	Industrial Química Key SA	467	23.07.2012
363	UNICORN DF	Squfur+tebuconazole	Fungicid	Sulphur Mills Limited	453	16.03.2012
364	VALBON WG	Benthiavalicarb (-isopropyl) + mancozeb	Fungicid	K&N Efthymiadis S.A.	635	23.06.2016
365	VAPCOMORE 20 % SP	Acetamiprid	Insekticid	VAPCO	320	21.11.2007
366	VELLUTO	Gibberellina A4.7	Reg. rritje	Orius Srl	604	07.07.2015
367	VERITA	Fenamidone+fosetyl alumin-ium	Fungicid	Bayer CropScience SA	198/1	04.07.2014
368	VERTIMEC 018 EC	Abamectin	Insekticid-akaricid	Syngenta	181/2	10.12.2014
369	VITENE ULTRA SC	Cymoxanil	Fungicid	SIPCAM	494	02.10.2012
370	VITRA 40 WG	Hidroxid Cu	Fungicid-baktericid	Industrias Qiumicas del Valles SA	448	16.03.2012
371	VIVANDO	Metrafenone	Fungicid	BASF SE	359	29.12.2010
372	VIVITAR	Penconazole.	Fungicid	Orius S.r.l.	622	23.06.2016
373	VYDATE 10 L	Oxamil	Insekticid-akaricid	Du Pont de Nemours and Company	307/1	02.10.2012
374	YPER 50 WP	Hidroxid Cu	Fungicid-baktericid	Efthymiadis SA	410	26.05.2011
375	YUMP	Alphacypermethrin	Insekticid	Tragusa	421	14.11.2011
376	ZATO 50 WG	Trifloxystrobin	Fungicid	Bayer CropScience SA	210/1	17.09.2014
377	ZATO PLUS	Trifloxystrobin+captan	Fungicid	Bayer CropScience SA	190/1	04.07.2014
378	ZETANIL M	Cymoxanil+mancozeb	Fungicid	SIPCAM	145	18.03.2011
379	ZIRAM 76 WG	Ziram	Fungicid	Efthymiadis SA	217	25.05.2005
380	ZIRAM GU 76 WG	Ziram	Fungicid	Tragusa	382	18.03.2011
381	ZOLFO VENTILATO SCOREVOLE	Squfur	Fungicid	Zolfindustria Srl	460	16.03.2012

List 2: Those not allowed to be imported, but can be traded and used in Albania (October 2016)

No	Commercial name	Active ingredient	Classification	Applicant	No	Date of registration
1	AMOK G	Gliphosate	Herbicid	United Phosphorus Limited	455	16.03.2012
2	BAKRENI ANTRACOL WP 63	Propineb+oxiklorur Cu	Fungicid	Bayer CropScience SA	43	01.02.2006
3	CURZATE R DF	Cymoxanil+oxiklorur Cu	Fungicid	Du Pont International Operations SarL	203/1	14.11.2008
4	CYPERGAN 10 EC	Cypermethrin	Insekticid	Phytorgan SA	472	23.07.2012
5	DOMARK 4 EC	Tetraconazole	Fungicid	ISAGRO S.p.A	180	14.11.2008
6	DOMINATOR 360 SL	Gliphosate	Herbicid	Efthymiadis SA	363	29.12.2010
7	EQUATION CONTACT	Famoxadone+mancozeb	Fungicid	Du Pont International Operations SarL	195/1	14.11.2008
8	FLORAMITE 240 SC	Bifenazate	Akaricid	Chemptura Netherlands BV	260	08.10.2010
9	GLYWEED	Gliphosate	Herbicid	Sabero Europe BV	404	26.05.2011
10	GRANSTAR 75 WG	Tribenuron methyl	Herbicid	Du Pont International Operations SarL	123	16.07.2010
11	HUSSAR OD	Iodosulfuron-methyl-sodium + Mefenpyr-diethyl+Isoxadifen-ethyl	Herbicid	BAYER AG	243/1	18.03.2011
12	IPIRON 45 SC	Linuron	Herbicid	Novafitto IPC	102	11.11.2009
13	LEONE 36 SL	Gliphosate	Herbicid	Ypsilon SA	442	14.11.2011
14	LINTUR 70 WG	Triasulfuron+dicamba	Herbicid	Syngenta Crop Protection AG	272	08.10.2010
15	LOGRAN 20 WG	Triasulfuron	Herbicid	Syngenta Crop Protection AG	273	08.10.2010
16	LYPHASE 36 SL	Gliphosate	Herbicid	Phytorgan SA	471	23.07.2012
17	MARCATE 100 CS	Lambda-cyhalothrin	Insekticid	Globachem NV	580	17.09.2014
18	NEOSTOP 1 % DP	Chlorpropham	Rreg. ritje	Agriphar SA	110	16.07.2010
19	RAXIL FS 060	Tebuconazole	Fungicid dizifekt	BAYER AG	199/1	14.11.2008
20	ROQUAT	Diquat dibromide	Herbicid	Globachem nv	458	16.03.2012

10.8 Annex 8: Monitoring Responsibilities for Environmental Indicators

Upon Albanian legislation regarding monitoring few institutions are dealing with monitoring and almost in national levels. The National Environmental Agency (NEA), has an appropriate chemical laboratory which in working only in projects where is included as partner or in those implemented by Environmental Ministry. NEA is not allowed to find out chemical analyses as third party. The NEA together with REAs review most of the monitoring results defined by other specialized institutions or case after case by municipality institutions. REAs and Environmental Inspectorates helps, supervise or/and assists if necessary in monitoring in regional levels. The agency of Archaeological Services and National Center for Inventory of Cultural Assets, are the main national institutions that evaluate important cultural chance finds. Regional Directorate of culture of Korce, Vlore, and Berat are main cultural monitoring authorities in local level.

In case of chemical analyses, the implementer, with collaboration of Environmental Inspectorate and REAs define one lab to do the chemical analyses considering the environmental indicators to be monitored.

Table on Summarized Environmental Indicators and monitoring available institutions

Responsible and Available Institutions	Environmental indicator
Public Health Institution/Health Primary service/ Health services	-Content in air of PMs, O_3 , Pb, SO_2 ,NOx, CO, hydrocarbons -Bacterial indicators; -Microbiological parameters for beaches and coastal waters; -Level of population exposure due to microbiological and chemical pollution in coastal waters and beaches; -Level of population exposure due to contaminated groundwater -Level of population exposure due to soil contamination -Water quality as pH, COD and BOD5, alkalinity, acidity, Sulfur content, ammoniac, phenols, phosphors, N and heavy metals. -Percentage content of contaminants -Merceological content of solid wastes Noise, vibration and radioactive levels
The Ministry of Territorial Planning and local government	-Yearly amount of generation of solid wastes; -Distribution of solid wastes upon municipalities and regions -Yearly amount of waste waters generated in municipalities and regions -Yearly generation of solid wastes from construction (debris) and its distribution on municipalities and regions.
Institute of Geo-sciences, Energy, Waters and Environment (IGEWE) GeoAlba	-Average of air temperatures; -Sea level; -Quantitative precipitation; -Ground water levels. -Content of SO_2, NOx, Pb, in soils, PM, Pb, CO, Hydrocarbons content in air; -Noise level, Radioactivity in air and non-ionized electromagnetic radiation in atmosphere (only IGEWE) -BOD and COD in waters -Radioactivity in Waters -River delta dynamics (only IGEWE) -Water radioactivity (only IGWE) -Morphology and topography of coastal waters (only IGEWE) -Coastal morphology (only IGEWE) -Alkalinity -Specific conductivity -Acidity -Ph content -River flow and discharges (only IGEWE) -Heavy metals -Sea lagoon water exchange (IEGWE) -River delta dynamics (IEGWE) -Sedimentation

Responsible and Available Institutions	Environmental indicator
	-Soil erosion
University of Agriculture	-Heavy metal contents; -Pesticide contents; -Hydrocarbon; -Hardness -Acidity -Content of SO_2, NOx, Pb, in soils, PM, Pb, CO, Hydrocarbons content in air; -Ph content -Content of heavy metals in oysters -BOD and COD in waters -Soil fertility; -Content of Na, Cl, SO_4 for saline soils, content of nutrients in trophic soils, -Ratio magnesium/Cl in magnesium soils -Soil radioactivity -Soil erosion
University of Tirana, Geoscience University and Faculty of Natural Sciences	Doing almost the main analyses related to soil and water quality
Municipalities inspectorates Environmental inspectorates REAs	-Hygienic conditions -Pollution -Social and cultural impacts -Drinking water quality -Solid wastes and waste waters -Green cover
National Agency for Protected Areas (NAPA)	Changes in protected areas
Agency of Archaeological Services National Center for Inventory of Cultural Assets Regional Directorate of culture of Korce, Vlore, Berat	Chance finds management

10.9 Annex 9: Compiled Comments and Responses to the ESMP

COMPILED COMMENTS AND RESPONSES ON DRAFT ESMP REPORT		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
World Bank Environmental Safeguards Specialist	Please find the following comments regarding the review of Environmental sections only for 4 draft priority ESMPs submitted by COWI/CEIA. Please reflect and incorporate these comments along with comments from Anja and Bekim, and submit the revised ESMPs to MARDWA:	Statement no response is necessary
World Bank Environmental Safeguards Specialist	• Since all 4 draft ESMPs are prepared using the same template, the comments apply to all (but where relevant, chapter and section numbers are quoted as they are in ESMP for Murriz Thana).	Statement no response is necessary
World Bank Environmental Safeguards Specialist	• The Executive Summary is too short and not representative for the whole ESMP document. The Summary should be extended to around 4-5 pages, to include at least the summary of main potential negative impacts and respective mitigation actions; monitoring arrangements and reporting procedure. Additionally, it should make references to chapters where more detailed info on respective topic(s) are to be found. Schematic map showing main areas (branches of I&D scheme) to be rehabilitated in respect to other physical characteristics, population centres, protected areas etc. should be included in this section.	The Consultant will make the Executive Summary longer and has included a summary of the main positive and negative impacts and the mitigation actions and monitoring arrangements. The Consultant has also referred to other chapters in the report. A schematic map has also been included.
World Bank Environmental Safeguards Specialist	• Introduction – (i) The ESMP is presently applicable to the whole scheme rehabilitation. This may be Ok from the Albanian legal point of view, but the ESMPs also need to be CONTRACT-SPECIFIC, and clearly relate to WB-funded-works-on rehabilitation of parts or whole I&D system. If the Project is not rehabilitating the whole command area of the scheme, this needs to be clearly stated in section 2 (and in the summary).	The Consultant thanks the reviewer for this comment. The ESMP has been made more Contract Specific detailing on the two branches of Krutje and Terbuf that are to be rehabilitated.
World Bank Environmental Safeguards Specialist	• (ii) Similarly, section 2.5 notes several branches (sections2.5.1 to 2.5.4) but it does not say which ones are to be rehabilitated using funds from the Project. If all of them- this needs to be clearly stated in section 2, and repeated here.	The numbering of Section 2 has been changed to reflect high priority first Section 2.1 and Low Priority in section 2.2. Fig 2.2 has been changed to include a new map from the Updated Pre-Feasibility Study provided to the ESMP Consultant on 13th April 2016. Table 2.2 has also been colour shaded green to depict the high priority branches.
World Bank Environmental Safeguards Specialist	• (iii) Section 2.5.6 – there is a long list (bullet points) describing scope of the rehabilitation works. Clarification is needed to which ones are to be included in WB-funded Project – otherwise the reader can interpret that all of them are – and later complain that this information is untrue. This issue is serious – and need to be dealt with systematically in the whole ESMP – and repeated several times, where relevant! Potentially, this issue can stop the whole Project from progressing,	Clarification has been provided to indicate the actual works that are to be performed. This has been taken from the Updated Feasibility Study Report provided to the ESMP Consultant on 13th April 2016.

COMPILED COMMENTS AND RESPONSES ON DRAFT ESMP REPORT		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
	as the information (if misleading) can cause the Bank to start questioning the rationale behind the rehabilitation of the scheme.	
World Bank Environmental Safeguards Specialist	• (iii) Section 2.5.6 – last sentence "The full extent of the works …" – this cannot stay in the ESMP – clarification needs to be obtained before completing the ESMP and the authors need to include the definite list of activities and areas where the works are to be executed. If this is not known – how the "site-specific ESMP" can be prepared?	The reference to the sentence beginning "the full extent of the works proposed …" has been taken out.
World Bank Environmental Safeguards Specialist	• (iv) Section 2.12.3 – the authors should refrain from statements "may be triggered". From the Project related documents it is clear that the policy is triggered, and that waiver has been obtained, based on OP7.50, para 7(a). The text to be used can also be found in PAD and should be the same for each scheme – unless the consultant determines that para 7(a) does not apply. No additional exemption reasons should be discussed or else;	Section 2.12.3 has been rewritten. The ESMP Consultant thanks the reviewer and can confirm that the correct text has been taken from the PAD and will be included in each individual ESMP.
World Bank Environmental Safeguards Specialist	• Description of Mitigation Measures - (i) section 4.2 first set of bullet points – below "adherence to all relevant laws …" add another bullet points – "Adherence to Environmental, Health and Safety Policies of the World Bank and full compliance with site-specific ESMP for Murriz Thana (this document)";	This additional bullet point has been added
World Bank Environmental Safeguards Specialist	• (ii) Section 4.3. – Text is OK, but respective measures are not found in the table of ESMP – so, the authors need to include the following measures: (1) contractor's method statement for execution of works, to be approved by the Client. (2) Waste Management Plan, to be prepared by Contractor and approved by the Client. (3) add actions on borrow pits and other (as noted in the first 3 bullet points) into table of ESMP. (4) add construction of sand-traps into table ESMP –in design stage and in construction stage;	The requested additions have been added. The reviewer failed to see that contractor method statement was included in the Table 4.1 as well as Waste Management Plan etc. The Consultant has reworded this section to make it clearer and added some more rows.
World Bank Environmental Safeguards Specialist	• (iii) section 4.4 – add repair and upgrade of existing roads (as mentioned in this section) into table part of ESMP;	Repair and upgrade of existing roads has been reworded and added into Table 4.1 under construction and traffic in Tender and Design Measures.
World Bank Environmental Safeguards Specialist	• (iv) section 4.6 – table presentation of ESMP – see comments above and add measures. Additionally, delete actions that are (from reading previous text) not relevant – like for example "Land Use" – "loss of housing" – if in the previous text you state there is no loss of housing and resettlement, why you have it in table ESMP? Same applies to "infrastructure" – Unsightly and vacated houses…" and "flora" – "loss of indigenous vegetation …". The ESMP tables need to be as much specific as possible and there is another bullet point comment related to this, below;	The Consultant has changed this text to" Loss of Land" under the row called Land Use to reflect the comments from the Social Safeguard Specialist. The Consultant believes it is important to still include loss of indigenous vegetation under flora. It is impossible to be completely sure that there are no indigenous flora about. Better to have in the mitigation plan than not. The reviewer must remember that the FSR has only been updated and provided to the ESMP Consultant on 13 April and this still

COMPILED COMMENTS AND RESPONSES ON DRAFT ESMP REPORT		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
		does not include enough details to make the Table that more specific. Time constraints and short deadlines from MARDWA also prevent work on this.
World Bank Environmental Safeguards Specialist	• Description of Monitoring Programme – this section should be improved to be much more specific – and should describe details of monitoring program which is to be implemented on the scheme – therefore statements like in last para of this section – "need to be agreed between …" will have to change in accordance with concrete arrangements reached. If the authors are in doubt, they should consult other Project-related documents and, if still in doubt, re-confirm these arrangements with the Client before presenting in ESMP.	The Consultant has improved this section and made the text more specific to each individual scheme.
World Bank Environmental Safeguards Specialist	• Section 5.1 – general text, like in second para, is not helpful and should be replaced (or supplemented) with concrete details of who will do monitoring on certain parameters, with appropriate references to table which follows, as necessary.	The ESMP Consultant has improved this section and can also provide an Annex to this section with much more monitoring details.
World Bank Environmental Safeguards Specialist	• General comment in respect to ESMP table for mitigation and monitoring. The tables present a main output of the ESMP reports and aim at providing the contractors with concrete and specific actions that need to be undertaken. Presently, I have several concerns about the tables: (1) the text is not always following the table with respective action. I have noted several of these in the above text, but the list is not exhaustive. This needs to be improved and added in the text where necessary.	The format of the table is an established one that has been used on past ESMP without any issues. The time constraints imposed by MARDWA due to the imminent tendering prevent this table from being substantially revised.
World Bank Environmental Safeguards Specialist	• (2) The actions are not easy to follow – from design to implementation to operation phase – which is one of the aims of the tables – to ensure that all actions are (relatively) easily monitored in the chain and that missing links are easily spotted. In case this fails – the story "whose fault is it" opens – and then the players do not focus on solutions but on blame shifting. This should not be the case – and ESMP tables are there to help both the contractor, supervisor and the Client to perform their respective tasks.	The Table is designed to follow the way the project evolves so it starts with Preconstruction incorporating Tender and Design Socio Economic and Environmental Factors then moves onto Construction (incorporating socio economic and environmental factors and then onto Operation incorporating the same factors). The Consultant could colour code the rows that are common between the different phases
World Bank Environmental Safeguards Specialist	• (3) The tables need to be site-specific – for example, to note that on XX,VV, ZZ places, syphons in the river need to be constructed and that measures to protect fish (and name these) need to be taken while executing works in water. This is presently not the case, but tables list only general measures to be applied throughout. As such, these tables are of "general" and not specific nature. In line with my previous comments, this needs to be changed – and while I understand that in some cases there is no complete clarity on "branches" or sections of I&D scheme(s) to be rehabilitated, at	The Consultant will make the table more site specific, but it is quite difficult to distinguish what works constitute first priority from the Updated FSR. This is especially so for the Murriz Thana ESMP.

COMPILED COMMENTS AND RESPONSES ON DRAFT ESMP REPORT		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
	least some ideas must be there coming from designers and the Client. Please remember that EMP-tables are becoming part of the bidding documents and contracts and need to provide specific information to the Contractor – otherwise there is no point making any specific ESMP – but "one-size fits all" – however, since we are not going along that road – more "customization" of both tables are required.	
World Bank Environmental Safeguards Specialist	• Reporting procedures – (i) in the textual part in section 7.2.1 frequency of various reporting need to be mentioned. Presently it is unclear. Even after looking at table 7.2 these are not fully clear to me. Kindly elaborate/clarify as necessary;	The frequency of reporting will be clarified and elaborated.
World Bank Environmental Safeguards Specialist	• (ii) in section 7.2.3 last para before the table 7.2 – needs to be corrected. Reporting obligations between MARDWA and WB are defined in Project-related documents and actual period needs to be put here.	The frequency of reporting will be mentioned and taken from the PAD and other documents
World Bank Environmental Safeguards Specialist	• (iii) It is unclear who will make Environmental Monitoring Report to the Bank and how often. Please clarify and add into table 7.2; (iv) in Table 7.2, an Independent Env Monitoring Cons is responsible for EMP updates of the Env Monitoring Reports. Please look at these closely and compare with ToR for this task – and edit as appropriate. (v) Clarify "submitted to" column, and edit "NEA?", "REA?" etc. – the authors should present clear info on whom the report is submitted to.	The EMR reporting responsibility and frequency will be clarified. Table 7.2 overall will be improved to reflect he comments from the Reviewer.
World Bank Environmental Safeguards Specialist	• Section 8.2 "Source of Funds" – text in this section needs to be clear and does not include "it is assumed that …". If in doubt, authors should please clarify with the Client and add actual statements. If this is to be discussed and agreed in future, say so and provide the reasoning.	Source of funds will be from the WRIP Loan during the Construction period and during the operations from the State Budget or from the local government budget. The text will be clarified
World Bank Environmental Safeguards Specialist	• Annex 9.2 – add a map with location and main features of the national park related to the scheme.	A map will be provided
World Bank Environmental Safeguards Specialist	• Annex 7 – section 9.7.3 – starting from "A new Plant Protection Product Strategy …" to end of this section – the text is obviously a "cut & paste" from another document prepared in period 2012-14. Please update with developments since	The Consultant has made extensive enquiries in MARDWA and elsewhere and there is no updated information on this issue. The time constraints on getting the ESMP ready in time make it not possible to spend further time on this issue. The relevant pages of the EU Acquis (Chapter 11 Agriculture, Chapter 12 Food Safety and Chapter Environment contain no information on new initiatives regarding pesticides.
World Bank Social Safeguards Specialist	NOTE: The Social Safeguard Specialist did not prepare any specific comments to the ESMP reports. The verbal comments were conveyed to the Consultant at a meeting in the World Bank Offices Tirana on 5th	The Consultant has made changes to the ESMP report based on Social Safeguard Specialist recommendations.

COMPILED COMMENTS AND RESPONSES ON DRAFT ESMP REPORT		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
	March 2016. The following are the main comments picked up at this meeting. • Inclusion of statements that schemes follow a similar trend to the prefecture and district where no specific data exists for the I&D scheme. • Any temporary land take during construction will be on state owned and unoccupied land • Changes to Section 4.2 and Section 4.4 • Inclusion of Abbreviated RAP into Table 4.1 • changes to the 5th para of section 7.2.1 • Changes to Table 7.1	These were elaborated, one by one, at the 5th March meeting and agreed before being included in the updated ESMP Report..
Sida Gender Specialist Ms Anja Nordlund	I found some time and allocated this to these reports. Please find some complementary comments enclosed in the 2 of the documents sent: The stakeholder consultation report and the ESMP for Divjaka.	Statement – No response necessary
Sida Gender Specialist Ms Anja Nordlund	• Front cover comment "I think you should carefully consider the relationship between chapter 2 and 3/4. A lot of useful information is provided in chapter 2 (a lot of work went into this) so how are each of these topics potentially impacted positively and negatively by the project? IF you do not see any connection I think this should be written as well – but also argued for."	We have made some clarifications in the opening part of Chapter 2 under Environment and Socio Economic Factors and also in the opening paragraphs of chapter 3 and 4.
Sida Gender Specialist Ms Anja Nordlund	• Page 1-1, last para: " And nobody is living there now? If people live 'unauthorised on state own land' resettlement still applied.	The intention is to use state owned land that has no one living on it. The Consultant is aware of the conditions and rights of people living on state owned land.
Sida Gender Specialist Ms Anja Nordlund	• Page 1-2 5th Para " This is not the correct definition…I suggest this is taken out"	The definition has been taken out as requested.
Sida Gender Specialist Ms Anja Nordlund	• Page 1-2 7th Para " Has this person been involved in the startup – an auditor should not have been involved before to avoid any conflicts of interest"	The reassigned Environmental Engineer will not have been involved with the project before hence there will be no conflict of interest.
Sida Gender Specialist Ms Anja Nordlund	• Page 2-22 Socio Economic Environment title " All information relevant and good – BUT where do you tie the knot so to speak? Chapter 3 does only relates to some of the points mentioned in this chapter."	A clarification sentence has been added just prior to section 2.18
Sida Gender Specialist Ms Anja Nordlund	• Page 3-1 Title "I think it should be more clear how the chapter 2 and chapter 3 relates to each other. There are a lot of social aspects lifted in chapter 2…how are they relevant? How should they be taken or not taken into account?	The first paragraph of Chapter 3 has been expanded to reflect the comments from the Reviewer.
Sida Gender Specialist Ms Anja Nordlund	• Page 4-2 1st para" So have there been any chance finds in these areas? Was the area populated before?"	This paragraph is inserted to be safe. The area has been populated for some time, but Albania has a rich archaeological heritage and it is important that the Contractor is aware that chance finds may be a possibility.
Sida Gender Specialist Ms Anja Nordlund	• Page 4-2 1st para "What about control by client? There is nothing motivating the contractor to stop work."	The last paragraph of section 4.2 has been changed to reflect this comment.

COMPILED COMMENTS AND RESPONSES ON DRAFT ESMP REPORT		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
Sida Gender Specialist Ms Anja Nordlund	• Table 4-1 Page 4-9 regarding unemployment "Is this a foreseen project impact?"	The bullet point has been changed to "Existing unemployment"
Sida Gender Specialist Ms Anja Nordlund	• Table 4-1 Page 4-12 regarding economic benefits " Not an impact"	"maximise" has been taken out of the text. Economic benefit is considered a positive impact.
Sida Gender Specialist Ms Anja Nordlund	• Table 4-1 Page 4-12 regarding benefits and equity " I and D trainings will be undertaken – maybe this should be reflected here. No work to increase capacity of WUA/WUO is foreseen!"	Additional bullet items have been included in Table 4.1 to reflect and respond to these comments
Sida Gender Specialist Ms Anja Nordlund	• Table 4-1 Page 4-13 regarding Health "Are these potential impacts of the project?"	Exposure of farmers and workers to pesticide and fertiliser has been included. We are aware that negative health impacts are unlikely, but we believe that it should be included for completeness
Sida Gender Specialist Ms Anja Nordlund	• Page 5-1 2nd para " And social effects?"	"Social effects" has been included in the next draft of the ESMP reports.
Sida Gender Specialist Ms Anja Nordlund	• Page 5-2 6th para "Be consistent ESMP or ESMoP"	Please be advised that the Consultant is referring to the monitoring plan within the ESMP document. We have added a sentence to make this clearer.
Sida Gender Specialist Ms Anja Nordlund	• Page 6-1 Section 6.1 "Nothing stated about social monitoring?"	Social monitoring has been included in the first para of Section 6.1

Following submission of the revised (second) draft of the ESMP a further round of comments was provided by World Bank. These comments and the Consultant's responses are provided in the table below.

COMPILED COMMENTS AND RESPONSES ON 2nd DRAFT ESMP REPORT		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
World Bank Environmental Safeguards Specialist	<u>For all ESMPs</u>: According to ESMPs, MARDWA has been given various responsibilities in respect to implementation and monitoring of ESMPs. The Ministry should be aware that, by accepting these ESMPs, MARDWA is accepting the said responsibilities and will be ready to comply with them. We suggest that these arrangements be again confirmed and/or re-confirmed in discussion between MAWRDA and the Consultant (COWI).	The Consultant discussed with MARDWA and has made some amendments regarding the organisation and responsibilities for implementation and monitoring of the ESMPs.
World Bank Environmental Safeguards Specialist	Cost of various activities have been included in the draft ESMPs in USD. The Ministry should review and approve these figures to be included in documents for the public consultations, or instruct the consultant otherwise.	Costs have been reviewed by MARDWA ad some changes have been made to the ESMP accordingly
World Bank Environmental Safeguards Specialist	For Divjaka ESMPs: - Figure 2-1 needs to be improved to clearly show the boundaries of the command area and boundary of Karavasta Lagoon. The flow discharge from the command area should also be shown on the map, to illustrate the statement which says that water discharge will not negatively impact the lagoon.	Figure 2-1 has been improved and a new figure has been included in Annex 2 clearly showing the command area in relation to the Protected Area

COMPILED COMMENTS AND RESPONSES ON 2nd DRAFT ESMP REPORT		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
World Bank Environmental Safeguards Specialist	Provided these comments are addressed, the PMT and COWI Client can start presenting the ESMPs through public consultations. It is advisable to disclose the ESA/ESMP summaries/brochures around 2 weeks ahead of the consultations, to give the people sufficient time to be informed. We expect to receive draft Minutes of the Public Discussions for our review before COWI finalizes the ESMPs.	The Consultant will press ahead and disclose the ESMP in good time before public consultations. Minutes of public discussions will be taken and provided to the World Bank for review and approval prior to the finalisation of the ESMPs.
World Bank Social Safeguards Specialist	They have included everything what we agreed in our last meeting. For the Koshnica, Kurjan and Murriz Thana with track changes I have deleted a sentence that is redundant."	Some deletions have been made in Table 4.1 of the ESMP in line with the World Bank requirements.
World Bank Task Team Leader	Regarding the environment part: For Divjakë ID scheme -option 4c: We agree with the consultant's responses and proposed actions. However, as Divjakë scheme needs to include (among others) confirmation from the designer that drainage water from the scheme will not enter the protected area, we suggest you ask for reviewing the ESMP again, before the public consultation. For the other schemes: The ESMPs are ready for the public consultations.	Substantial dialogue and discussions has been held between the FS and DD Consultant and the ESMP Consultant regarding Divjakë. The revised ESMP (the report in hand) is the outcome of these discussions.

Following submission of the revised (third) draft of the ESMP further (final) comments were provided by World Bank to four of the ESMPs. These comments and the Consultant's responses are provided in the table below.

COMPILED COMMENTS AND RESPONSES ON 3rd DRAFT ESMP REPORT (4 ESMPs)		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
World Bank Environmental Safeguards Specialist	<u>For all ESMPs</u>: The draft ESMPs are mostly in order and in line with the previously provided comments. These EMPs are prepared using already approved template. We have the following comments: Please check again overall cost of works (section 8) and overall cost of ESMP in table 8-1– for example for Murriz Thana they are for ESMP indicated as USD 388k – maybe these relate to cost for the whole scheme – and not only to 2 branches that are subject to this document. Cost of the all civil works is indicated over USD 19 million – lower part of the table. Please correct as relevant.	Table 8.1 covering the overall cost for the ESMP has been checked. The example quoted for Murriz Thana takes 2% of the base cost for the scheme (Cukas and Lushnje Branches). Revised estimates are **Scheme** / **base cost** / **5%** / **Total Cost** MT Lushnje / 5,483,231 / 274,162 / **5,757,393** MTH Cukas / 9,648,099 / 482,405 / **10,130,504** Hence 2% of base cost (USD 15,131,330) = USD 302,627

COMPILED COMMENTS AND RESPONSES ON 3rd DRAFT ESMP REPORT (4 ESMPs)		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
World Bank Environmental Safeguards Specialist	Annex 7 – section 9.7.3 "Requirements for Albania Law for Pesticide Use"– please update or confirm that the list is fully up to date.	The Consultant can confirm that this list of Albanian Laws is fully up to date to October 2016 after the passing of Law 105/16
World Bank Environmental Safeguards Specialist	Annex 7 – section 9.7.5 "IPM Plan"– please update with any subsequent work done since the Project start. Alternatively, state that no work has been done to date, and when the Ministry plan to do it.	The Consultant can confirm that no further work has been undertaken so far and will only be implemented upon construction completion.
World Bank Social Safeguards Specialist	There is some use of data from old territorial divisions but this is ok given that new data are not available yet and it does not influence the RAP. As per the reports there will no need for abbreviated RAPs in MTH Cukas and Lushnje branches. However, the Ministry would keep monitoring the situation and the templates are available for use. Subject to addressing the above comments, you can now proceed with public disclosure – please send us the final versions for our documentation and proceed accordingly.	The Consultant fully understands this comment and will provide the templates as requested that will be available for use. The Consultant thanks the reviewer for these comments and will proceed to public disclosure.

In April 2017, final comments from the World Bank regarding the remaining six ESMPs as follows:

COMPILED COMMENTS AND RESPONSES ON 3rd DRAFT ESMP REPORT (Six ESMPs)		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
World Bank Environmental Safeguards Specialist	"General comments for all schemes: (1) Documents are revised in accordance with our previous comments. We thank the authors for clearly showing the changes and edits. This approach is considered "the best practice" and the Client is encouraged to present future documents in the same manner.	Statement – no response is necessary
World Bank Environmental Safeguards Specialist	(2) All title pages of the documents should be changed from "Final" to "Final for Public Disclosure". The "Final" versions will be the completed ones, including the minutes of public meeting and description of the whole public disclosure process (in a separate Annex to ESMP). This will be the last document received from the consultant.	All title pages for the ESMP have been changed to "Final for Public Disclosure". The "Final" versions will be prepared only after the public meetings have been convened and where proceedings have been included in a separate annex
World Bank Environmental Safeguards Specialist	(3) All documents should be run through spell-check. Currently, this option is not active and docs contain some errors – to be corrected.	All ESMPs have been spellchecked
World Bank Environmental Safeguards Specialist	(4) Subject to above comments, and the ones related to the specific documents, noted below, I suggest these documents be approved for public consultation.	Statement – no response is necessary
World Bank Environmental Safeguards Specialist	(5) The Client is reminded to fully observe OP4.01 in respect to public disclosure process and minutes of meeting. This include (1) providing information on this doc and ac-	The comment is noted by the Consultant, and he will assist MARDWA in the public disclosure process in accordance with the instruction received.

COMPILED COMMENTS AND RESPONSES ON 3rd DRAFT ESMP REPORT (Six ESMPs)		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
	cess to it in the local community/ies as relevant; (2) ensuring at least 10 working days between the announcement and public consultation meeting; (3) documenting the whole process with text and photos, and presenting it in a separate "Annex to ESMP", to be sent to the Client and the Bank for its review and No Objection.	
World Bank Environmental Safeguards Specialist	(6) On receiving Client's and Bank's No Objection on Public disclosure annexes to ESMPs, the authors are to include them in the relevant documents and present as "Final ESMP for XXXX Scheme".	This is understood and the Consultant will comply with this request
World Bank Environmental Safeguards Specialist	Specific comments: (7) For Belesova, Duhanas, Slanica, Tregtan 3 – no additional comments.	Statement – no response is necessary
World Bank Environmental Safeguards Specialist	(8) For Zharrez– It appears that only approximately 300 thousand m3 of water (and reservoir capacity) is available for irrigation. In this respect, the ESMP should clearly flag as an issue if this capacity is sufficient to store/irrigate the amount of land that the scheme will rehabilitate. In case it will not be sufficient – the additional measures (dredging of the reservoir, providing water from other sources etc.) need to be identified and stated that impact of these measures is or will be established separately in subsequent ESMP, or else. This information needs to be addressed in the engineer's design report as well. To a lesser extent this applies to the other schemes with silted reservoirs as well (Belesova, Duhanas)	This information will be highlighted in the Zharrez ESMP report.
World Bank Environmental Safeguards Specialist	(9) For Zharrez - there is no information center (point) envisaged for Zharrez while there are for others. It seems important that this is established before and maintained during the works.	The information centre has been included in the appropriate section 4.2 of the Zharrez ESMP report.
World Bank Environmental Safeguards Specialist	(10)For Xarra – there are several comments from our safeguards team that relate to (i) determining and ensuring the minimum and ecological flow in Pavlla River, (ii) minimum flow in Pavlla River and Janjari Reservoir that are needed to satisfy the needs to other (aside from irrigation) water users, (iii) measures to determine and monitor impact on Butrint Lagoon, Butrint National Park etc. These comments are to be found directly in the text of document attached to this mail. The consultants should note that all yellow highlights are for our internal and reference purpose, and (unless otherwise stated in relevant comment) there is no need for any specific action to be undertaken.	We thank the reviewers for this comment. The specific balloon comments mentioned in the Xarra ESMP draft have been addressed (see below).
World Bank Social Safe-guards Specialist	(11)For Xarra - It is mentioned that state owned land will be taken. The ESMP should mention what is the use of that particular state own land. Are there any illegal users of the land or something built there and propose how to	A paragraph has been included in the updated ESMP relating to the current use of the state owned land.

COMPILED COMMENTS AND RESPONSES ON 3rd DRAFT ESMP REPORT (Six ESMPs)		
Stakeholder Institution and Reviewer	**Details of the Comments made by Stakeholders**	**Response/ Action Taken by JV Consultant**
	address in case there is illegal use of the land or there are illegal structures"	There are no illegal users on the land and the only item built is the remains of the old pumping station at Bufi.
World Bank Environmental Safeguards Specialist	Balloon comments in Xarra ESMP draft document Complete the sentence	Sentence was meant to be deleted. It now has been deleted.
World Bank Environmental Safeguards Specialist	Figure 1-1 Provide legend – what is "red" and what is "blue" area etc.	The map is now annotated to provide the details of blue area (pumped) and red area (gravity)
World Bank Environmental Safeguards Specialist	Page 1-2 This is repetition from 2 -3 pagers above. Remove the one not necessary in the executive summary text	The first lots of bullets has been deleted on page 1-2 and retained on page 1-4as this one is more relevant
World Bank Environmental Safeguards Specialist	Table 4-1 Insert next "PC2" activity – undertake hydrological and ecological study of Pavlla River and Janjari Reservoir – to determine minimum ecological flow in Pavlla River that must be maintained throughout the year! This needs to be completed before start of the construction works! Transpose this action into the Monitoring Plan as well.	Activity PC2 has been added and also taken into consideration with the monitoring plan on Table 5-1
World Bank Environmental Safeguards Specialist	Table 4-1 Insert new "PC3" activity – Negotiate and sign written agreement on monitoring water quality in Butrint Lagoon. Table 4-1 Insert new "PC4" activity – negotiate and sign written agreement between National Park and Municipality on controlled use of pesticides. Both above actions need to be completed before construction completion. Transpose both actions into the Monitoring Plan as well.	PC3 and PC4 have been added and taken into consideration with the monitoring plan on Table 5-1
World Bank Environmental Safeguards Specialist	Table 4-1 This is OK to stay here, but we want the specific activities (new PC2, 3 and 4) to be stated clearly and unambiguously – see comments above.	This is understood and new PC 2, 3 and 4 have been added. All other activities and references to them have been updated accordingly