E4435 REV

MINISTRY OF AGRICULTURE OF GEORGIA

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

IRRIGATION AND LAND MARKET DEVELOPMENT PROJECT (ILMD)

Tbilisi 2014

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LIST OF ACRONYMS

AA	Amelioration Association
BP	Bank Policy
EIA	Environmental Impact Assessment
ESMF	Environmental and Social Management Framework
EMP	Environmental Management Plan
GEF	Global Environment Facility
IFAD	International Fund for Agricultural Development
ILMD Project	Irrigation and Land Market Development Project
MENRP	Ministry of Environment and Natural Resources Protection
MOA	Ministry of Agriculture
MRDI	Ministry of Regional Development and Infrastructure
NAPR	National Agency for Public Registry
NGO	Non-Governmental Organization
O&M	Operation and Maintenance
OP	Operational Policy (of the World Bank)
PAP	Project Affected Person
PIU	Project Implementation Unit
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framewor
UASCG	United Amelioration Systems Company of Georgia
WB	World Bank

1. INTRODUCTION

Government of Georgia recognizes the poor condition of the agriculture sector and includes into the State strategy much greater attention to it with a particular focus on rebuilding public services to support small farmers and the eventual privatization of state owned enterprises. Ensuring effective irrigation and drainage services and securing land titles are seen as two essential foundations for greater private investment in high value irrigated agriculture.

Currently 278,000 ha of land are under irrigation and 109,000 ha of land are under drainage. In total there are around 130 irrigation schemes in Georgia. Irrigation mainly is needed in the East part of Georgia, where the main crops are vegetables, fruits, maize, and grapes. State Ltd. called the United Amelioration Systems Company Georgia (UASCG) is in charge of maintenance and exploitation of all irrigation schemes. Due to poor conditions of the irrigation canals, only 24,000 ha of land were irrigated in 2012. The water charge is 75 GEL per ha per year. As of today collection rate is very low, the canals are poorly maintained, and, as a result, UASCG cannot serve to all customers in need of irrigation. The Government is subsidizing the costs of operation and maintenance of the system. In the year of 2013, some 8 mln. GEL was allocated from the State budget to the UASCG to make up for non-payment by customers. As for the drainage system, the total area under drainage is around 128,000 ha, comprising 108,000 ha in West Georgia (Kolkheti lowland) and 20,000 ha in East Georgia. At present drainage service coverage is limited to approximately 30,000-35,000 ha. On the remaining areas previously under drainage, the open main canals and other elements of water collection network need cleaning. Spillway pumping stations and closed drainage systems are non-operational. The amelioration medium-term development program (2014-2017) envisages implementation of rehabilitation works of drainage schemes on 80 000 ha.

The Ministry of Agriculture of Georgia (MoA) sought assistance of the World Bank (WB) and the International Fund for Agricultural Development (IFAD) in developing the institutional framework and rehabilitating infrastructure for irrigation and drainage service provision and also to develop land market in Georgia. The WB and IFAD allocated financial resources in the amount of around 70 mln USD to assist Georgia with the implementation of the Irrigation and Land Market Development (ILMD) Project. The Project focuses on two key areas: (i) irrigation and drainage improvement and (ii) land market development.

The MoA will be an implementing entity for ILMD Project, with the overall responsibility for its implementation and coordination, while day-to-day managerial functions will be delegated to the Project Implementation Unit (PIU) that will be set up before the project effectiveness.

2. PROJECT DESCRIPTION

The Project Development Objective (PDO) is to improve the delivery of irrigation and drainage services in selected areas and to ensure owners of irrigated or drained land in selected areas have registered land titles.

The ILMD Project consists of three components:

Component 1 Irrigation and Drainage Improvement (US$45.90 million)

Irrigation and Drainage Rehabilitation and Modernization Sub-component (US$42.00 million)

This subcomponent will finance rehabilitation and modernization of existing irrigation and drainage schemes selected under the Project which consist of primary, secondary and tertiary canals and other major structures such as head-works and dams, including design, construction and construction supervision. The Project will restore previously irrigated and drained areas only, and not build new schemes. Irrigation and drainage systems serving approximately 26,000 ha will be rehabilitated under the Project. While a large part of the rehabilitation will involve reconstruction of original systems, there will be opportunities to modernize water control and delivery structures, including automation of headworks or introduction of Supervisory Control and Data Acquisition (SCADA) to monitor and control water distribution in some of the larger canal systems.

Strengthening of Irrigation and Drainage Institutions Sub-component (US$3.90 million)

The Project will finance the following seven activities under this subcomponent: (i) Preparation of a National Irrigation and Drainage Strategy; (ii) Preparation of a National Rehabilitation and Modernization Plan; (iii) Institutional Strengthening of UASCG in Management, Operations and Maintenance; (iv) Upgrading of UASCG Machinery and Equipment for Maintenance; (v) Preparation of Operation, Maintenance and Financing Plans for Selected Schemes; (vi) Preparation of Annual UASCG Operational Plans for 2015/16; and (vii) Development *of Institutional Arrangements for On-Farm Irrigation Service Delivery.*

Component 2 Land Market Development (US$2.0 million)

This component will finance the pilot phase of the *Strategy and Draft Action Plan for Reform Land Registration June 2013* (hereafter the Draft Action Plan) in order to redefine and test the policies and procedures for registration of agricultural land that would allow the majority of existing land ownership rights to be registered. The implementing agency for the component will be the Ministry of Justice through the National Agency for Public Registry.

This component involves three key elements:

(i) Policy and Procedural Development would define policies, procedures and dispute resolution mechanism for different land possession scenarios to be dealt with under the pilot and, based on the lessons from the pilot, these would be improved as a basis for the national program;

(ii) Pilot Registration will be undertaken in *e*ight areas containing a total of about 48,000 parcels which have been preliminarily selected based a classification of the variety of land tenure situations in the country; piloting would involve training of staff and surveyors, social mobilization of land owners, land title document collection, surveying land plots, updating maps and registration documents, dispute resolution and registration and issue of electronic certificates;

(iii) Land Registration Monitoring System Development will involve design and implementation of systems to assess the effectiveness of policies and procedures for pilot land registration, to assess the quantitative impact of land registration (including impact on land transactions, land disputes, investment in land, farm productivity and profitability) and to assess progress in implementation of nationwide land registration in future. The Project will ensure the inclusion of female land

owners in pilot registration. It will seek to ensure that recommended policies and procedures, in particular those relating to joint ownership and inheritance of land, and protection the rights of female land owners.

Component 3 Project Management (US$2.1 million)

MoA Project Management Sub-Component (US$1.94 million)

This sub-component would finance project management, including coordination and technical supervision of the implementation, financial management, procurement, monitoring, evaluation and progress reporting, relating to Component 1 under the Project Planning and Monitoring Division of the MoA.

NAPR Project Management Sub Component (US$0.16 million)

This sub-component will finance similar project management activities related to Component 2 under National Agency of Public Registry.

3. INSTITUTIONAL and LEGAL FRAMEWORK

3.1. Institutional Framework

In the 2006, the Government abolished the Department for Amelioration Scheme Management, which had been responsible for the management of primary and secondary irrigation and drainage canals. Four State-owned limited liability companies were established instead to operate primary, secondary (off farm) systems.

Amelioration Service Cooperatives were formed in 2001 and were responsible for operation and maintenance of tertiary (on-farm) systems but were poorly managed and the Government transformed them into Amelioration Associations (AAs) through the amendment of the Law on Amelioration. . Some 259 AAs were established covering 237,000 ha, of which 43 were targeted for support under the WB funded Irrigation and Drainage Community Development Project. In 2005, the Government effectively withdrew support for AAs.

The four Ltds were intended to be financially independent. This required raising water user charges to AAs 12 times to GEL 75 per ha at a time when the system was in poor technical condition and the Ltds could not guarantee water supply. As a result, relations between Ltds and AAs have deteriorated to a point where in 2008 collection of charges from farmers averaged 16% of the amounts due. The Ltd. model failed because: (i) Ltds were not able to secure sufficient public or private finance to improve the infrastructure; (ii) customers were highly dissatisfied with the quality of service: (iii) there was not a well-organized client base following collapse of the AAs; and (iv) cost recovery has been extremely low.

Attempts to privatize the Ltds did not attract sufficient interest and in March 2012 these four Ltds were merged into a single Ltd – the UASCG. This is a 100 % State owned company. By the Decree #122 dated January 29, 2013 of the Cabinet of Ministers UASCG is responsible for management of the entire irrigation and drainage network in Georgia, including primary, secondary and tertiary canals. All such infrastructure, including that which was previously owned by the AAs, is now legally owned by the

Ministry of Economy. The inventory of this infrastructure is well defined for those schemes selected under the project for rehabilitation as an inventory is needed as a basis for design. However the inventory is incomplete for many other schemes and the government has initiated a nationwide inventory to address this.

The main responsibilities of the UASCG defined in its charter include:

a) plan the Company's activities in the business area and determine the development prospects taking into account water users' demands for water and irrigation services;
b) provide irrigation services (water delivery, excess water removal) to physical and legal bodies through water supply , water management, irrigation, drainage and pasture watering schemes;
c) carry out operation and protection of irrigation, pasture watering schemes and independent hydraulic structures as specified in the current legislation;
d) provide irrigation of cultivated lands and windbreaks, improve soil quality within the irrigation service areas and perform other duties within the Company's mandate;
e) contract legal and physical persons for the execution of works, water supply, excess water removal and provision of other services;
f) train and improve the qualifications of the staff members, ensure their participation in conferences, workshops and other events;
g) carry out any other activities provided that they are not contrary to the current law and interests of the Company and its partners.

The below section briefly presents the roles of entities that may have involvement in the Project primarily, but not exclusively, from an environment perspective.

a) The Ministry of Agriculture of Georgia

The MOA, through its amelioration department, carries out the following activities:

a) elaborate uniform State policy in the sphere of amelioration and state control of its implementation;
b) carry out observation and inventorying of irrigated lands served by amelioration schemes and adjacent areas and develop their database;
c) organize State control over rational use of land, soil conservation and fertility preservation-improvement.

b) The Ministry of Environment and Natural Resources Protection of Georgia

The main mandate of the Ministry of Environment and Natural Resources Protection is to support sustainable development of the country in the field of environment; to organize environmental planning system; to elaborate and implement state policy, target programs, strategy of environmental protection for sustainable development, national environmental action programs and management plans in the field of environmental protection and natural resources; to protect and preserve unique landscapes and ecosystems, rare and endangered species of flora and fauna that are characteristic for the country, biodiversity, atmospheric air, water, land and mineral resources; to implement public administration (regulation, registration, supervision and control) on waste management and chemicals; to follow the Georgian legislation in the field of environmental protection and to implement the international commitments within its competence.

c) The Ministry of Regional Development and Infrastructure of Georgia

MRDI coordinates regional development policy, drinking water supply development, construction and improvement of water supply systems; elaborates and implements unified state policy in designing and construction of international and secondary road networks and scientific-technological progress issues.

d) Georgian National Energy and Water Supply Regulatory Commission

The commission regulates irrigation water fees. The rate of 75 GEL per ha irrigated was established by this Commission. This amount is not adjusted according to the crops cultivated or number of times the irrigation water is supplied during a season.

3.2. Legal Framework

Below is an overview of the laws of Georgia most relevant for ILMD Project implementation:

1. Constitution of Georgia (1995)

The base of the Georgian Environmental Protection legislation is the Constitution of Georgia. According to its 37 article:

Everybody has a right to live in an ecologically clean environment, and to use cultural and natural environment. Everybody is obligated to protect natural and cultural environment.

The state ensures rationalized use of natural resources in order to ensure the sustainable development of the country and safe environment for human health.

Everyone has a right to get relevant and timely information regarding the state of environment.

2. Law on Soil Conservation (May 12, 1994)

The objectives of the Law are as follows:

a) ensure the integrity of top soil, increase and maintenance of soil fertility;
b) specify the duties and responsibilities of land users, land owners and the government in order to create the conditions required for soil conservation and production of ecologically pure products;
c) prevent the negative consequences of the use of soil fertility enhancers which endanger soil, human health, flora and fauna;
d) ensure the preservation of endemic vegetation and top soil in the highlands through protection of alpine and subalpine meadows (through amendment of 19.11.2002);
e) facilitate the coordination of amelioration activities in order to ensure high and stable yields from ameliorated lands (through amendment of 04.02.2011).

This Law establishes the norms and standards defining maximum allowable concentrations of chemicals in soil in order to protect human health, vegetation cover, wildlife and natural environment as a whole.

3. Law on the System of Protected Areas (March 7, 1996)

The purposes of planning, categorizing, establishing and operation of protected areas in the territory of Georgia are as follows:

a) guarantee long-term protection of biogeographic units of Georgia to ensure permanent development of natural processes;
b) protect and restore natural ecosystems, landscapes and wildlife;
c) ensure genetic conservation of endangered species included in the Red List of Georgia and preserve biodiversity;
d) preserve unique and rare natural organic and non-organic features;
e) protect the areas prone to erosion, flash floods, floods, avalanches, landslides as well as areas of surface and underground water formation, flow and discharge from anthropogenic influence.

This law prohibits anthropogenic impact on the protected areas by limiting various types of economic activity (including construction, water extraction and discharge, etc.) in different categories of protected areas.

4. Law on Environment Protection (December 10, 1996)

This Law regulates the legal relationship between the bodies of the State authority and the physical persons or legal entities (without distinction as to ownership and legal form) in the scope of environmental protection and the use of nature on the entire territory of Georgia, including its territorial waters, airspace, continental shelf and special economic zone.

Currently the law does not cover the irrigation sector. Though an amendment to this law is being prepared that will require issuance of licensees for water intake and water management activities. This law is likely to enter the force in 2015.

The main objectives of the Law are as follows:

- define the principles and standards of legal relationship in the scope of environmental protection;
- protect basic human rights provided by the Constitution of Georgia in the scope of environmental protection;
- ensure the protection of the environment and rational use of nature by the state;
- preserve biological diversity, rare, endemic and endangered species of flora and fauna typical for the country, protect the sea and ensure an ecological balance;
- ensure the conditions required for sustainable development of the country.

The main tasks of the Law are as follows:

- protect and preserve the environment, so that it is safe for human health;
- provide legal groundwork for the protection of the environment against all harmful impacts;
- provide legal groundwork for the preservation and improvement of the quality the environment;

- ensure optimum mutual compatibility (harmonious combination) of ecological, economic and social interests of society;
- ensure the administration of the use of natural resources, taking into consideration potential possibilities and the principles of sustainable development.

5. Water Law (October 16, 1997)

The Water Law is based on the Constitution of Georgia, international treaties and agreements, Laws "*On Environment Protection*" and "*On Subsurface*" of Georgia as well as this Law and other normative acts.

The main objectives of the Act are as follows:

a) ensure pursuance of the uniform State policy in the sphere of water protection and use;
b) protect water bodies (including the Black Sea) and use rationally water resources with due regard to the interests of the present and future generations and the principles of sustainable development;
c) meet the demands of the population for drinking water as a priority task;
d) sustainability and sustainable use of water fauna;
e) prevent adverse impact on water and mitigate such impacts effectively:
f) ensure protection of the state interests of Georgia in the sphere of water protection, use and international trade in water;
g) ensure the compliance of commercial production of water with international principles and standards;
h) protect lawful rights and interests of natural and legal persons in the sphere of water protection and use.

6. Law on Environmental Permit (December 14, 2007)

The purview of Law includes organized activities affecting an indefinite number of people and posing a significant risk to human life and health.

The Law provides a complete list of activities subject to state ecological expertise and the legal framework for the public participation and awareness in issuing environmental permits, state ecological expertise required for a permit, environmental impact assessments and decision-making on issuing environmental permits.

The objectives of the Law are as follows:

- protect persons' health, natural surroundings, material assets and cultural heritage in the course of the activity;
- ensure the basic right of a citizen provided by the Constitution of Georgia-to obtain objective information on his or her work and on natural surroundings, ensure participation of the public in the decision-making, carried out by the State in the field of environmental protection, in order to promote democratic development of the country;
- take into consideration ecological, social and economic interests of the State and public in the decision-making, connected with the implementation of the activity.

The tasks of the Law are as follows:

- in the field of issuing environmental permits establish and protect the rights and obligations of a person or entity carrying out the activities subject to an environmental permit, public and state;
- support protection of the environment and natural resources against irreversible changes in quality and quantity, as well as their rational use.

7. Law on Ecological Expertise (December 14, 2007)

Ecological Expertise is an environmental requirement and needs to be carried out during the decision-making process on issuing an environmental impact permit or a construction permit. The Law provides a complete list of activities subject to environmental expertise during decision-making on issuing an environmental impact permit or a construction permit.

The aim of the environmental expertise is to ensure an ecological balance of the environment taking into account environmental requirements and the principles of rational nature use and sustainable development.

The positive findings of the ecological examination are the grounds for issuing an environmental impact permit or a construction permit.

The main principles of ecological expertise are as follows:

- assess potential environmental risks of an activity;
- make a comprehensive assessment of the possible environmental impacts prior to the commencement of an activity;
- take into account environmental requirements, norms and standards;
- exercise the experts' powers without any limitations;
- take public interests into account.

Ecological Expertise is needed only for the construction of new water reservoirs. Because ILMD Project will not finance construction of new reservoirs and dams, there will be no need for an Ecological Expertize.

8. Law on Licenses and Permits (June 21, 2010)

This Law establishes the list activities that require licenses and permits. It identifies the types of licenses and permits, procedures their amending or canceling.

Borrowing of rock and earth from quarries and extraction of gravel from river beds are subject to resource use licensing.

3.3. International Agreements

In addition to the aforementioned legal acts Georgia has signed and ratifies a number of environmental conventions that are presented below:

1. Convention on the Protection of the Black Sea Against Pollution (became effective in Georgia on March 21, 1992)

The Parties are determined to act with a view to achieve progress in the protection of the marine environment of the Black Sea and in the conservation of its living resources. This Convention shall apply to the Black Sea proper with the southern limit constituted for the purposes of this Convention by the line joining Capes Kelagra and Dalyan. The Parties to the Convention are Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine. The Convention is open for signature by the Black Sea countries. It is subject to ratification and approval by signing states.

2. United Nations Framework Convention on Climate Change (became effective in Georgia on May 9, 1992)

The Parties to this Convention acknowledge that change in the Earth's climate and its adverse effects are a common concern of humankind. The Parties are concerned that human activities have been substantially increasing the atmospheric concentrations of greenhouse gases, that these increases enhance the natural greenhouse effect, and that this will result on average in an additional warming of the Earth's surface and atmosphere and may adversely affect natural ecosystems and humankind.

The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

3. Convention on Biological Diversity (became effective in Georgia on April 21, 1994)

The objectives of this Convention are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

4. The United Nations Convention to Combat Desertification (became effective in Georgia on June 23, 1999)

On June 23, 1999 Georgia joined the United Nations Convention to Combat Desertification adopted in Paris on 17 June 1994. The Convention is aimed for the countries experiencing Serious drought and/or desertification, particularly in Africa.

The Parties to this Convention affirm that human beings in affected or threatened areas are at the centre of concerns to combat desertification and mitigate the effects of drought and reflect the urgent concern of the international community, including States and international organizations, about the adverse impacts of desertification and drought

5. The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) became effective in Georgia on February 11, 2000.

According to the Aarhus Convention the public, both in the present and in future generations, have the right to know and to live in a healthy environment and therefore all the parties shall guarantee access to information and justice and participation in decision making for the public.

4. TECHNICAL and ENVIRONMENTAL STANDARDS and REGULATIONS

4.1. World Bank Safeguard Policies

WB OP 4.01 Environmental Assessment is considered to be the umbrella policy for the Bank's environmental safeguard policies. These policies are critical for ensuring that potentially adverse environmental and social consequences are identified, minimized, and properly mitigated. These policies receive particular attention during the project preparation and approval process. The World Bank carries out screening of each proposed project to determine the appropriate extent and type of Environmental Assessment to be undertaken and whether or not the project may trigger other safeguard policies. The Borrower is responsible for any assessment required by the Safeguard Policies, with general advice provided by the WB staff. The safeguard policies and triggers for each policy are presented in the table below:

Operational Policy	**Triggers**
Environmental Assessment (OP 4.01)	If a project is likely to have potential (adverse) environmental risks and impacts in its area of influence.
Forests (OP 4.36)	Forest sector activities and other Bank sponsored interventions which have potential to impact significantly upon forested areas.
Involuntary Resettlement (OP 4.12)	Physical relocation and land loss resulting in: (i) relocation or loss of shelter; (ii) loss of assets or access to assets; (iii) loss of income sources or means of livelihood, whether or not the affected people must move to another location.

Indigenous Peoples (OP 4.10)	If there are indigenous peoples in the project area, and potential adverse impacts on indigenous peoples are anticipated, and indigenous peoples are among the intended beneficiaries.
Safety of Dams (OP 4.37)	If a project involves construction of a large dam (15 m or higher) or a high hazard dam; If a project is dependent upon an existing dam, or dam under construction.
Pest Management (OP 4.09)	If procurement of pesticides is envisaged; If the project may affect pest management in the way that harm could be done, even though the project is not envisaged to procure pesticides. This includes projects that may (i) lead to substantially increased pesticide use and subsequent increase in health and environmental risk, (ii) maintain or expand present pest management practices that are unsustainable, not based on an IPM approach, and/or pose significant health or environmental risks.
Physical Cultural Resources (OP 4.11)	The policy is triggered by projects which, prima facie, entail the risk of damaging cultural property (e.g. any project that includes large scale excavations, movement of earth, surface environmental changes or demolition).
Natural Habitats (OP 4.04)	The policy is triggered by any project with the potential to cause significant conversion (loss) or degradation of natural habitats whether directly (through construction) or indirectly (through human activities induced by the project).
Projects in Disputed Areas (OP 7.60)	The policy is triggered if the proposed project will be in a "disputed area".
Projects on International Waterways (OP 7.50)	If the project is on international waterway such as: any river, canal, lake, or similar body of water that forms a boundary between, or any river or body of surface water that flows through, two or more states (or any tributary or other body of surface water that is a component of this waterway); any bay, gulf, strait, or channel bounded by two or more states or, if within one state, re-cognized as a necessary channel of communication between the open sea and other states-and any river flowing into such waters.

4.2 Comparison between National Environmental Legislation and World Bank Requirements

The requirements of Georgian environmental legislation are in general comparable to WB policy approaches. However, there are also several differences between local legislation and WB policy requirements, the most substantial of which are summarized below. Georgian Environmental Impact Assessment (EIA) legislation does not require classification of activities into environmental categories A, B, and C, as it is established in OP/BP 4.01. Instead, the Georgian law distinguishes between activities that require an EIA and those that do not. None of the physical works that may be supported from the ILMD Project require EIA and the State ecological expertize. The national legislation does not provide definition of an EMP and does not require its preparation however Georgian legislation requires that EIA reports include a list of environmental mitigation measures and describes procedures for their

implementation. Georgia is a party to the Aarhus convention and the disclosure of environmental information is made in line with the guiding principles of the Aarhus convention.

Currently there are a number of types of construction for which norms and rules of constructions apply:

- Foundations of hydro technical(hydraulic) structures;
- Concrete and reinforced concrete structures made of thick silicate concrete;
- Hydro technical structures; basic provisions of designing;
- Organization of construction operations;
- Ground structures, bases and foundations;
- Isolation and lining coatings;
- Protection of constructions and structures from corrosion;
- Electrical- technical devices;
- Automation systems;
- Highways;
- Bridges and pipes;
- Bridges and pipes;
- Rules of researching and testing;
- Amelioration schemes and structures;
- Reinforced concrete constructions to be cast in and production of articles (goods);
- Metal constructions;
- Main pipelines;
- Provisions on production norms of material costs in construction;
- Norms of land allocation for main water conduits and sewage collectors;
- Norms of land allocation for amelioration canals.

5. ENVIRONMENTAL SCREENING

WB conducts environmental screening for each proposed investment project in order to determine the scale and character of its potential impacts on the natural and social environment. The rules and procedures for screening are described in WB OP 4.01. Environmental classification of projects is based on a number of factors: sensitivity of the location, scale of impact, duration of potential impact, etc. According to the WB policy there are three environmental categories: A, B and C.

The ILMD Project will not finance construction of new irrigation and drainage schemes, nor new dams and reservoirs. It is designed to rehabilitate the existing infrastructure and to improve and restore water delivery / drainage services to the areas that are currently covered or were covered with the existing schemes in the past and to improve flood control structures for protecting the investments in rehabilitation of the irrigation infrastructure. Environmental and social risks of ILMD Project are, therefore, medium. They are not expected to influence territories outside the project sites, neither to be significant or irreversible. Therefore, according to the *OP/BP 4.01 Environmental Assessment*, the ILMD Project is classified as environmental category B. Because not all schemes to be rehabilitated are known at the Project preparation stage, and because most of the environmental and social impacts of the Project

interventions in various sites are going to be similar and predictable, the present ESMF is prepared as a guidance of site-specific environmental work to be undertaken upon delivery of the detailed designs for individual schemes. This work will in most cases imply development of site-specific Environmental Management Plans (EMP), using the EMP Checklist for the Rehabilitation of Irrigation and Drainage Schemes, or may require EIA in case of higher risk Category B operations. If a proposed intervention is classified as environmental Category A, then it may not be supported by the Project and must be turned down.

Some of the ILMD Project activities under Component 1 may require temporary and/or permanent land acquisition / physical relocation of households and businesses, uprooting of trees and/or standing crops that leads to the loss of income. Although the design solutions will strive to minimize resettlement needs, they may not be entirely excluded or ruled out. Therefore, the ILMD Project triggers *OP/BP 4.12 Involuntary Resettlement*. The Resettlement Policy Framework (RPF) for application under Component 1 has been prepared. It will be disclosed and discussed with stakeholders. Site-specific Resettlement Action Plans (RAPs) will be prepared, as required, once the detailed designs are available and the resettlement needs are clear. Works will be allowed only after the RAPs are implemented and compensations delivered to the affected people.

Under Component 2, the piloting of the land registration process may require resolving cases where landowners have extended their residences or land use onto State-owned land. Formalization of ownership could result in people losing access to State-owned land with negative economic impacts. Rather than applying OP4.12 to this component however, it is agreed that a 'Country Systems' approach should be followed. In this case the country system to be evaluated for equivalence and acceptability (per OP 4.00) are the Land Reform Strategy and Action Plan and Operations Manual, which will set out the policy and standards to address such cases of loss of access to land, and the institutional mechanism which is being set up to implement them. The land registration pilots will then be governed by the Land Reform Strategy and Action Plan and the Operations Manual, once the WB has determined that: (i) the provisions set out in these instruments will yield results equivalent to OP 4.12, and (ii) the Borrower has the capacity to implement them in acceptable manner.

OP 4.09 Pest Management is triggered, because some agricultural areas, which had been out of irrigation due to deteriorated infrastructure, will be brought back to irrigation as a result of ILMD Project implementation. This is likely to stimulate agro-production, and subsequently – the use of pesticides. While there is no need to develop a Pest Management Plan, promotion of good pest and pesticide management practices, including Integrated Pest Management (IPM), will be supported by complementary projects including (i) the parallel GEF/ IFAD financed Enhancement of Agricultural Resilience and Competitiveness Project which will involve field demonstrations in the project area including on integrated pest management and (ii) USAID support for the development of the national extension service which is also expected to include development of extension and training material for integrated pest management which will be delivered in the Project area. Under the Project, an extension plan for each scheme will be prepared defining the agricultural extension activities to be undertaken by GEF, USAID or other projects in the project areas, including in relation to pest management, to ensure that farmers are adequately informed about best practice on past management.

Some of the irrigation schemes to be rehabilitated under the ILMD Project are fed with water from the existing reservoirs. No new reservoirs will be constructed under the project, but because operation of some Project-supported schemes will depend on the integrity of the dams of the existing reservoirs, *OP/BP 4.37 Safety of Dams* is triggered. It means that for any scheme included for rehabilitation into the ILMD Project's work program and dependent on a dam-supported reservoir, technical condition of such dam, as well as its operation and maintenance pattern will be examined and remedial actions will be undertaken as part of the Project, as required. More specifically, due diligence for ensuring dam safety may include updating of the dam safety information including river hydrology to determine the 10,000 years floods, undertaking physical works and/or providing additional equipment to address critical issues of dam safety, installing early warning system and establishing a dam safety panel to review dams-related documentation and advise on the required actions. The Government has pledged to establish the required dam safety panel to oversee compliance with national legislative and World Bank dam safety requirements before any irrigation and drainage rehabilitation contract is signed under the ILMD Project.

OP/BP 7.50 Projects on International Waterways is triggered. Most of the irrigation schemes of East Georgia, including those provisionally identified for the Project support, abstract water from trans-boundary rivers Mtkvari and Alazani, or their tributaries. Water drained from the agricultural lands in West Georgia is discharged to the rivers draining into the Black Sea. However, the Project interventions including investments under the irrigation and drainage rehabilitation and modernization subcomponent and the flood control improvement subcomponent will not increase water intake or discharge beyond the designed parameters of the existing schemes, because they will be strictly limited to the rehabilitation of the existing irrigation and drainage infrastructure without altering of their original capacities. On this basis, an exemption from the requirement of communication to riparians was requested and an approval is sought from the Regional Vice President.

6. POTENTIAL IMPACTS

The Project will be carried out nationwide, but in the first year of implementation the rehabilitation works will take place in Shida Kartli, Kvemo Kartli, (Kareli, Tetritskharo and Marneuli districts) and Kakheti (Sagarejo and Gurjaani districts).

The potential positive and negative environmental and social impacts of the ILMD Project are described below for the construction and operation phases.

6.1 Construction phase impacts

Impacts on the landscape and biodiversity. During the construction period there may be damages to the vegetation cover from the movement of vehicles and earth works, and disturbance of the animal life from the excessive construction noise. Borrowing and mining for aggregates may cause erosion of slopes and river beds, disturbance of the aquatic life in rivers, as well as loss of aesthetic appearance of landscapes.

Generation of spoil material and construction waste. Rehabilitation works will cause generation of construction waste and spoil materials.

Noise, vibration, and emissions. Noise, vibration, and emissions will be generated in the course of the transportation of construction materials and operation of the heavy construction equipment. Emissions of inorganic dust from earth works and from loading of trucks, and emission of harmful substances and dust from combustion of diesel used by transportation means and machinery occur during the construction works.

Pollution with construction run-offs. As a result of oil and lubricant leakage from machinery and stock piled construction materials, oil products and chemicals can penetrate the ground water or run off to water recipients. The same results are likely from improper servicing of vehicles and machinery. Liquid construction waste from concrete batching on site may become a heavy pollutant of soil and water if released without pre-treatment.

Impacts on archaeological sites. Limited risk of encountering archaeological sites is expected during the earth works. There are no known and registered cultural heritage sites along the corridors of the existing irrigation and drainage networks.

Work-site accidents. Physical works to be undertaken under the Project are not associated with any extraordinary risks for workers and other personnel. Common threats come from the operation of machinery in a poor technical condition or negligence of machinery operation guidelines. Lack of workers' safety gear or its misuse may also cause accidents causing trauma or casualties.

Social impacts. Negative social and economic impacts may be caused if temporary and/or permanent use of private land plots cannot be avoided in the course of infrastructure rehabilitation. Informal land use along canals is even more likely to be encountered. Clearing servicing roads or otherwise getting access to the infrastructure for its rehabilitation may necessitate terminating encroachment into the right of way. Works on the irrigation and drainage schemes during the irrigation/drainage season may disrupt service provision to the customers, leading to the negative impact on their crops.

6.2 Operation phase impacts

Economic impacts. Rehabilitation of irrigation and drainage schemes will have generally positive impact on the rural population engaged in agriculture. It is expected to result in improved irrigation and drainage for cultivating ting approximately 33,500 ha. Irrigation will result in (i) abandoned agricultural land being brought back into production; (ii) an increase in yields of existing crop production; and (iii) diversification into higher value crops requiring irrigation, thus improving household incomes and cash flow. Component 2 will result in more secure land rights, increasing the opportunity for farmers to sell or lease out their land, the value of which will have increased through irrigation and drainage improvement.

Increased water fees and poor collection rates. Over the last 15-20 years the irrigation and drainage systems significantly deteriorated, because no proper operation and maintenance has been provided. As a result, water users stopped paying fees as they were not getting adequate service. Fee collection rates dropped dramatically. Project investment into the rehabilitation of irrigation and drainage infrastructure may result in the increase of water fees. Improved irrigation and drainage services are believed to lead to higher efficiency of agriculture and increased incomes of service users. However this is a medium term perspective. Meanwhile, collection rates may remain low or event drop further, leading to poor operation

and maintenance of the rehabilitated schemes and their premature deterioration. The Project will contribute to improved irrigation service fee collection through (i) preparation of a national irrigation and drainage strategy which will define improved water charging policies: (ii) preparation of costs operation, maintenance and financing plans for Projects selected irrigation which will inform setting of water charges; and (iii) development of improved on farm water management arrangements including fee collection.

Competition for water use. Implementation of the ILMD Project will not directly influence competition for water use, because rehabilitation of schemes under the Project will not imply increase of water intake by the schemes. However, operation of the rehabilitated schemes in future may be affected by intensified water use upstream, or economic development downstream may cause increase demand for water which will be limited during irrigation season due to operation of irrigation schemes. This may potentially trigger conflicts between water users and hinder growth unless watershed management planning is consistently applied. Potential conflicts may arise from dissatisfaction from water users in schemes neighboring those rehabilitated under the Project, whose schemes will not be rehabilitated. Such conflicts can be mitigated through (i) public information explaining the criteria for scheme selection and (ii) public information to explain selection of schemes to be rehabilitated under other sources which will be explained in the national rehabilitation plan which the preparation of which is also supported under the Project.

Erosion, Salinization, and water logging. Breakdown of hydraulic structures and canals, as well as their congestion may cause overflow and local flooding in the command area that leads to soil erosion. Erosion may also result from excessive water supply through flood irrigation. Some areas under food irrigation require existence and proper operation of drainage systems. Otherwise they are prone to water logging. Application of the flood irrigation method in the areas with highly percolating soils, high ground water table and saline lower layers of soil are likely to cause salinization of agricultural fields. Level of mineralization of the irrigation water in Georgia is favorable and does not cause risks of negatively affecting soil quality.

Increased use of pesticides. Rehabilitation of the irrigation infrastructure will result in better yields, may lead to diversification of crops, and eventually increase incomes of rural families from agriculture. Along with highly positive social impacts of the above, activation of agro-production in better irrigated areas and land plots brought back to production as a result of resumed irrigation services may lead to increase in use of agrochemicals. Handling and application of pesticides carries risks to the heath of people exposed to pesticides, consumers of the products farmed with the use of pesticides, and may damage environment (soils, surface water, and ground water) with hazardous pollutants.

Systemic or accident-related deterioration of irrigation water quality. For vast majority of irrigation water intakes in Georgia, no industrial point sources of pollution are located upstream. Neither are there highways and large bridges where accidents with hazardous cargo vehicles may occur. The only type of systemic pollution of irrigation water occurring in Georgia is from extractive industry. Occurrence of water pollution from extraction is low, as the industry is modest in scale, however the risks are high, especially as mining is not subject to environmental permitting in Georgia and there are no formal standards established for irrigation water quality.

Damage of aquatic ecosystems as a result of water intake and discharge. UASCG operates based on licenses for water intake issued by the Ministry of Environmental and Natural Resources Protection. However, the licensing procedure is not based on the environmental impact assessment of the permitted intake. There is no national standard or formally adopted methodology for defining an ecological water flow to be maintained in natural water bodies by any types of water users. No State control is exercised over the quality of water drained from agricultural fields. Therefore, the risk of damage to river ecosystems from water intake and discharge by irrigation schemes does exist.

Damage or failure of reservoir dams. In Georgia, there are 34 dams intended for irrigation purposes. The largest of them are: Sioni, Tbilisi, Algeti, Dalis Mta, and Zonkari dams. Dalis Mta is not operating at present. Zonkari reservoir is located in Tskhinvali region, which, *de facto*, is currently not under the control of the Georgian government. Tbilisi, Algeti and Sioni dams are in normal technical condition and are well functioning. All other dams are much smaller. They were supplied through pumping stations and are not operational at present. Early warning and monitoring systems of dams does not exist in the country. Installation of the early warning and monitoring systems for Sioni and Algeti reservoirs had started in 2008, however the works were taken on hold.

7. IMPACT MITIGATION

Most of the risks related to the construction and operation phases of the Project may be effectively mitigated, and only minor negative residual impacts are likely to persist. Mitigation measures defined for the design, construction, and operation phases. The ESMF presents a generic set of mitigation measures. Site-specific EMPs will provide mitigation measures selected from this set and specified as required, so that every EMP fits each individual scheme.

7.1 Design phase

Environmental and social considerations will be taken into account in the process of designing rehabilitation of the selected schemes in order to avoid or minimize the potential negative impacts. Detailed designed documentation will include analysis of water availability and suggested volumes of ecological water flow to be respected during operation of water intakes.

The final design documents' package will include a list of suggested borrow pits and vendors of natural construction materials in the vicinity of sub-project sites; suggested sites for temporary and final disposal of spoil and waste; suggested locations for access roads, construction camps, vehicle and machinery servicing, and storage facilities as required.

7.2 Construction phase

Degradation of landscapes and soil erosion. Earth works, including material borrowing, carry most risks to the landscapes and may cause erosion. To avoid or minimize these negative impacts, the following practices must be applied:

- Strip and store topsoil separately, in the nearest location clear of vegetation;
- Pile up excavated earth separately from topsoil, in the convenient location clear of vegetation;
- Minimize the time of keeping the excavated tranches open;
- Backfill excavated material to full extent and remove residual amount to the preliminary agreed upon location;
- Reinstate the work site by spread topsoil and stimulating re-vegetation as appropriate;
- Apply slope stabilization techniques (terracing, drainage, gabions, greening, etc.) as appropriate on the steep slopes prone to erosion;
- Do not extract gravel from watercourses. Mine for the material in the river bed away from the water stream and reinstate the area by leveling;
- Ensure proper lining of canals and adequate assembling of pipes to avoid water filtration, which may cause soil erosion along canals.

Landscape degradation may be minimized by using of the already existing quarries and spoil disposal sites. Construction camps, if required, are to be placed in areas with minimal vegetative cover and away from any important animal and plant habitats.

Waste management. Demolition debris and other construction waste will be temporarily stored in the specifically designated location at the work sites, and will be finally disposed off at the municipal landfills as agreed with local authorities. Excess material generated through earth works and borrowing will also be disposed in the preliminary agreed locations that are environmentally sound for the placement of spoil. Because there are no specialized disposal sites for hazardous waste in most parts of Georgia, the used tires, filters, oils, and other similar waste from vehicle servicing will go to municipal landfills too, unless no sound options for recycling are available.

Noise and emissions. Dust from the construction site will be minimized, especially closer to the residential areas, by using closed/covered trucks for transportation of construction materials and debris and watering works sites in dry weather. The vehicles and machinery will be regularly checked, serviced, and equipped with effective exhaust mufflers to avoid excessive emissions and noise. Idling of engines will be disallowed.

Management of construction run-offs. Sites for storage of oil and lubricants and servicing of vehicles and machinery will have impermeable flooring and be confined so to prevent release of operation and accidental spills. If work camps are established, they will be equipped with septic tanks or pit toilets, and relevant servicing will be provided to maintain good sanitary conditions and to avoid pollution of water and ground water. Concrete batching plants must be provided with sedimentation pools of relevant parameters, so that settlement of solid particles can effectively take place prior to waster release.

Chance finds. If any archaeological finds are encountered in the course of earth excavation works, the contractor will immediately take activity on hold and inform the client. The client shall contact the State Agency for Protection of Historical and Cultural Monuments and seek guidance on the further course of action. Works may resume only after receiving formal permission from the State Agency for Protection of Historical and Cultural Monuments.

Workers' Health and Safety. Works contractor will be obligated to ensure that the construction machinery and equipment in maintained in proper technical condition. Workers operating complex equipment must be adequately trained and strictly follow operation manuals. All personnel present at work sites must be supplied with relevant personal safety gear and instructed to permanently use it.

Social Impacts. If land acquisition and/or physical relocation of residents is required under Component 1, the RPF for ILMD Project Component 1 will be followed. After the approval of the final designs for individual interventions and setting an official cut-off date, the RAPs will be developed if required and discussed with the affected people. RAPs will be developed and implemented in a participatory manner, involving affected men and women, as it is required by the applicable Georgian legislation and WB policies. Compensation packages for the affected people will be worked out according to the guiding principles of RPF and be delivered prior to mobilization of works contractors to the given project site. A grievance procedure will be established to address cases of disputed compensation and any other grievances that PAPs might have with land and/or assets to be alienated by the project. The rehabilitation works will mainly be undertaken not during the irrigation season (in case of working canals) in order not to cause nuisance to water users. For those canals that are not functional, works may be carried out at any time of a year.

7.3 Operation phase

Mediating competition for water use. The publicly acceptable order of priority followed by the Government implies meeting of demand for potable water supply first, followed by agricultural and industrial needs. The largest industrial water user is the hydropower sector. Some small hydro power plants (HPPs) intake water from the same reservoirs as those used by the irrigation schemes. In such cases formal agreements are signed between water users. In most cases, HPPs are the secondary users, while the priority use is by irrigation. Overall, conflicts over water use are not acute in Georgia at present, partially due to abundance of the resource in most parts of the country, as well as due to lack of water delivery infrastructure and affordability problems. However, future economic development and growth, as well as possible long-term impacts of climate change may increase demand for water and limit its natural availability. Therefore, it is important that the new Water Law, currently in works, is expected to introduce principles of watershed management and improve regulations for water intake and discharge. Furthermore, the national irrigation strategy to be prepared under the Project will define arrangements for regulation of water abstraction by hydropower and irrigation users which will help to mitigate conflicts. The institutional development plan to be prepared for each irrigation scheme should include measures to facilitate resolution of disputes between irrigation users at a local level.

Ensuring affordability of services and sustaining O&M of rehabilitated schemes. Amelioration service is regulated by Georgian legislation and normative acts, as well as by contracts signed between the UASCG and water users. As the current amelioration service fee doesn't fully cover maintenance costs of the schemes, the government allocates subsidy from the State budget. Arrangements for operation and maintenance of amelioration systems is regulated by "the rules of technical maintenance of amelioration systems" approved by the decree dated November 25, #2-206 by the Minister of Agriculture. In the short to medium term perspective, the government is likely to continue regulating

financial mechanism of O&M of the irrigation schemes that would include management of fees in the socially acceptable manner. Project will contribute to improved irrigation service fee collection through (i) preparation of a national irrigation and drainage strategy which will define improved water charging policies; (ii) preparation of costs operation, maintenance and financing plans for Projects selected irrigation which will inform setting of water charges; and (iii) development of improved on farm water management arrangements including for fee collection.

Ensuring safety of dams. Algeti and Sioni dams are two large irrigation dams that are already known to be related to the implementation of the ILMD project, and more dams may get involved depending on the choice of irrigation schemes to be rehabilitated under the Project. Because installation of early warning and monitoring systems at these two dams got interrupted in the past, completion of this undertaking is now planned as part of rehabilitation works on the Tbisi-Kumisi irrigation scheme (Algeti dam) and Kvemo Samgori irrigation scheme (Sioni dam). If other dam-dependant schemes are included into the Project, then their technical condition and operational modality will also be carefully examined and actions taken according to the OP/BP 4.37. Overall, the dams that are related to any ILMD Project activities should be checked for identifying their technical integrity and ensuring presence of adequate monitoring systems. Also, Early Warning Systems, Emergency Preparedness Plans, and Emergency Action Plans should be developed and adopted for them, as well as annual inspection and reporting by the established dam safety panel.

In case of damage of failure of a reservoir dam, there is a designated entity - Agency for Managing Emergency and Urgent Situations - that is mandated to enter the site and undertake rescue operations.

Managing erosion, salinization, alkalization, and water logging. To prevent the erosion of lands in the irrigation command area, it is important to undertake anti-erosion measures on arable lands during cultivation. This would imply sowing crops horizontal to slope inclination, applying dense sowing of the crops, furrowing and bedding, irrigating by short furrows. Proper maintenance of irrigation schemes is essential for minimizing water filtration and leakages, which are significant causes of erosion. Congestion of canals and break-down of hydraulic structures should also be prevented by regular check-ups and timely maintenance, as they may cause flooding and water-logging of agricultural areas. Water logging from excessive water supply is likely to decrease to a mere minimum as a result of installing and operating of water metering systems and levying of economically reasonable fees, which is an ongoing process and will be further supported by ILMD Project. Data on soil quality are essential for identifying areas where flood irrigation must not be applied to avoid salinization. Other irrigation technologies should be considered in the fields where physical and chemical characteristics of soil and the high water table make flood irrigation a non-favorable option.

Managing irrigation water quality. In order to prevent pollution of agricultural lands and agricultural produce with toxic compounds, it is recommended that water supply agency obtains and checks relevant surface water quality data available from the hydrological monitoring posts operating in the country. If the established maximum allowable concentration of toxic compounds is exceeded in the water abstracted for agricultural use, UASCG must address the Ministry of Environment and Natural Resources Protection, to have the source of pollution identified and eliminated, and the damage mitigated to the reasonable extent.

Protection of aquatic ecosystems. The UASCG carries licenses that are valid till 2015, for the water intake from specific river basins for the needs of specific irrigation schemes. These licenses represent the primary tool of regulation of water use, however they are based on water demand and on the scheme's design capacity of water intake rather than on the scientifically worked out amounts of ecological water flow required for sustaining aquatic ecosystems. At present, MENRP is in the process aligning the national environmental legislation with the guiding principles adopted in the EU. The new Water Law is in works, and MENRP is striving for the adoption of conventional new methodology for establishing ecological water flow in surface water bodies. It is expected that by the time of expiry of the licenses held by the UASCG, more advanced rules of licensing will be in place, and will apply from 2015 onwards. The same is expectation holds for regulation of discharged water quality.

Pesticide Use and IPM practices. Improving irrigation services is likely to enhance intensity of agriculture and to bring back to cultivation some areas abandoned due to discontinued irrigation as a result of deteriorated infrastructure. This may lead to increased use of fertilizers and pesticides. In order to reduce public health and environmental risks of excessive, unsafe, or improper use of pesticides. Project beneficiaries will be supported by complementary projects including: (i) the parallel GEF/ IFAD financed Enhancement of Agricultural Resilience and Competitiveness Project which will involve field demonstrations in the project area including on integrated pest management; and (ii) USAID support for the development of the national extension service which is also expected to include development of extension and training material for integrated pest management which will be delivered in the Project area. Support will include provision of information on the IPM principles and guidelines on safe storing, handling, and application of pesticides.

Mitigating Social Impacts

Any negative social impacts resulting from private land acquisition necessitated under Component 1 will be addressed prior to the operating phase. Negative social impacts from land acquisition will be mitigated through the preparation and implementation of RAP following principles of impact assessment and compensation outlined in the RPF. These will be completed during the construction phase. During the operation phase there will be ongoing monitoring of RAP implementation including assessment of income and employment levels, standards of living and degree of satisfaction of affected persons. This ongoing monitoring will highlight any detrimental effects of RAP implementation, which can be addressed accordingly.

8. STAKEHOLDER CONSULTATION

According the Constitution of Georgia, every citizen has a right to obtain information regarding the activities that may cause environmental impacts. Furthermore, Georgia is a party to the Aarhus Convention, which establishes the principles of public access to information regarding environmental issues. It calls for the involvement of all interested parties for achieving sustainable development.

The ESMF for the ILMD Project will be publicly disclosed on the web-site of the MoA. Representatives of the relevant public entities, NGOs, and beneficiary communities will be consulted on the advanced draft of the present ESMF in a stakeholder meeting to be held in Tbilisi. The comments and suggestions made during the consultation will be taken into account while developing the final version of the ESMF.

Site-specific EMPs will also be publicly disclosed and hard copies distributed among the affected municipalities. Public consultation meetings to discuss site-specific EMPs will be held within the area of each scheme to be rehabilitated (Tbisi-Kumisi, Zeda Ru and Kvemo Samgori irrigation schemes).

9. SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT AND MANAGEMENT PLANNING

Following the guiding principles of the WB policies and the national legislation, rehabilitation activities that carry risks triggering detailed environmental analysis the EIA report(s) will be developed based on the outline provided in Attachment I. For the activities requiring EIA, the EMPs will be developed as part of the EIA process and be included in the EIA reports. For the low risk activities not requiring full-scale EIA, the site-specific EMPs will be developed using the checklist format provided in the below Attachment II of the present ESMF. For all works packages, the EMPs will be included in the tender documents and will later be made part of works contracts.

Responsibilities of various entities with respect to implementation of EMPs and monitoring their implementation are briefly summarized below:

Design Consultants will be responsible for taking into account environmental and social aspects in the process of their work and strive for minimizing negative impacts through the design solutions. If conduct of EIAs and development of EMPs is made part of the design consultant tasks, the consultant will also be responsible for conducting this part of work in a participatory manner in consultation with local stakeholders, and for incorporation of stakeholder comments as well as the feedback from the Project and the WB into the final versions of EIA reports and EMPs.

Environmental Consultants may be hired by project implementing agency for carrying out EIAs and developing EMPs, if these functions are not integrated into the terms of reference of design consultants. Consultants' responsibilities pertaining EIA and environmental management planning processes are described above.

Works Contractors will be responsible for the incorporation of costs of EMPs' implementation into their bids. EMPs therefore must be included into all tender packages. Adherence to all requirements of EMPs, included into their contracts, throughout the contract term will be mandatory for works contractors. Contractors shall possess all relevant licenses and permits.

Technical Supervisor(s) will be responsible for oversight over the proper implementation of civil works, including adherence to the measures provided in the EMPs. Technical supervisor will identify any issues which may arise from inadequate application of mitigation measures provided in EMPs, and recommending corrective actions. Technical Supervisors shall verify that the Contractors possess all relevant licenses and permits. To adequately perform this duties Technical Supervisor(s) must include relevant expertize and skill mix in their team(s).

The Project implementing entity will organize development of EMPs and carrying out EIAs, if required, and will ensure their compliance with the requirements of local legislation and the WB OPs; share draft EMPs (and EIA reports if required) with the WB, and conduct public consultation meetings. All environmental documents will be developed in Georgian and English languages, disclosed nation-wide,

and made available for local stakeholders in a convenient format. The project implementing entity will also ensure that EMPs are included into the tender documents for civil works, so that potential bidders are able to incorporate costs related to EMP implementation into their bids. EMPs will be integrated into the works contracts and be mandatory for implementation like any other clause of works contracts. The Project implementing entity will also be responsible for monitoring EMP implementation. Monthly field monitoring checklists will be used for regular environmental supervision of works. Progress reports on the outcomes of environmental supervision will be developed by project and submitted to the WB as part of the regular project progress reporting.

Ministry of Environment and Natural Resources Protection is responsible for the control over adherence to the terms of environment permits and natural resource use licenses issued for physical works. The State Environment Protection Agency under the MOENRP carries out monitoring of surface water quality in the selected sampling points on the rivers of Georgia.

Regional and local authorities regulate transportation, disposal, or recycling of construction waste.

10. ENVIORNMENTAL AND SOCIAL MONITORING

MoA, acting as an implementing entity for Component 1 of the Project, will carry overall responsibility for the technical oversight of Project implementation. This will include monitoring compliance with environmental and social safeguard policies of the World Bank, guidelines provided in this ESMF, and requirements of site-specific EMPs and Resettlement Action Plans. MoA will use PIU for delivering the task of environmental and social monitoring and reporting. This task may be delivered by PIU's in-house staff or with the help of hired consultants. Currently, MoA has no technical expertise to perform environmental and social monitoring of projects implementation. Creating institutional capacity for performing this function is the condition for ILMD Project effectiveness and maintaining it throughout the Project life is a legally binding obligation.

Environmental and social oversight of physical works will require field supervision and inspection of documents (licenses, permits, log books, etc. of the construction contractors). A template for recording outcomes of environmental and social monitoring is attached to this ESMF. Such records will be generated at least one a month for each active construction site. MoA will include narrative analytical reports on the status of environmental and social compliance of the Project implementation into regular progress reports to be furnished to the World Bank.

ATTACHMENTS

Attachment I: Proposed Structure of the EIA Report

Executive Summary *(not more than 5 pages)*
Introduction
Project Description
Environmental and Social Baseline
Expected Impacts and Mitigation
Environmental Management Plan

CHAPTER 1.Introduction

CHAPTER 2. Legal and Policy Framework

CHAPTER 3. Project Description

CHAPTER 4. Analysis of Alternatives

CHAPTER 5. Physical and Natural Environment

CHAPTER 6.Sensitive Receptors and Potential Impacts

CHAPTER 7. Impact Mitigation

CHAPTER 8. Environmental Management Plan

Annex 1 Environmental Management Matrix (environmental management and monitoring plans)
Annex 2. Public Consultation
Annex 3. References
Annex 4. Maps, Graphs, Pictures
Annex 5. EIA Team Composition

Attachment II: Environmental Management Plan Checklist for Irrigation Reconstruction Activities

Purpose of the IR Checklist

Main purpose of the Irrigation Reconstruction EMP Checklist (IR EMP Checklist) is to provide serve as a simple tool for identification of potential environmental impacts related to rehabilitation of the existing irrigation schemes. The EMP checklist provides a set of associated environmental mitigation measures as well as monitoring measures that will help assess the implementation of the selected mitigation measures.

The design and concept of the EMP Checklist allows for it to be used either by specialists or non-specialists dealing with irrigation reconstruction in cases where environmental due diligence may not be required by the national legislation (existing irrigation systems) or a full scale EIA study is not needed. The checklist-type format has been developed to provide "example good practices" and designed to be user friendly and compatible with the World Bank safeguard requirements.

Description of the IR Checklist

The EMP checklist-type format attempts to cover typical core mitigation approaches to reconstruction works with small, localized impacts on the existing irrigation systems. It provides the key elements of an Environmental Management Plan (EMP) or Environmental Management Framework (ESMF) to meet World Bank Environmental Assessment requirements under OP 4.01. The intention of this checklist is that it would be applicable as guidelines for the rehabilitation works contractors and constitute an integral part of bidding documents and contracts for contractors carrying out said works under the Bank-financed projects.

IR EMP Checklist consists of two major sections:

Project Design and Specification: includes a descriptive part that characterizes the project, including institutional and legal requirements, technical project content, capacity building needs and a short overview of the public consultations process. This section could be up to two pages long. Attachments for additional information can be supplemented when needed.

Environmental Management and Monitoring Plan: includes an environmental and social management and monitoring table, where activities and potential environmental issues can be checked in a simple Yes/No format. If any given activity/issue is triggered by checking "yes", the corresponding mitigation and monitoring measures should also be checked.

Directions for the Checklist use

Project Design and Specification section of the IR Checklist requires knowledge about basic general and technical information on sub-projects. The boxes should be filled with the required data, including information about the sub-project location, nature of the planned works, physical and natural environment around the sub-project site, required clearances to be obtained for the project implementation, and description of the process of public consultation on the sub-projects and its environmental and social implications. Note that some information required in this section

of the Checklist will not be available by the time it gets filled out and shall be entered once such information becomes available (e.g. name of works contractor, public consultation outcomes, etc.). Supplemental information can be attached to the document as required.

Environmental Management Plan (EMP) section provides a generic set of potential negative impacts and their mitigation measures which are typical for simple rehabilitation activities performed on the existing irrigation schemes. User of this Checklist may drop, re-formulate, or add mitigation measures to those provided in the readily available table as required based on the specificity of a given sub-project or of a work site.

Environmental Monitoring Plan section should be filled in based on the user's iteration of the EMP. Namely, each mitigation measure should be entered as a separate line item in the Monitoring Plan, explaining where, how, how often, why, and by which entity the application of these measures should be monitored. Estimated costs of key monitoring parameters should also be provided. Note that the Monitoring Plan must cover both – construction and operation phases, construction phase meaning project-financed rehabilitation works, and operation means the use of rehabilitation scheme during and beyond the project life.

IR Checklist

SECTION 1: PROJECT DESIGN AND SPECIFICATIONS

Institutional and Administrative Data				
1	Project name	*(Name of World Bank financed project)*		
2	Sub-project title	*(Name of Irrigation System)*		
3	Sub-Project location	*(Administrative region, province, municipality)*		
4	Watershed (river basin)			
Institutional Arrangements				
5	Institutional Arrangements (names and contacts)	*WB (Task team leader)*	*Project Management (PIU)*	*Local Counterpart or Recipient)*
6	Implementation arrangements (names and contacts)	*Safeguard Supervision (WB Safeguards Specialist)*	*PIU Supervision (Env. Specialist)*	*Contractor (to be entered once contracted)*
Site Description				
7	Geographic name of the site			
8	Short description of the sub-project activities (type of planned works)			
8	Short narrative description of site (physical and natural environment):			
9	Locations and distance for the closest existing licensed material sourcing, especially aggregates, water, stones			
Legislation				
10	Information on national legislation governing sub-project activities naming (i) types of permits, licenses, and other clearances to be obtained at the stage of sub-project design, construction, and operation and (ii) entities who apply for and obtain these documents. (to be attached to EMP once obtained)			
Public Disclosure				
11	Data on disclosure of EMP IR Checklist and public consultations (Attach minutes of public consultation to this Checklist once produced)			
Capacity Building				
12	Will there be any capacity building specific to this irrigation scheme and location? Is such capacity building part of the overall project?	[ ] N or [ ] Y if Yes., attach the plan of capacity building to this Checklist		

SECTION 2: ENVIRONMENTAL MANAGEMENT PLAN

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
General	Notification	(a) Public notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) (b) All legally required permits, agreements, licenses, and clearances acquired for the project activities (c) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment.
	Worker Safety	(a) Workers' PPE will comply with international good practice (hardhats, masks, safety glasses, harnesses and safety boots, tec.) (b) First aide medical kits and fire extinguishers available at work site (c) Contact information for emergency services (medical, fire) posted on the information board at work site
Pollution Management	Air Quality	(a) Construction machinery and equipment maintained in adequate working condition on regular basis (b) Spoils storage piles compacted (c) Dust sources watered to minimize discomfort to nearby residents (d) Materials and wastes are transported under a covered hood of a truck (e) Vehicle speed under control to lessen suspension of road dust
	Noise	(a) Construction noise limited to working hours in the vicinity of settlements (b) Engine covers of generators, air compressors, and other powered mechanical equipment closed during operation, and equipment placed as far away from residential areas as possible
	Waste	(a) Sites for permanent waste disposal identified and agreed with local officials (b) Sites for temporary storage of waste allocated to prevent scattered dumping of waste on and around the work site (c) Reuse and recycle construction waste whenever feasible (except asbestos) (d) Arrangements made with licensed companies, as available, for removal and recycling of used tires and filters of construction vehicles and machinery (e) No open air burning of waste on and off the work site
Erosion Control		(a) Slope protection provided through bank compaction, rip-rapping on critical sections, or vegetative stabilization (b) Topsoil remove and stored aside for later use in site restoration (c) Excess material used for restoration of degraded areas
Handling Chance Finds		(a) In case of chance finds during earth works - all activity taken on hold, a State entity in charge of cultural heritage preservation notified in written, and work resumed upon formal permission received from the above entity
Protection of Water Bodies	Turbidity	(a) Sediment traps set up along rivers and/or gabions along banks to filter out eroded sediments (b) Erosion control measures applied as provided above
	Pollution	(a) Vehicle and machinery servicing prohibited in the immediate proximity to water bodies (b) Servicing and fueling of vehicles and machinery limited to an allocated site with non-permeable floor and capacity to contain spills if occurred (c) Arrangements made with licensed companies, as available, for removal and recycling/deactivation of used oils and sand/gravel saturated with oil products
Nuisance to Local Communities		(a) Project works are scheduled beyond irrigation season to the extent possible in order to avoid/minimize service disruption (b) Work site is properly marked and fenced as appropriate (c) No temporary storage of construction materials and waste occurs within cultivated land plots or any type of private property (d) Areas for temporary storage of construction materials and waste allocated so that free movement of traffic and pedestrians is not hindered

SECTION 3: ENVIRONMENTAL MONITORING PLAN

What (Is the parameter to be monitored?)	**Where** (Is the parameter to be monitored?)	**How** (Is the parameter to be monitored?)	**When** (Define the frequency or continuous?)	**Why** (Is the parameter being monitored?)	**Cost** (if not included in project budget)	**Who** (Is responsible for monitoring?)
CONSTRUCTION PHASE						
1.						
2.						
3.						
…						
x.						
OPERATION PHASE						
1.						
2.						
3.						
….						
x.						

Attachment III: Monthly Field Environmental Monitoring Checklist

Site location					
Name of contractor					
Name of supervisor					
Date of site visit					
Status of civil works					
Documents and activities to be examined	Status				Comments
Contractor holds license for extraction of natural resources	Yes	Partially	No	N/A	
Contractor holds permit for operating concrete/asphalt plant					
Contractor holds agreement for final disposal of waste					
Contractor holds agreement with service provider for removal of household waste from site					
Work site is fenced and warning signs installed					
Works do not impede pedestrian access and motor traffic, or temporary alternative access is provided					
Working hours are observed					
Construction machinery and equipment is in standard technical condition (no excessive exhaust and noise, no leakage of fuels and lubricants)					
Construction materials and waste are transported under the covered hood					
Construction site is watered in case of excessively dusty works					

Contractor’s camp or work base is fenced; sites for temporary storage of waste and for vehicle/equipment servicing are designated					
Contractor’s camp is supplied with water and sanitation is provided					
Contractor’s camp or work base is equipped with first medical aid and fire fighting kits					
Workers wear uniforms and protective gear adequate for technological processes (gloves, helmets, respirators, eye-glasses, etc.)					
Servicing and fuelling of vehicles and machinery is undertaken on an impermeable surface in a confined space which can contain operational and emergency spills					
Vehicles and machinery are washed away from natural water bodies in the way preventing direct discharge of runoff into the water bodies					
Construction waste is being disposed exclusively in the designated locations					
Extraction of natural construction material takes place strictly under conditions specified in the license					
Excess material and topsoil generated from soil excavation are stored separately and used for backfilling / site reinstatement as required					
Works taken on hold if chance find encountered and communication made to the State agencies responsible for cultural heritage preservation					
Upon completion of physical activity on site, the site and contractor’s camp/base cleared of any remaining left-over from works and harmonized with surrounding landscape					

Georgian Irrigation and Land Market Development Project

Minutes of Combined Public Consultation Meeting

Environmental and Social Management Framework

Resettlement Policy Framework

Date: February 17, 2013
Venue: Ministry of Agriculture of Georgia, Tbilisi

The meeting convened at 14:00.

17 participants attended the meeting, including representatives of the Ministry of Agriculture of Georgia, United Amelioration Systems of Georgia (UASCG), academia, National Environment Agency of the Ministry of Environment and Natural Resources Protection, and NGOs. Participants of the public consultation have registered in the List of Participants and provided their contact details (Appendix I). Photographs made during public consultation are presented in the Appendix II.

Mrs. Lali Durmishidze, Manager of the IFAD-funded Agriculture Support Project, who also led preparation of the Irrigation and Land Market Development Project (ILMP), opened the meeting by welcoming the audience and outlining the purpose of the consultation meeting. She presented overall goals, objectives and components of ILMP and informed the audience about the present status of the Project preparation.

Ms. Durmishidze mentioned that the drafts of the Environmental and Social management Framework (ESMF) and the Resettlement Policy Framework (PRF) in Georgian and English languages were posted at the web-site of the Ministry of Agriculture of Georgia and of the UASCG on February 13, 2014 and were made available in hard copies upon demand. The announcement on this public consultation meeting was circulated through mailing lists. In addition, representatives of three lead NGOs – Caucasus Environmental NGO Network (CENN), Green Alternative, and the Green Movement of Georgia, as well as of a consultant company Gamma which is active in the environmental impact assessment services in Georgia were contacted by phone and invited to participate.

Following the above introduction, Ms. Durmishidze delivered presentation of the ESMF and RPF of the ILMP**.** She explained how these documents evolved and how will they be used for the purposes of the Project implementation. She talked about the main types of expected environmental and social impacts described in the ESMF and outlined the generic set of mitigation measures proposed in this framework document. She also explained the timing and scope of site-specific Environmental Management Plans (EMPs) to be prepared for individual investments supported by the ILMP.

Presentation on Resettlement Policy Framework (RPF) included information on World Bank's Operation Policy 4.12 Involuntary Resettlement and comparison of the requirements of this Policy and the respective national legislation; gaps identified and approaches recommended in order to address these gaps; eligibility for compensation and compensation mechanisms to be applied for the purposes of the ILMP implementation; as well as the roles of various entities to be involved in the development, review, approval and implementation of land acquisition and other possible types of resettlement. It was emphasized that although ILMP envisages only rehabilitation of the existing irrigation systems and no new construction will be financed, the RPF was still developed to serve as a tool in case the land acquisition / resettlement is required for any of the irrigation schemes to be rehabilitated under the Project.

Afterwards, the participants were invited for a question-and-answer session. The main issues raised during the consultation provided are briefly summarized below.

Ms. Katerina Poberejna, CENN

Comment
The EMSF does not mention the risk of spreading epizootic infections with the water transported through irrigation canals. There is no good database of infection hotspots in Georgia, and given that irrigation canals pass through some densely populated areas were cattle is kept, irrigation canals may become sources of the disease transfer.
It is also recommended that chemical analysis of silt removed from canals during their cleaning are undertaken to screen it for hazardous pollutant content. The need for such diligence comes from the registered cases of toxic agrochemicals being found in sediments.

Reply
Site specific EMP will identify canals where there is a risk of contamination with (a) zoontic disease and (b) hazardous pollutants, and where such risk exists - will include a requirement that sample analyses of water and the sediment are conducted under the guidance the environmental specialist of the . If presence of toxic and/or infectious pollutants is revealed, MOA will take responsibility and lead in identifying and organizing application of the required mitigation measures.

Question
Will water intake increase as a result of schemes' rehabilitation to be financed by the ILMP?

Answer
The Project envisages rehabilitation of the existing irrigation schemes without altering geometric parameters of the canals and the capacity of hydraulic structures. Project implementation will not lead to the increase of the designed water intake capacity of the schemes.

Question
Is any entity conducting irrigation water quality analyses?

Answer
Analysis of irrigation water quality is not a legal requirement and is not generally practiced in Georgia. The UASCG may request the National Agency for Environmental Protection to undertake water sample analysis in exceptional cases, where water contamination is reported or suspected.

Comment
It would be important to invest in raising public awareness among water users on the sound practices of pest management and pesticide use.

Mr. Merab Gaprindashvili, Deputy Head, Geology Department of the National Environmental Agency, Ministry of Environment and Natural Resources Protection

Question
Algeti and Sioni dams have been in operation for a long time. Therefore, it would be crucial to conduct precise evaluation of the technical condition of these dams. Does the project envisage dam rehabilitation works?

Answer
ILMD Project is sensitive to the dam safety issues. A Dam Safety Panel will be established by the government of Georgia to review all technical issues related to each dam upon which the Project-

supported irrigation schemes are dependent. The previous irrigation project financed by the World Bank carried out detailed evaluation of the technical condition of Soini and Algeti dams and initiated installation of their monitoring systems. However the process was taken on hold half way through. The ILMP envisages completion of those interrupted works and undertake other improvements that are critically important for dam safety.

Question
Close to the Algeti reservoir dam, there is an active landslide that calls for urgent relocation of some residents. Will the ILMP take case of this matter as it relates to the Project-beneficiary Tbilisi-Kumisi irrigation scheme?

Answer
The proposed detailed design for the Tbisi-Kumisi irrigation system envisages engineering solutions for arresting the landslide. In case the need for relocation persists, the Resettlement Action Plan (RAP) will be prepared in agreement with the RPF and the relocation of the affected people will be undertaken in full compliance with the RAP.

Ms. Marina Arabidze, Deputy Head, Environmental Pollution Monitoring Department of the National Environmental Agency, Ministry of Environment and Natural Resources Protection.

Question
Environment Pollution Department of the Agency is mandated to undertake monitoring of surface water quality and possesses adequate laboratory facilities for delivering this task however the sampling sites are being defined by annual State monitoring plans. According to the ESMF, is the Agency expected to monitor water quality in the rivers close to the water intake points? If so, these points must be included into the State monitoring program.

Answer
ESMF is not a document that can bind the State Environment Agency to the delivery of specific functions, however having sampling points closer to the irrigation water intakes is highly relevant and the UASCG shall work to the National Environment Agency and the Ministry above it to include such sampling points into the State monitoring plans.

Mr. Jemal Dolidze, Deputy Head, Hydro-Meteorological Department of National Environment Agency, Ministry of Environment and Natural Resources Protection

Comment
Hydro-Meteorological Department operates 50 automatic hydro-meteo stations over the country. Their number will increase in near future. This will gives possibility to plan use of the irrigation water in more efficient way. Hence, close cooperation between the Hydro-Meteorological Department and the UASCG should be encouraged.

Mr. Tamaz Odilavadze, Full Professor of the Agrarian University

Comment
Diversification of irrigation techniques in Georgia would lead to better environmental outcomes. New technology, such as drip and sprinkler irrigation should be actively promoted. These technologies can significant decrease erosion and waterlogging. For the promotion purposes, it would be good to demonstrate new technologies in all regions of the country. Farmers will probably need to cooperate in order to acquire drip and sprinkler irrigation systems.

Question
Is monitoring of the quality of river Debeda included into the State monitoring program implemented by the National Agency? This trans-boundary river flows across the Armenian border and there are copper mines upstream.

Answer
River Debeda is included into the State monitoring plan.

Ioseb Palelashvili, Full Professor, Technical University

Comment
While conducting feasibility studies for the irrigation schemes, social aspects should be fully considered alongside with the economic implication, as good economic outcomes do not always coincide with maximized social impacts.

Mr. David Gubeladze, Full Professor of State Technical University

Question
The UASCG needs strong technical assistance for institutional development. There is no business plan, no future vision, no O&M plan for the irrigation system, etc. Without institutional strengthening, of the company will continue to invest in the physical infrastructure and will not solve its main problem. The problem needs complex approach from the Government of Georgia. Does the ILMD Project envisage such assistance to the UASCG?

Answer
The ILMD Project has a special sub-component for strengthening of irrigation and drainage institutions. It envisages preparation of the national irrigation and drainage strategy, and the national rehabilitation and modernization plan. Institutional strengthening of UASCG is included to cover improvement of the management operations and maintenance, preparation of annual business plans for 2015-2016, preparation of operation, maintenance and financing plans for each scheme, establishment of institutional arrangements for on farm service delivery.

The meeting closed at 15:30
Minutes taken by Tamar Tsintsadze – M&E specialist of Agriculture Support Project

LIST OF PARTICIPANTS

NN	Name, Surname	Occupation / position
1	Katerina Poberezhna	CENN
2	Marina Arabidze	Deputy Head, Environmental Pollution Monitoring Department of the National Environmental Agency, Ministry of Environment and Natural Resources Protection
3.	Jemal Dolidze	Deputy Head, Hydro-Meteorological Department, National Environmental Agency, Ministry of Environment and Natural Resources Protection
4.	Merab Gaprindashvili	Deputy Head, Geology Department, National Environmental Agency, Ministry of Environment and Natural Resources Protection
5.	Baadur Ukleba	Hydrologist, UASCG
6.	Pavle Davitashvili	Chief Specialist, Amelioration Division of the Ministry of Agriculture
7.	George Andguladze	Division of relations with water users, UASCG
8.	Mamuka Jojishvili	Division of relations with water users, UASCG
9.	Tamaz Napetvaridze	Division of relations with water users, UASCG
10.	Ioseb Palelashvili	Full Professor, Technical University
11.	Tamaz Odilavadze	Full Professor, Agrarian University
12.	George Bjhalava	Company GAMA
13.	Tamar Tsintsadze	M&E specialist for ASP, Ministry of Agriculture
14.	Rusudan Khachidze	ASP, Ministry of Agriculture
15.	Nino Tatishvili	ASP, Ministry of Agriculture
16.	Levan Tskhovrebashvikli	Engineer, ASP, Ministry of Agriculture
17.	Lali Durmishidze	Manager of ASP, Ministry of Agriculture