

# Environmental Assessment and Review Framework

---

Project Number: 43405  
November 2010

## Proposed Multitranche Financing Facility Georgia: Urban Services Improvement Investment Program

United Water Supply Company of Georgia (UWSCG)  
Government of Georgia

## **ABBREVIATIONS**

ADB	-	Asian Development Bank
AP	-	Affected Person
CWRD	-	Central and West Asia Region Department
DQMEP	-	Department of Quality Management & Environmental Protection
EA	-	Executing Agency
EARF	-	Environmental Assessment and Review Framework
EEC	-	Environmental Expertise Conclusion
EIA	-	Environmental Impact Assessment
EIP	-	Environmental Impact Permit
EMP	-	Environmental Management Plan
GoG	-	Government of Georgia
GRC	-	Grievance Redress Committee
GUSIIP	-	Georgia Urban Sector Improvement Investment Program
IA	-	Implementing Agency
IEE	-	Initial Environmental Examination
MDDP	-	Municipal Development and Decentralization Project
MDF	-	Municipal Development Fund
MFF	-	Multi-tranche Financing Facility
MoEPNR	-	Ministry of Environmental Protection and Natural Resources
MoRDI	-	Ministry of Regional Development & Infrastructure
NGO	-	Non-Governmental Organization
OSPF	-	Office of the Special Project Facilitator
OCR	-	Office of the Compliance Review panel
PIU	-	Project Implementation Unit
IPMO	-	Investment Project Management Office
REA	-	Rapid Environmental Assessment
USWCG	-	United Water Supply Company of Georgia

## **NOTE**

In this report, “\$” refers to US dollars.

## CONTENTS

I.	INTRODUCTION	1
II.	ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY	4
	A. National Legislation	4
	B. ADB Policy	5
III.	ANTICIPATED ENVIRONMENTAL IMPACTS	7
IV.	ENVIRONMENTAL ASSESSMENT FOR PROJECTS AND COMPONENTS	9
	A. Environmental Assessment Procedure	9
	B. Preparation of Initial Environmental Examinations (IEE)	11
	C. Preparation of Environmental Impact Assessments (EIA)	11
	D. Procedure to be followed for Projects requiring EIP	12
V.	CONSULTATION, DISCLOSURE AND GRIEVANCE REDRESS	13
	A. Consultation & Disclosure	13
	B. Grievance Redress Mechanism	14
VI.	INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES	17
	A. Responsibilities and Authorities	17
	B. Institutional Capacity and Development	18
	C. Staffing and Budget	20
VII.	MONITORING AND REPORTING	23

## APPENDICES

Appendix 1:	Map of Protected Areas in Georgia (List and Map)
Appendix 2:	Government of Georgia Surface Water Guidelines
Appendix 3:	Government of Georgia Drinking Water Guidelines
Appendix 4:	Government of Georgia Wastewater Disposal Standards
Appendix 5:	REA Checklists – Water Supply & Sewerage
Appendix 6:	Outline of EIA/IEE Report
Appendix 7:	DQMEP Organizational Chart
Appendix 8:	Environmental Safeguard Compliance Process Flowchart
Appendix 9:	Organizational Capacity Assessment of DQMEP
Appendix 10:	Terms of Reference for Environmental Management Specialist (DC)
Appendix 11:	Terms of Reference for Environmental Management Specialist (SC)
Appendix 12:	Terms of Reference for Environmental Management Specialist (DQMEP)

## LIST OF TABLES

<b>Table 1:</b>	Other National Environmental Legislations and Applicability .....	5
<b>Table 2:</b>	Anticipated Environmental Impacts & Mitigation Measures .....	8
<b>Table 3:</b>	Environmental Criteria for Project Selection.....	9
<b>Table 4:</b>	Training Plan .....	20
<b>Table 5:</b>	Environmental Management Cost of Each Subproject.....	21
<b>Table 6:</b>	Estimated Costs of EARF Implementation .....	22

## I. INTRODUCTION

1. This document is the Environmental Assessment and Review Framework (EARF) for the Asian Development Bank funded Georgia Urban Services Improvement Investment Program (or the Investment Program). This is prepared to adequately address the ADB Safeguard Policy Statement (2009) requirements and is to be endorsed by the Georgian government. The objective of preparing this EARF is to provide a formal structure through which the environmental impacts of new and amended subprojects can be assessed and mitigated by the Executing Agency in the future, in compliance with the ADB policy.

2. The Investment Program was developed as the Government's response to the lack of adequate and/or safe water supply, sewerage and sanitation in urban areas of Georgia. This is intended to optimize social and economic development in select urban areas (provincial capitals and secondary towns) through improved urban water and sanitation (WSS) services, and will be financed by the ADB through its Multi-tranche Financing Facility (MFF). With a total cost of \$625 million, this Investment Program will be implemented in six selected towns (**Figure 1**) in four tranches of funding over a period of 8 years beginning in 2011.

3. The Investment Program will improve infrastructure through the development, design and implementation of a series of subprojects, each providing improvements in a particular sector (water supply and/or sewerage) in one town. Subprojects will rehabilitate existing infrastructure and/or create new and expanded infrastructure to meet the present and future demand. Water supply improvements will include source augmentation and headworks, pumping systems, treatment facilities, transmission and distribution network; and, sewerage improvement works will include sewer network, trunk sewers and sewage treatment facilities.

4. The Investment Program will improve the health of residents in the urban centers of Kutaisi, Poti, Marneuli, Zugdidi, Anaklia and Mestia. The outcome of the Investment Program is improved WSS services in these urban centers.

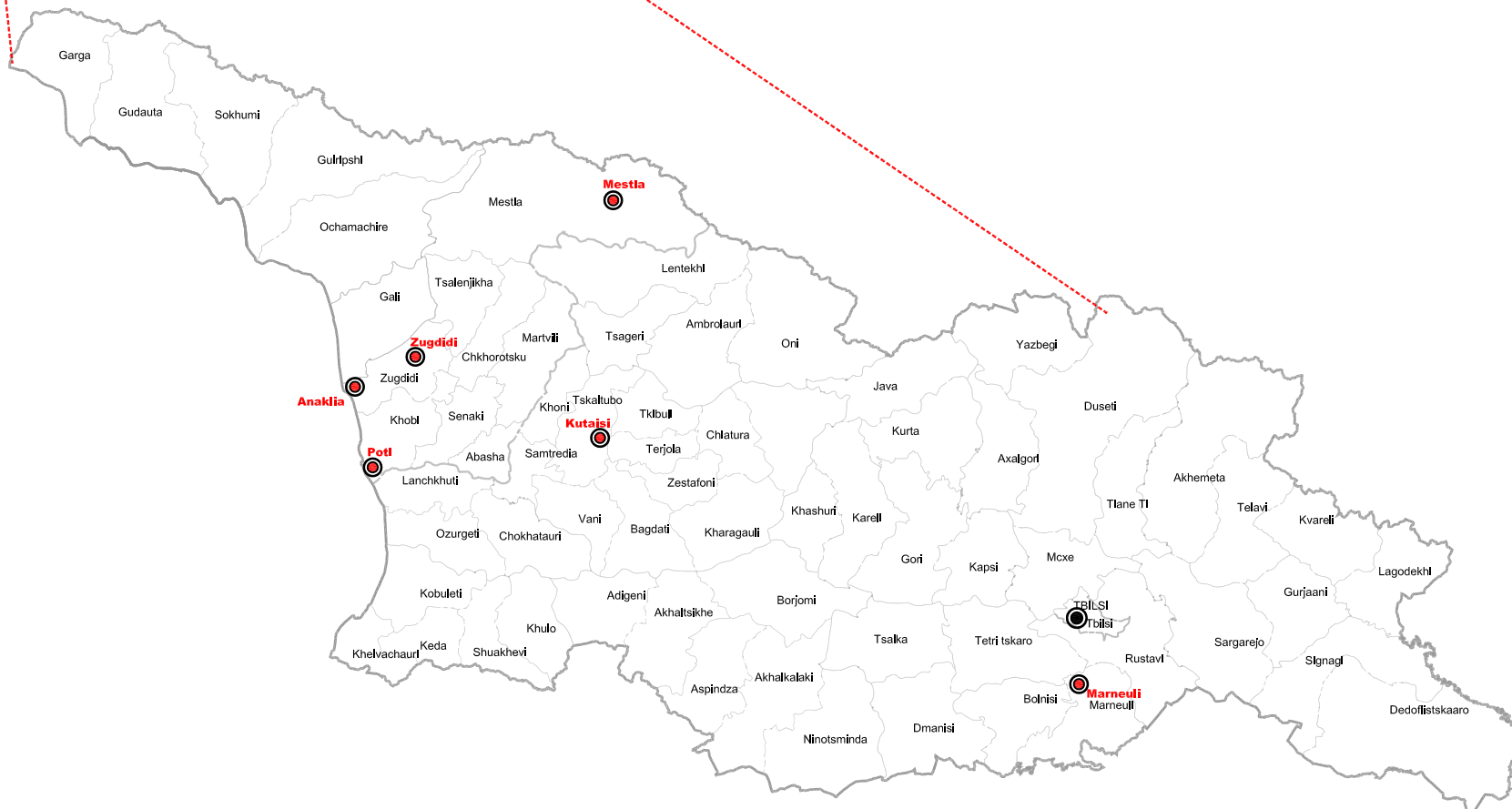
- (i) The first tranche will improve water supply intake and treatment facilities in Zugdidi, Anaklia, Mestia and Marneuli. It will also improve the institutional effectiveness of the UWSCG through appointment of the Management Contractor. Design engineering and construction supervision consultants for all six Investment Program towns will be appointed in the first tranche. Detailed engineering design for all six Investment Program towns is planned for completion by end 2011.
- (ii) The second tranche will (a) improve WSS systems in the first zone of Marneuli, Kutaisi, Poti, and Zugdidi; (b) complete WSS systems in Anaklia and Mestia; and (c) complete construction of the sewage treatment plants (STP) in Mestia.
- (iii) The third tranche will (a) improve WSS systems in the second zone of Kutaisi; (b) complete WSS systems in Poti and Zugdidi; and (c) complete construction of STPs in Poti and Zugdidi.
- (iv) The fourth tranche will complete WSS systems and the STP in Kutaisi.

5. Tranche 1 of this Investment Program, with a total cost of \$ 105 million, includes following subprojects:

- (i) Improvement of water supply system in Marneuli (rehabilitation of existing bore holes, new disinfection facility, laying of transmission line, rehabilitation/ construction of reservoirs, and pumping systems)

- (ii) Improvement of water supply system in Mestia (new source development, laying of transmission mains, construction of water treatment plant and construction of reservoirs)
- (iii) Improvement of water supply system in Zugdidi and Anaklia (new source development, laying of transmission mains, construction of water treatment plant and rehabilitation of existing reservoirs)

6. Ministry of Regional Development and Infrastructure (MoRDI) is the Executing Agency (EA) and United Water Supply Company of Georgia (UWSCG), is the Implementing Agency (IA) of the Investment Program. The EA will be responsible for compliance with ADB procedures, including environmental and social safeguards as required under ADB's Safeguard Policy Statement (SPS) 2009. This EARF assesses the requirements of Georgian environmental law and ADB safeguards policy, and describes the procedures that both the EA and IA will follow to ensure safeguard compliance by all projects under every tranche of the Investment Program. Before Investment Program appraisal this EARF will be translated into Georgian and distributed to all interested stakeholders and the English version will be posted on the ADB website.



# Georgia Urban Services Improvement Investment Program

## Program Towns

### Legend

- Country Boundary
- District Boundary
- Project Town
- Capital City

Client:  
Ministry of Regional Development & Infrastructure  
United Water Supply Company of Georgia

Consultant

Drawn:	Checked:
Date:	Approved:
Scale:	

Map -1

## II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

### A. National Legislation

7. The Georgian system of environmental assessment and environmental permitting was established in 1997 through the enactment of Laws “On Environmental Permits” and “On State Ecological Expertise”. At present, the environmental permit procedure in Georgia is set-out in the following laws:

- (i) **Law of Georgia on Environmental Impact Permit, 2008.** This Law supersedes the earlier Law on Environmental Permit, 1997, and establishes the procedure of obtaining Environmental Impact Permit (EIP), and notifies activities or projects that are subject to ecological expertise (EE, see below) for issuing EIP. The Law describes the procedures and duties and responsibilities of the project proponent and the permit issuing authority, Ministry of Environmental Protection and Natural Resources (MoEPNR).
- (ii) **Law of Georgia on State Ecological Expertise, 2008.** This Law supersedes the previous Law on Ecological Expertise, 1997, and defines the basic principles of ecological expertise. Ecological expertise is a review of the EIA document, submitted in support of an EIP application and is undertaken by a commission composed of independent experts for different impacts and from various disciplines related to the project profile. A positive Ecological Expertise Conclusion (EEC) is a must for issuing the Environmental Permit, and the recommendations made by the experts are attached to the EIP as conditions.
- (iii) **The Law on Licenses and Permits, 2005.** This Law regulates activities that are likely to pose certain threats to human life and health, and addresses specific state or public interests, including usage of state resources. It regulates activities through issue or cancellation of licenses or permits.

8. The following activities or projects under the Investment Program will fall under the ambit of the Law on Environmental Impact Permit, 2008 and therefore requires EIP from the MoEPNR:

- (i) Construction water storage pond with a capacity of 10,000 m<sup>3</sup> or more;
- (ii) Installation of main sewage collector (trunk sewer); and
- (iii) Construction of sewage treatment plant of capacity 1,000 m<sup>3</sup> or more.

9. **Procedures for Obtaining Environmental Impact Permit.** The process of issuing an EIP involves three main steps: (i) Environmental Impact Assessment (EIA) Study and Report, (ii) Ecological Expertise (EE), and (iii) Public Participation. The project proponent is required to prepare and submit an EIA Report. For projects requiring a Construction Permit (almost all new construction projects), no special permit is issued by MoEPNR (according to the “one window principle”, only one permit shall be issued for each activity). The Construction Permit is issued by Ministry of Regional Development & Infrastructure (MoRDI), subject to the consent of MoE and other institutions relevant to the project profile.

10. **Other Environmental Legislations.** Besides the Laws related to EIA, there are certain other laws and regulations currently in force in Georgia, which deal with environmental issues that could apply to infrastructure development. These legislations impose certain restrictions on activities requiring approval from government regulatory agencies. **Table 1** details relevant environmental legislations and their applicability to the Investment Program components.

**Table 1: Other National Environmental Legislations and Applicability**

<b>Legislation</b>	<b>Applicability</b>	<b>Remarks</b>
Forestry Code of Georgia, 1999	Applicable to works located in forest areas	Requires permission from the Ministry of Economic and Sustainable Department (MESD). The project proponent shall submit application to the MESD, which in turn forwards it to the Forest Division of MoEPNR for its review and advise, based on which the MESD gives an approval to proceed with works in forest areas
Law on Ambient Air Protection, 2000	-	It stipulates Maximum Allowable Concentration (MAC) of various pollutants in Ambient Air; however the establishment of emission standards for various sources or activities is under process, therefore at present no standards are available
Law on System of Protected Areas, 1996	Applicable to works or activities in protected areas	Depending on the activity and type of protected area, permission for any work will be granted or denied
Technical Regulation of Drinking Water, 2007 (Decree N 349/N), the Ministry of Labor, Health and Social Affairs of Georgia	Applicable to water supply projects	Water supply and monitoring shall comply with the technical regulation
Rules of the Protection of the Surface Waters of Georgia from Pollution, 1996 (№130 order of the Minister of the Protection of the Environment and Natural Resources of Georgia)	Applicable to water supply projects	Source water quality shall comply with the provisions for domestic use
Technical Regulation of Environmental Protection, 2008 (Decree N745), Minister of the Protection of the Environment and Natural Resources of Georgia	Applicable to sewerage projects	Treated effluent disposal from sewage treatment plants shall comply with the specified standards

Source: MoEPNR, Georgia.

## **B. ADB Policy**

11. Superseding the previous safeguard policies (the Involuntary Resettlement Policy, 1995, the Policy on Indigenous Peoples, 1998, and the Environment Policy 2002), ADB, has adopted a comprehensive Safeguard Policy Statement in 2009 (SPS, 2009). This Statement describes common objectives of ADB's safeguards, lays out policy principles, and outlines the delivery process for ADB's safeguard policy. It applies to all ADB-financed, ADB-administered projects, and their components including investment projects funded by a loan, grant or other means.



12. With the goal to promote sustainability of project outcomes by protecting the environment and people from projects' potential adverse impacts, the objectives of ADB's safeguards are to:

- (i) avoid adverse impacts of projects on the environment and affected people, where possible;
- (ii) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and
- (iii) help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

13. ADB's SPS 2009, sets out the policy objectives, scope and triggers, and principles for three key safeguard areas: (i) environmental safeguards, (ii) involuntary resettlement safeguards, and (iii) indigenous peoples safeguards.

14. **Environmental Safeguards.** The objective of environmental safeguards is to ensure the environmental soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process. All ADB funded projects are screened at initial stages of preparation and categorized according to significance of a project's potential environmental impacts. Projects are assigned to one of the following three categories:

- (i) **Category A** - if project is likely to have significant adverse environmental impacts; therefore requires an environmental impact assessment (EIA).
- (ii) **Category B** – less significant impacts than Category A; requires or Initial Environmental Examination (IEE or limited EIA).
- (iii) **Category C** - likely to have minimal or no adverse environmental impacts; EIA not requires.

15. ADB's environmental assessment requirement is thus different from the Georgian system of environmental assessment. While Environment Impact Permit as per the Georgian Law is required only for notified activities, ADB SPS 2009 applies to all projects and its environmental assessment requirement varies according to the category of the project depending on the nature and scale of the anticipated impacts.

### III. Anticipated Environmental Impacts

16. While there would be numerous positive benefits in terms of improving quality of life of people as well as raising standards of both individual and public health, the subprojects implemented under the Investment Program may also induce certain negative impacts. It is therefore required that environmental impacts are identified and assessed as part of the planning and design process, and that action is taken to reduce those impacts to acceptable levels. This is done through the environmental assessment process, which is an integral part of ADB's lending operations and project development and implementation process.

17. ADB Environmental Assessment Guidelines (EAG), 2003, prescribes that an environmental assessment should evaluate impacts due to the location, design, construction and operation of the project. Construction and operation are the two activities in which the project interacts physically with the environment, so they are the two activities during which the environmental impacts occur. In many projects there are certain effects that, although they will occur during either the construction or operation stage, should be considered as impacts primarily due to the location or design of the project, as they would not occur if an alternative location or design was chosen. For example, if a groundwater resource was depleted by excessive abstraction this would be an impact of both the location and design, because groundwater may not be depleted if the design had used surface water to augment the supply, and the specific aquifer would not have been depleted if the well field was located elsewhere. Similarly, if a sewage treatment plant (STP) produces an effluent that does not meet legally established standards, then this is an impact of the design as it would not occur if a more rigorous treatment technology had been adopted.

18. Drawing from the environmental assessment of tranche 1 projects, understanding of similar projects elsewhere, and based on broad range of issues listed in the ADB Rapid Environmental Assessment (REA) checklists that determine the project environmental category, **Table 2** presents anticipated environmental impacts and broad mitigation measures of the Investment Program subprojects. Except for components of water source and sewage treatment plant development, most impacts will result from considerable construction activities in urban and heavily populated areas. Almost all of the design impacts can generally be mitigated while there can be significant impacts if the components are located in environmentally sensitive areas. For example, if a pipeline was laid in a wildlife sanctuary there would be severe impacts as a result of the location, as these would not occur if the pipeline was aligned along an existing road. Therefore it is important that the Investment Program avoids encroachment into such sensitive areas.

19. Georgia boasts a diverse landscape within a relatively small geographic area and possesses a variety of environmentally sensitive areas. Nearly 40% of its area is under forests, though 97% of it the forest area is situated on mountains. There are 39 Protected Areas (PA) notified under the Law on System of Protected Areas, covering about 7% of the country's territory (75% of which is forests). These PAs include: 14 Strict Nature Reserves, 8 National Parks, 12 Managed Nature Reserves, 14 Natural Monuments and 2 Protected Landscapes in Georgia (see **Appendix 1**).

**Table 2: Anticipated Environmental Impacts & Mitigation Measures**

<b>Anticipated Impacts</b>	<b>General Mitigation Measures</b>
<b>Water Supply - Design and Operation Stage</b> <ul style="list-style-type: none"> <li>▪ Pollution of source water from upstream anthropogenic activities and soil erosion runoff?</li> <li>▪ Impacts due to excessive/unsustainable groundwater extraction (land subsidence, degradation of water quality, etc)</li> <li>▪ Social conflicts arising from displacement of communities</li> <li>▪ Social conflicts from abstraction of raw water for water supply from other water uses of same surface/groundwater sources</li> <li>▪ Health impacts due to unsatisfactory raw water supply</li> <li>▪ Risk of pollution of source water due to inadequate protection of intake works or wells</li> <li>▪ Health and safety hazards to workers from the handling of chlorine, and public safety risks from accidental leakage of chlorine gas</li> </ul>	<ul style="list-style-type: none"> <li>▪ Appropriate selection of source and its location</li> <li>▪ Source protection measures</li> <li>▪ Abstraction shall be within sustainable limits</li> <li>▪ Conduct groundwater tests to estimate the sustainable yield</li> <li>▪ Avoid land acquisition through best location and design</li> <li>▪ Avoid sources with such conflicts; if unavoidable initiate dialogue and resolve issues before investments</li> <li>▪ Avoid sources with unsatisfactory raw water or provide adequate treatment facilities</li> <li>▪ Appropriate location along with source protection measures</li> <li>▪ Necessary safety measures to be included in the project</li> <li>▪ Personal protection equipment to workers</li> </ul>
<b>Sewerage System – Design and Operation Stage</b> <ul style="list-style-type: none"> <li>▪ impairment of historical/cultural monuments/areas and loss/damage due to location of sewerage facilities</li> <li>▪ Nuisance (noise, smell, and influx of insects, rodents, etc.) to neighboring areas due to location of sewerage facilities</li> <li>▪ Social impacts due to dislocation or involuntary resettlement of people</li> <li>▪ Impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage</li> <li>▪ Overflows and flooding of neighboring properties with raw sewage</li> <li>▪ Environmental pollution due to inadequate sludge disposal</li> <li>▪ Health and safety hazards to workers involved in sewerage operation and maintenance due to hazardous working conditions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Appropriate location maintaining adequate buffer</li> <li>▪ Appropriate design and operation practices</li> <li>▪ Avoid land acquisition through best location and design</li> <li>▪ Appropriate design and technology to treat the sewage to Georgian standards</li> <li>▪ Appropriate design and provision of maintenance equipment</li> <li>▪ Proper sludge treatment &amp; disposal facilities as part of facility</li> <li>▪ Ensuring no hazardous material disposal into sewers</li> <li>▪ Provision of appropriate maintenance and personal protection equipment to workers</li> </ul>
<b>Construction Impacts (water supply &amp; sewerage)</b> <ul style="list-style-type: none"> <li>▪ Social conflicts between construction workers from other areas and community workers</li> <li>▪ Noise and dust from construction activities</li> <li>▪ Increased road traffic due to construction activities in the town</li> <li>▪ Continuing soil erosion/silt runoff from construction operations</li> <li>▪ Road blocking due to land excavation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Employ local people as far as possible</li> <li>▪ Best construction schedule and practices</li> <li>▪ Prepare Transport Plan for construction activity</li> <li>▪ Avoiding work in rainy season and appropriate silt control measures</li> <li>▪ Providing temporary access; wooden planks/metal sheets over trenches; prior public information</li> </ul>

## IV. ENVIRONMENTAL ASSESSMENT FOR PROJECTS AND COMPONENTS

### A. Environmental Assessment Procedure

20. Subprojects prepared for investment under the Investment Program must comply with Georgia national legislation and ADB SPS 2009. If the environmental criteria shown in **Table 3** below are followed in the selection and development of subprojects, then most should have relatively minor environmental impacts, and the procedure for environmental assessment should then be straightforward and can be modeled on the approach adopted during tranche 1. The principal steps in each process are described below.

21. **Environmental criteria for subproject/component selection.** The avoidance of negative impacts (by sensitive site selection, amending features of the design, etc) is a key facet of environmental assessment, as it both protects the environment and can save considerable time, effort and cost downstream in a project, by avoiding the need for difficult and costly environmental mitigation and compensation measures. It is important therefore that environmental impacts are taken into account throughout the development of projects/subprojects, beginning in the earliest stages and that the decisions are made on the basis of environmental criteria, as well as feasibility and cost. The following guidelines or criteria are formulated, such that if they are taken into account in selecting and developing subprojects, it should reduce their environmental impacts. These are presented in **Table 3** below:

**Table 3: Environmental Criteria for Project Selection**

<b>A. Exclusion Criteria</b>
<i>A1. All Projects</i>
<p>Following projects <u>cannot</u> be implemented under the Investment Program:</p> <ul style="list-style-type: none"> <li>• Projects likely to violate (non-conformity with) the national legislations in general, and particularly the environmental Laws including norms, guidelines, standards, etc. during the project life cycle (design, construction and operation)</li> <li>• Projects located in notified Protected Areas (Strict Nature Reserves, National Parks, Managed Nature Reserves, Natural Monuments and Protected Landscapes)</li> <li>• Projects leading or likely to lead to any damage/loss to protected monuments</li> <li>• Projects with irreversible impacts which cannot be mitigated to acceptable levels</li> <li>• Projects involving water abstraction/waste water disposal into water bodies/rivers that are in any international dispute</li> </ul>
<b>B. Avoidance or Minimization Criteria</b>
<i>B1. All Projects</i>
<p>Following guidelines and selection criteria shall be <u>followed in implementation</u> of projects to avoid/minimize likely impacts:</p> <ul style="list-style-type: none"> <li>• Avoid private land acquisition and involuntary resettlement by using government land and/or taking all possible measures in design and selection of site or alignment <ul style="list-style-type: none"> <li>➤ If unavoidable, minimize the impacts by reducing the land requirement through alternative design or technology, or select site with less affected persons and where impacts will be less significant</li> </ul> </li> <li>• Avoid cutting of trees by appropriate site selection and best site layout design; <ul style="list-style-type: none"> <li>➤ If unavoidable, select site with less tree cover and without mature trees</li> </ul> </li> <li>• Consult the Ministry of Sports, Culture and Heritage when the project is located near places of historical significance to ensure that the project sites are located where there is a low risk of chance finds</li> </ul>

## B. Avoidance/Minimization Criteria

### B2. Water Supply Projects

Following guidelines/criteria shall be followed in implementation of water supply projects to avoid or minimize likely impacts:

- Water abstraction shall be within the sustainable limits of source
  - In case of surface water extraction, a minimum downstream flow (33% of total flow + downstream uses) shall be ensured
  - In case of groundwater, abstraction shall be limited to replenishment levels
- No competing uses – select sourced with non-competing uses
- Source water quality shall be good, and/or easily treatable with conventional treatment; avoid using a source which require complex/expensive treatment facilities
  - There shall no problematic waste water disposal points upstream of source (minimum distance may be established through field studies)
  - Source water quality shall comply with the potable use category according to the “Rules of Protection of the Surface Waters from Pollution, 2001 (Decree №297/N), Ministry of Labor, Health and Social Welfare(MoLHSW) (**Appendix 2**)
  - Project shall ensure that water supplied to consumers meet drinking water standards according to Technical Regulation on Drinking Water, 2007, (Decree №349/N), MoLHSW, at all times ( **Appendix 3**)
- Locate pipelines within the right of way (ROW) of linear structures (roads, irrigation canals), to reduce the land acquisition and also for easy operation and maintenance
- Project shall avoid noise nuisance due to pumping stations by appropriate location and buffer areas
- Locate water treatment plant at sites where there is no risk of flooding or other hazards that might impair functioning of the plant or present a risk of damage to the plant or its environs;
- Ensure that improvements in the water supply system are combined with improvements in sewerage and to deal with the increased discharge of domestic wastewater

### B3. Sewerage Projects

Following guidelines/criteria shall be followed in implementation of sewerage projects to avoid/minimize likely impacts:

- Locate Sewage Treatment Plants (STP):
  - at a minimum of 500 m from any inhabited areas; consider the future expected urban expansion of at least 20 years, so that people are not affected by odor or other nuisance from the plant
  - at a minimum of 500 m from any cultural resource/important tourist spots
  - at sites where there is a suitable means of disposal for the treated effluent (e.g. into a natural water course) and that such discharge will not cause a hazard to downstream users (e.g. a river that is used for as a source of water for domestic or municipal supply)
  - at sites where there is no risk of flooding or other hazards that might impair functioning of the plant or present a risk of damage to the plant or its environs;
- Project design shall ensure that sewage is treated at all times to wastewater discharge standards as per the “Technical Regulation of Environmental Protection, 2008 (Decree No.745), MoEPNR (**Appendix 4**), and check this by regular monitoring of effluent from the STP during operation phase;
- Project shall include measures to ensure the safe disposal of sewage sludge without causing any environmental hazard

22. **Screening and Classification.** The Implementing Agency will screen all potential subprojects using the REA checklists provided by ADB (see **Appendix 5**); and on the basis

of the screening will classify projects according to the categorization given in ADB SPS 2009 and as detailed below:

**Category A:** Projects likely to have significant adverse environmental impacts, which are irreversible, diverse or unprecedented and may affect an area larger than the location subject to physical works. An Environmental Impact Assessment (EIA) is required.

**Category B:** Projects with adverse environmental impacts that are less significant than those of Category A projects, are site-specific, generally not irreversible, and in most cases can be mitigated more readily than for Category A projects. An Initial Environmental Examination (IEE) is required.

**Category C:** Projects with minimal or no adverse environmental impacts. No environmental assessment is required, although environmental implications are reviewed.

23. If the criteria shown in **Table 3** are taken into account in selecting and developing subprojects, most of the subprojects would be classified as Category B. Tranche 1 has been classified as Category B, however there is a possibility that future tranches may include Category A projects.

#### **B. Preparation of Initial Environmental Examinations (IEE)**

24. For Category B projects an IEE will be prepared in accordance with the requirements of ADB SPS 2009. The IEE will be undertaken as part of the Feasibility Study and the environmental assessment team will work closely with the technical planning and design group to ensure that environmental considerations are integrated into the project design. Outline of an EIA and/or IEE Report is in **Appendix 6**.

25. An IEE study deals with the same issues as an EIA (see below), but is narrower in scope and the issues may be covered in lesser detail. An IEE examines the project's potential negative and positive impacts and recommends measures needed to prevent, minimize, mitigate or compensate for adverse impacts and improve environmental performance. As mitigation is relatively straightforward the IEE may not require a comprehensive analysis of project alternatives or as detailed an Environmental Management Plan (EMP) as an EIA, and may involve lesser extent of public consultation. Stakeholders will however be consulted at least once (when the draft final IEE report has been produced), and may be involved at an earlier stage if deemed necessary on case-to-case basis and as determined by the EA and/or ADB. The IEE reports prepared for tranche 1 subprojects through the ADB PPTA 7487-GEO can be used as model reports, which can then be replicated for future follow-on projects.

#### **C. Preparation of Environmental Impact Assessments (EIA)**

26. For Category A projects, an EIA will be conducted for each project, in accordance with the requirements of ADB SPS 2009. The EIA will be conducted during the feasibility study, and the assessment and its findings will be reviewed during the detailed design and revised if necessary to reflect any changes in the project or to revise interpretations as a result of more information becoming available.

27. An EIA examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" situation), and recommends measures needed to prevent, minimize, mitigate or compensate for adverse impacts and improve environmental performance. The EIA is a more comprehensive and detailed study than an IEE and as mitigation is generally more complex,

an EIA should always include an Environmental Management Plan (EMP) setting out in detail how each mitigation measure will be provided and monitored. An EIA also requires a greater degree of consultation, as stakeholders are involved at an early stage in deciding the scope of the EIA study, as well as determining its outcome and the nature of the mitigation at draft final report stage. The contents and format of an EIA Report as per the ADB SPS, 2009 is attached at **Appendix 6**.

**D. Procedure to be followed for Projects requiring EIP**

28. As discussed earlier, some of the projects implemented under the Investment Program will fall under the ambit of the Law on Environmental Impact Permit (EIP) and requires an EIA study and report for obtaining EIP from the MoEPNR. In practice, the UWSCG (the IA) should integrate both the process of ADB and MoEPNR and aim to produce a single document that serves both purposes to avoid duplication of effort, and this should be achievable given the comprehensive nature of ADB's IEE requirements.

## **V. CONSULTATION, DISCLOSURE AND GRIEVANCE REDRESS**

### **A. Consultation & Disclosure**

29. It is one of the main principles of ADB SPS, 2009 to carry out meaningful consultation with affected people and facilitate their informed participation. It defines meaningful consultation as “a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues”. Consultation shall be conducted as follows:

- (i) For Category A projects, consultations shall be conducted in minimum two stages:
  - (i) at the early stage of EIA field work to involve stakeholders in determining the scope of the EIA and allow them to raise any issues of particular local concern, and
  - (ii) when the draft EIA report is available during project preparation and before project appraisal by ADB. For projects with significant adverse impacts, ADB Project Team will also participate in consultation activities.
- (ii) For category B projects at least one consultation shall be conducted, when the draft IEE has been prepared, with the aim of informing stakeholders about the project, its potential impacts and likely mitigation.

30. In all cases, additional consultations will be held (with particular groups or individuals, or with all stakeholder representatives) if considered necessary on case-to-case basis. The consultation process and its outcome will be documented in the environmental assessment report, which will explain how relevant comments from stakeholders were addressed in project design and will give a justification for any comments not acted upon.

31. Relevant project documents will be disclosed to the public based on ADB requirements:

- (i) For Category A projects, the draft EIA (including the draft EMP) will be posted on ADB, UWSCG, and MRDI websites and hard copies will be available at the locations indicated above and also at the project site, at least 120 days before the loan is considered by the ADB board. These documents will be substituted by the final EIA when completed, and new or updated EIA reports if prepared to reflect significant changes in the project during design or implementation.
- (ii) For Category B projects, the final IEE report will be posted on UWSCG, MoRDI, and ADB websites, and hard copies will be available for consultation at the UWSCG offices (both at Tbilisi headquarter and at respective service centre), MoRDI office, and at a Public Library and the Town Hall of respective project towns.

32. Environmental monitoring reports (prepared during project implementation, see below) will also be added in due course. All documents provided locally will be in the Georgian language.

33. UWSCG has the overall responsibility for the project implementation and environmental compliance. The administrative bodies responsible for environmental



protection are the MoEPNR and the respective municipality. All efforts will be made to avoid dissatisfaction by stakeholders (in particular, persons affected directly by the project) by sensitive site selection applying the criteria set out in **Table 3**, effective consultation and disclosure as described above, and by responding promptly and appropriately to stakeholder concerns. Stakeholders may still wish to raise concerns and complaints about the project's environmental performance.

34. Since the work is being done in an urban area, most of the impacts are construction-related, therefore it is anticipated that improper or inadequate implementation of EMP may lead to disturbance and inconvenience to local people during construction. These issues are addressed in the next section on Grievance Redress.

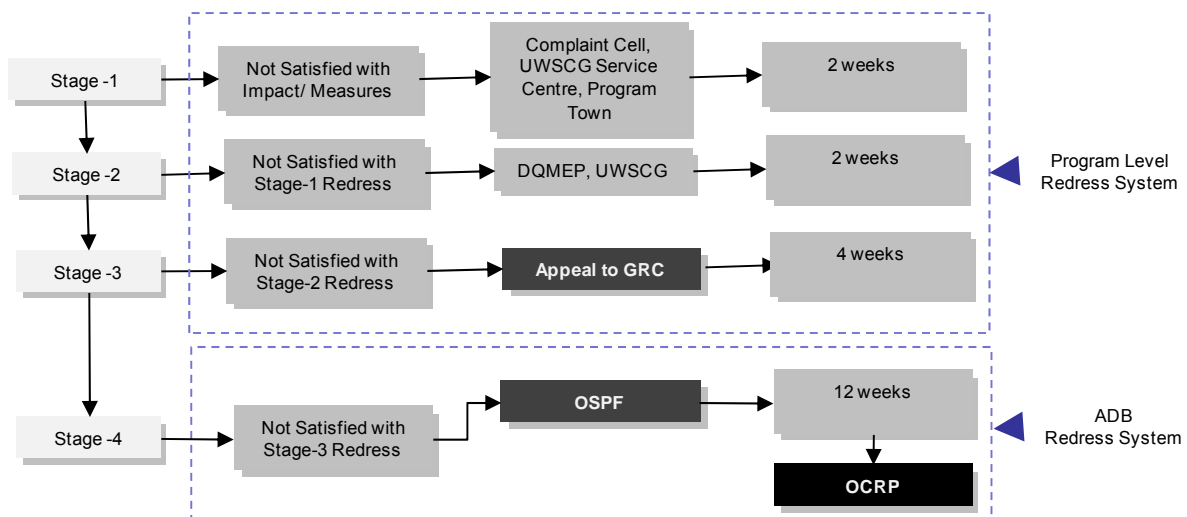
## B. Grievance Redress Mechanism

35. The affected population and stakeholders may send their grievances, related to the project induced environmental impacts and nuisance to UWSCG or directly to the administrative bodies responsible for the environmental protection. The MoEPNR and concerned municipalities are obliged to respond on the grievances, which have been received from population or other interested parties in accordance with the Administrative Code of Georgia.

36. UWSCG on its part, in order to provide a direct channel to the affected and concerned citizens for approaching project authorities and have their grievance recorded and redressed in an appropriate time frame, will establish a Grievance Redress Mechanism. A Complaint Cell and a Grievance Redress Committee will be established for each Investment Program town at the UWSCG service center, which will function throughout the construction period. The procedures adopted and the responsibilities of various project agencies in grievance redress are discussed in the following paragraph. During the public consultation process, UWSCG (the IA) will inform the stakeholders about the Grievance Redress Mechanism and provide contact details of persons responsible for grievance collection and response. These details will also be made available on UWSCG website.

37. The Complaint Cell at the UWSCG Service Center in the Investment Program town will accept complaints regarding the environment safeguard issues in implementation of subprojects under the respective town. A four stage grievance redress mechanism is indicated in **Figure 2** below. The grievances received and actions taken will be included into the environmental monitoring reports submitted to ADB.

**Figure 2: Grievance Redress Mechanism**



- (i) Complaints received (written or oral communication) by the Complaint Cell will be registered in database system, assigning complaint number with date of receipt; informs the complainant the time frame in which the corrective action will be undertaken.
- (ii) The Complaint Cell and UWSCG Investment Program Management Office (IPMO) will investigate the complaint to determine its validity, and assess whether the source of the problem is indeed subproject activities; if invalid, the Complaint Cell intimates the complainant and may also provide advice on the appropriate agency to be approached.
- (iii) If the complaint is valid, the Complaint Cell will check the environmental management plan (EMP) of the subproject whether this issue was identified and mitigation was suggested; if yes, the Complaint Cell and UWSCG IPMO will direct the civil works Contractor to take immediate actions as per the EMP.
- (iv) If this is an unanticipated issue, the UWSCG IPMO will to identify mitigation measures and advise the civil works Contractor accordingly and a corrective action should be taken and a Corrective Action Plan CAP prepared.
- (v) The Complaint Cell will review the civil works Contractor's response on corrective action and update the complainant within two weeks.
- (vi) If the complainant is not satisfied with the action taken by the Contractor within two weeks from the start of corrective action as directed the Complain Cell, the grievance will be directed to the Department of Quality Management and Environmental Protection (DQMEP) of the UWSCG.
- (vii) The DQMEP will review the issue with the IPMO and relevant Service Center and may ask for additional information or conduct site visit, and will advise the IPMO and and relevant Service Center on actions to resolve the issue.
- (viii) The Service Center will submit the interim report in a week to DQMEP on the status of the complaint investigation and follow-up actions, and final action taken report within two weeks of completing the action. The DQMEP will intimate the complainant of the same.
- (ix) If the complainant is still dissatisfied with the action taken or decision, he/she may approach the Grievance Redress Committee (GRC, see below) established in the town.

38. **Grievance Redress Committee (GRC).** A GRC will be established to resolve the unresolved issues at Stage 2 and this will function throughout the construction period, and will have hearings on need-basis. GRC will have following members:

- Chairman, respective municipality or an elected member nominated by the Chairman
- UWSCG Service Center Head
- Member of IPMO

39. Considering the anticipated impacts, it is not expected that there is any likely issue which will remain unresolved in the Stage 3 of the process. In the unlikely event of dissatisfaction after Stage 3, the complainant can approach ADB with the complaint. ADB has in place a system under the ADB Accountability Mechanism, where people adversely affected by ADB-assisted projects can voice and find satisfactory solutions to their problems. An affected person can file a complaint (mail, facsimile, electronic mail, or by hand delivery) with the:

Office of the Special Project Facilitator (OSPF), ADB, 6 ADB Avenue  
Mandaluyong City, 0401 Metro Manila, Philippines  
Tel: (63-2) 632-4825; Fax: (63-2) 636-2490; Email: [spf@adb.org](mailto:spf@adb.org)

Or

Georgia Resident Mission, which will forward it to OSPF

40. In the event of unsatisfactory redress from OSPF, the complainant can further approach Office of the Compliance Review Panel (OCRP) at ADB headquarters.

## VI. INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

### A. Responsibilities and Authorities

41. Following agencies will be involved in implementing the Investment Program:

- (i) Ministry of Regional Development and Infrastructure (MoRDI) is the Executing Agency (EA) responsible for management, coordination and execution of all activities funded under the loan. MoRDI will have overall responsibility for compliance with loan covenants.
- (ii) United Water Supply Company of Georgia (UWSCG) is the implementing agency (IA), which will be responsible for administration, implementation (design, construction and operation) and all day-to-day activities under the loan. An Investment Program Management Office (IPMO) will be established within the UWSCG for all Investment Program related functions. The IPMO will coordinate construction of subprojects across all towns, and ensure consistency of approach and performance.
- (iii) The IPMO will be assisted by (a) Management Contractor (MC) who will provide Investment Program management support, assure the technical quality of design and construction, and provide advice on policy reforms, (b) Detailed Engineering Design Consultants (DC), who will design the infrastructure and manage tendering process, and (c) Supervision Consultant (SC), who will supervise infrastructure works. Civil works contractors build the infrastructure.
- (iv) ADB is the donor financing the Investment Program.

42. UWSCG will bear the responsibility of implementing the Investment Program in compliance with the Georgian environmental law and ADB SPS, 2009 throughout planning, design and implementation stages. Specifically, the Department of Quality Management and Environment Protection of UWSCG, headed by an Environmental Specialist, will be responsible for implementation of the EARF (DQMEP Organization Chart is at **Appendix 7**). Specific tasks to be conducted to comply with EARF include:

- (i) Project selection in compliance with the environmental subproject selection guidelines.
- (ii) Project categorization using REA checklists as per the ADB SPS, 2009.
- (iii) Conducting appropriate level of environmental assessment (for IEE and EIA as the case may be) including public consultation and disclosure as per ADB SPS, 2009.
- (iv) Obtaining Environmental Impact Permit from MoEPNR for projects notified by Law on Environmental Impact Permit, 2008
- (v) Obtaining clearances other regulatory agencies (MESD and Forest Division of MoEPNR, etc.) on need basis.
- (vi) Review and approval of IEE and EIA reports and coordination with ADB for approvals.
- (vii) Implementation of Environmental Management Plan including an appropriate response provided to any unexpected impacts that may occur, and redressal of grievances.
- (viii) Implementation of Monitoring Plan.
- (ix) Review and update of EARF.

- (x) Periodic compliance reporting to ADB and coordinating throughout with ADB's Central and West Asia Department (CWRD).

43. For the projects that require EIA study and EIP from MoEPNR under the Law on Environmental Impact Permit (2008), both the ADB and MoEPNR approval processes need to be followed. EIA Reports prepared by the DC, after review by DQMEP, will be submitted to MoEPNR for EIP. The MoEPNR and its regional offices (within their competence and in cases determined by the Law on Environmental Impact Permit), will be responsible for reviewing EIA documents and environmental permit applications and issuing permits for projects when all conditions are met. The conditions imposed by MoEPNR as part of EIP, if any, will be included in the EIA and EMP by the DC, and the revised report will be submitted to DQMEP, which will approve and further submit to ADB. MoEPNR will also participate in the environmental monitoring conducted by UWSCG during project implementation, with the purpose of ensuring compliance with any conditions imposed by the permit.

44. For projects not requiring EIP from MoEPNR, DQMEP will review and approve the IEE/EIA Reports submitted DC and will submit to the ADB for approval. During the EMP implementation, DQMEP will conduct the monitoring as per the ADB procedures. **Appendix 8** depicts a flow chart of environmental safeguard compliance process.

45. ADB, via CWRD will be responsible for the following:

- (i) Screening and categorizing each project using the REA checklists prepared by UWSCG;
- (ii) Advising on ADB SPS, 2009 requirements;
- (iii) Reviewing and approving all EIA reports for Category A projects and IEE reports for Category B projects;
- (iv) Monitoring, supervising and conducting review missions to monitor EMP implementation;
- (v) Providing technical guidance and capacity building support to UWSCG in the implementation of ADB safeguards policy and procedures as necessary; and
- (vi) Disclosing all relevant information applying to ADB's environmental safeguard procedures.

## **B. Institutional Capacity and Development**

46. The Department of Quality Management and Environmental Protection (DQMEP) of UWSCG will be responsible for EARF implementation. UWSCG is a newly established<sup>1</sup> company mandated with provision of water supply and sanitation (WSS) services in Georgia. Until the establishment of UWSCG, donor funded projects for WSS sector were implemented through the Municipal Development Fund (MDF), an autonomous legal entity of GoG established to mobilize financial resources from donors for investments in local infrastructure and services. MDF is currently implementing various donor (World Bank, ADB, EBRD and MCC) financed projects in the WSS sector.

47. As the focus, till now, has been mainly on operation and minor repairs works, this ADB funded Investment Program will be the first major project implemented by UWSCG. Towards aiming at environmental sustainability and also to ensure compliance with environmental regulations of the government and donors, UWSCG established DQMEP, will have the following responsibilities:

<sup>1</sup> Established in January 2010; prior to this the responsibility was with the respective municipalities, and in some places with public water companies comprised of regional groupings of municipalities based on river basins

- (i) Assess ecological protection and safety of sanitary zones of water objects and water supply system;
- (ii) Detect sanitary norms violations on water supply objects and elaborate recommendations for their elimination;
- (iii) Implement ecological assessment of anthropogenic impact of any scale in the catchment basin of water supply system;
- (iv) Elaborate recommendations for avoidance of water erosion, eutrophication and silting of the soil;
- (v) Define land-reclamation activities for qualitative and quantitative protection of the underground horizon in the basin;
- (vi) Study and eliminate problems connected to the increased efficiency of usage and protection of water resources, improvement of management and environmental safety; and
- (vii) Implement all procedures defined by the law in case of necessity for Environmental Impact Permit.

48. Currently DQMEP is staffed with an Ecologist/Environmental Specialist, who also heads the Department. The incumbent Ecologist/Environmental Specialist, with a master's degree in ecology and 7 years of professional experience (including 5 years in Licenses and Permits Department of the MoEPNR), is well versed with the Georgian environmental law, EIA and EIP processes, and other government regulations. Besides dealing with the existing tasks as listed above, the DQMEP will be responsible for implementation of EARF. **Appendix 9** provides an assessment of DQMEP staff capacity and their ability to undertake additional responsibility.

49. The DQMEP requires specialized expertise throughout the Investment Program, it will be appropriate to source the support of the consultants rather than having permanent staff. The scope of work of SC and DC shall cover environmental safeguard compliance related tasks (Terms of Reference for Environmental Management Specialist part of DC and SC is in **Appendix 10** and **Appendix 11**, respectively). DC will conduct IEE or EIA studies and will also be responsible for: incorporation of mitigation measures in design and, baseline environmental quality monitoring. SC will supervise the implementation of EMP during construction and conduct environmental monitoring. The civil works construction contractor will implement mitigation measures during construction.

50. With this support, the role of DQMEP will be limited to: reviewing or overseeing work of the SC and DC in compliance with EARF; reviewing and approving IEE/EIA reports and overseeing implementation of EMP; coordinating with ADB and reporting, liaison with government regulatory agencies for permits, approvals, and clearances; grievance redressal; and, organizing or overseeing public consultations and disclosure. Although the staff is qualified and experienced in environmental assessments as per the Georgian Law, there is no exposure in dealing with multilateral funded projects and specifically with ADB procedures. DQMEP will require support of a consultant (Environmental Management Specialist) in EARF implementation in general, but in particular reviewing IEE/EIA Reports and overseeing implementation of EMP (ToR of Consultant is in **Appendix 12**). A training and capacity building program is thus required. Similarly, it is also necessary that all Investment Program stakeholders involved in Investment Program implementation are aware of the EARF provisions and general environmental management aspects of infrastructure projects.

51. A training program is planned in various aspects of environmental management and EARF provisions. All the training programs shall be conducted in the initial stages of the

Investment Program implementation, and it will be the responsibility of the IA to ensure the continuous availability of trained personal throughout the Investment Program. Per Table 4 the training program cost for the Investment Program is estimated as \$23,000.

**Table 4: Training Plan**

<b>Training Activity &amp; Duration</b>	<b>Course Contents</b>	<b>Target PA &amp; Group Size</b>	<b>Trainers/ Facilitators</b>	<b>Estimated Cost (US \$)</b>
Environmental Safeguards in the Investment Program – 1 day	<ul style="list-style-type: none"> <li>Environmental considerations in general development projects and WSS projects</li> <li>Overview of GoG environmental regulatory framework</li> <li>Overview of ADB SPS 2009</li> <li>ADB compliance requirements for the Investment Program</li> </ul>	<ul style="list-style-type: none"> <li>Staff of DQMEP, UWSCG, and service centers</li> <li>Other senior technical and administrative staff of UWSCG</li> </ul> <p>(50 persons)</p>	MC Environmental Experts & External Resource Persons	10,000
Environmental Assessment & Review Procedures (EARF) – 1 day	<ul style="list-style-type: none"> <li>Roles &amp; responsibilities of agencies in EARF implementation</li> <li>Subproject selection criteria</li> <li>Project categorization</li> <li>EMP implementation on site including re-design and grievance redress</li> </ul>	<ul style="list-style-type: none"> <li>Staff of DQMEP</li> <li>Staff of UWSCG</li> </ul> <p>(40 persons)</p>	DC and MC Environmental Experts & External Resource Persons	10,000
Implementing ADB Safeguards in GUSIIP – 3 days	<ul style="list-style-type: none"> <li>Conducting environmental assessment studies as per ADB SPS 2009</li> <li>Public consultation &amp; disclosure</li> <li>Monitoring of EMP implementation</li> <li>Reporting</li> <li>Updating EARF</li> </ul>	<ul style="list-style-type: none"> <li>Staff of DQMEP</li> <li>Senior staff of IPMO</li> </ul> <p>(5 persons)</p>	External Resource Persons (preferably ADB staff or ADB consultant) assisted by MC Environmental Expert	3,000

### **C. Staffing and Budget**

52. ADB and MoEPNR will fulfill their responsibilities outlined above as part of their normal work schedule and require no additional provision from the Investment Program in terms of budget or manpower. UWSCG will also perform their responsibilities as part of their normal work schedule. Some financial support from the Investment Program has been allocated to finance assistance and incremental administration. Tranche 1 of the Investment Program consists of bulk water supply improvements in three Investment Program towns of Maruveli, Zugdidi and Mestia, for which IEE studies have been conducted through a PPTA. These IEE reports need to be updated during the detailed design to reflect any changes or modifications.

53. Costs required for operating the EARF will cover:

- Conducting IEE or EIA studies, preparing and submitting reports and public consultation and disclosure.
- Implementing EMPs.
- Training and capacity building.

54. **Costs of conducting IEE.** If the subproject selection guidelines are fully complied with, all future projects implemented under the Investment Program will be classified as Category B (requiring IEE). Besides ADB requirements, sewerage subprojects require Environmental Impact Permit from MoEPNR under the Georgian Law. In practice the UWSCG should aim to produce a single document that serves both purposes to avoid duplication of effort. So for budget purposes it is assumed that there will be 12 IEEs for 12 subprojects in six Investment Program towns. Besides, the IEEs of tranche 1 prepared through PPTA need to be updated during detailed design to reflect any changes in the location and/or project designs. This can be taken up by the DEQMP directly.

55. Generally an IEE relies on the collection of existing data in order to describe environmental conditions in the project area, and it is not expected that major surveys would be conducted. The work thus involves the collection and analysis of data on the existing environment and the proposed project, limited field surveys to establish baseline environmental quality, assessment and mitigation of impacts, preparation of the EMP and budget, public consultation, and preparation of the IEE report. An average IEE for this type of subproject requires two months of effort, conducted by a person (specializing in the natural environment and social issues). Other expenses are the cost of public consultation and document disclosure.

56. **Costs of EMP Implementation.** IEEs conducted for the first tranche of projects during the ADB PPTA suggest that implementation of a typical EMP will require an experienced Environmental Management Specialist (EMS) to spend a total of around three months over the average 6 month design and 24 month construction period, conducting routine observations and surveys. This will be overseen by an EMS of DQMEP, which would require a time period of 2 weeks. **Table 5** indicates the IEE preparation cost and EMP implementation cost.

**Table 5: Environmental Management Cost of Each Subproject**

Item	Quantity	Unit Cost*	Total Cost	Remarks
<b>1. Environmental Assessment Study</b>				
National Environmental Specialist	2 PM	10,000	20,000	Part of DC team
Surveys	Sum	LS	2,500	
Public consultation and disclosure	Sum	LS	2,500	
<i>Total per 1 IEE Study</i>	-		<i>25,000</i>	
<b>2. Implementation of EMP (2 years)</b>				
Environmental Monitoring Specialist	3 PM	10,000	30,000	DC&SC Teams DQMEP Consultant
Environmental Monitoring Specialist	0.5 PM	10,000	5,000	
Survey and Environment Management Expenses	Sum	LS	5,000	
<i>Total per 1 EMP Implementation</i>			<i>40,000</i>	
<b>TOTAL per subproject</b>			<b>65,000</b>	

\*unit cost includes remuneration, travel and per diem costs



57. **Table 6** provides the total costs of EARF implementation, which is estimated at \$ 923,000.

**Table 6:** Estimated Costs of EARF Implementation

<b>Item</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Total Cost</b>
		\$	\$
<b>UWSCG Capacity Building</b>			
Training & Capacity Building	LS	-	23,000
<i>Sub-total</i>			<i>23,000</i>
<b>Conduct IEE studies</b>			
IEE studies for Tranche 2 subprojects	6	25,000	150,000
IEE studies Tranche 3 subprojects	6	25,000	150,000
<i>Sub-total</i>			<i>300,000</i>
<b>EMP Implementation &amp; Monitoring</b>			
Implementation of Tranche 1 subproject	3	40,000	120,000
Implementation of Tranche 2 subprojects	6	40,000	240,000
Implementation of Tranche 2 subprojects	6	40,500	240,000
<i>Sub-total</i>			<i>600,000</i>
<b>Total Cost</b>			<b>923,000</b>

## VII. MONITORING AND REPORTING

58. UWSCG through DQMEP will monitor the performance of consultants conducting the EIA and IEE studies during feasibility study and detailed design stages. UWSCG will then submit draft EIA and IEE reports of subprojects to ADB for review and will ensure that the consultants address all comments in producing final versions.

- (i) EIA Reports of all Category A subprojects.
- (ii) IEE Reports from each sector (water supply and sewerage) in follow-on tranches.
- (iii) All updated or revised IEEs of Tranche 1 subprojects.

59. UWSCG will also submit EIA and IEE reports and environmental permit applications to MoEPNR when required by Georgian law.

60. UWSCG will monitor EMP implementation (mainly by contractors) when the subprojects are constructed. The status of implementation and outcome of monitoring will be submitted to ADB regularly through biannual Environmental Monitoring Reports (EMR).

61. **Review and update of EARF.** Prior to the preparation of each PFR, the applicability and relevance of EARF shall be reviewed and updated by DQMEP to ensure consistency with the country legal framework and ADB's safeguards policies, as amended from time to time. As the Investment Program progresses, this periodic revision or update shall also reflect lessons learnt from the subproject implementation and if required the subproject selection criteria shall be modified to avoid significance impacts. ADB will review the revised EARF, after which it will be formally adopted by the EA.

## **Appendices**

### Appendix 1: Protected Areas in Georgia

<b>I Strict Nature Reserve</b>	1	Babaneuri Nature reserve
	2	Batsara nature Reserve
	3	Borjomi Nature Reserve
	4	Kintrisjhi Nature Reserve
	5	Kobuleti Nature Reserve
	6	Lagodekhi Nature Reserve
	7	Liakhvi Nature Reserve
	8	Mariamvari Nature Resevr
	9	Pitsunda-Myussera Nature Reserve
	10	Pskhu-Gumista Nature Reserve
	11	Ritsa Nature Reserve
	12	Sataplia Nature Reserve
	13	Tusheti Nature Reserve
	14	Vashlovani Nature Reserve
<b>II National Park</b>	1	Borjom-Kharagauli National Park
	2	Kolkheti National Park
	3	Mtirala National Park
	4	Tusheti National Park
	5	Vashlovani National Park
	6	Algeti National Park
	7	Kazbegi National park
	8	Tbilisi National Park
<b>III Natural Monument</b>	1	Alazani Floodplain Forests Nature Monument
	2	Artsivis Kheoba Nature Monument
	3	Takhti Tepha Nature Monument
	4	Imereti Cave Nature Monument
<b>IV Managed Nature Reserve</b>	5	Chachuna managed Reserve
	6	Gardabani managed Reserve
	7	Il to managed Reserve
	8	Lori manged Reserve
	9	Katsoburi Managed Reseve
	10	Kobulteri Managed Reserve
	11	Korughi Managed Reserve
	12	Ktsia-Tabatskuri Managed Reserve
	13	Lagodekhi Managed Reserve
	14	Nedzvi Managed Reserve
	15	Tetrobi Managed Reserve
	16	Ajarneti Managed Reserve
<b>V Protected Landscape</b>	1	Tusheti protected Landscape
	2	Kintrishi Protected Landscape

# Protected Areas of Georgia

- I - Strict Nature Reserve** (Red)
- I1 Buhneuri Nature Reserve
  - I2 Batsara Nature Reserve
  - I3 Borjomi Nature Reserve
  - I4 Kamishi Nature Reserve
  - I5 Kobuleti Nature Reserve
  - I6 Lagodkhi Nature Reserve
  - I7 Lashvi Nature Reserve
  - I8 Maripantzi Nature Reserve
  - I9 Pitsunda-Mysseas Nature Reserve
  - I10 Pskhu-Gumista Nature Reserve
  - I11 Ritsa Nature Reserve
  - I12 Satapha Nature Reserve
  - I13 Tusheti Nature Reserve
  - I14 Vashlovani Nature Reserve
- II - National Park** (Green)
- II1 Borzhomi-Kharagauli National Park
  - II2 Jukhetri National Park
  - II3 Mtskheta National Park
  - II4 Tusheti National Park
  - II5 Vashlovani National Park
  - II6 Algeti National Park
  - II7 Kazbegi National Park
  - II8 Thissia National Park
- III - Natural Monument** (Blue)
- III1 Alazani Floodplain Forests Nature Monument
  - III2 Artsvehi Khochi Nature Monument
  - III3 Tskhvi-Tephia Nature Monument
  - III4 Imereti Cave Nature Monument
- IV - Managed Nature Reserve** (Yellow)
- IV1 Chochuma Managed Reserve
  - IV2 Gudauri Managed Reserve
  - IV3 Ili Managed Reserve
  - IV4 Iori Managed Reserve
  - IV5 Katsobani Managed Reserve
  - IV6 Kobuleti Managed Reserve
  - IV7 Koroghtsi Managed Reserve
  - IV8 Kura-Taliskani Managed Reserve
  - IV9 Lagodkhi Managed Reserve
  - IV10 Nodoli Managed Reserve
  - IV11 Tseretli Managed Reserve
  - IV12 Armen Managed Reserve
- V - Protected Landscape** (Light Green)
- V1 Tusheti Protected Landscape
  - V2 Kamishi Protected Landscape
- Planned Protected Area** (Light Blue)
- P1 Javakheti Planned Protected Area
  - P2 Central Caucasus Potential Protected Area
  - P3 Samtskhe-Javakheti Planned Protected Area
  - P4 Racha-Lechkhumi Planned Protected Area
  - P5 Mtskheta-Mtianeti Planned Protected Area
  - P6 Khevsureti Planned Protected Area
  - P7 Kazbegi National Park Expansion
  - P8 Algeti National Park Expansion

Black Sea

R u s s i a

T u r k e y

A r m e n i a

A z e r b a i j a n

Scale 1:62,000  
1 centimeter equals 6.2 kilometers  
0 5 10 20 30  
Kilometers Miles

**LEGEND**  
 Lake and Reservoir  
 River  
 Airport  
 Helipad  
 Seaport  
 Mountain Peak  
 Pass  
 Passing Point  
 Peak (m)

**Settlements**  
 Tbilisi Capital  
 Batumi Capitals of Autonomous Republics  
 Rustavi Cities  
 Gori Centres of Administrative Districts  
 Towns  
 Sakrebulo Centres

**Type of Roads**  
 Highway  
 Main road  
 Village road  
 Ground road  
 Railroads  
**Type of Boundaries**  
 State Boundary  
 Autonomous Republic Boundary  
 Administrative District Boundary



## Appendix 2

### General Requirements: Regulation of Water Composition and Features in Reservoirs According to Water Use Categories (Appendix 1 of Rules of the Protection of the Surface Waters of Georgia from Pollution)

	Water Use Category			
			Fishery Purposes	
Indexes	For potable-economic purposes of the population	For economic-household purposes of the population	The highest and first categories	The Second Category
1	2	3	4	5
	The increase of the composition of the suspended particles is allowed for no more than:			
Suspended particles	0,25 mg/l	0,75 mg/l	0,25 mg/l	0,75 mg/l
	For the rivers containing 30 mg/l natural suspended particles during the lowest water level the increase of the composition of these particles is allowed within 5 %.			
	If the sewage waters contain suspended particles with sedimentation velocity not exceeding 0,2 mm/sec, their disposal into reservoirs (lakes) is banned and if the velocity exceeds 0.4 mm/sec – in rivers (channels)			
Floating mixtures (substances)	Layers of oil products, oils and fats and other mixtures should not be visible on the water surface			
Color	Should not be visible in water column:		Water should not gain strange color	
	20 cm	10 cm		
Odor, taste	Water should not gain odor and taste exceeding 1 score in intensity, which could be observed:		Water should not render fish products strange odor and taste	
	directly, after further chlorinating or other treatment	directly		
Temperature	The summer temperature of water should not increase for more than 30 C as a result of sewage water discharge in comparison with the average monthly temperature of the hottest month for the recent 10 years		The water temperature should not increase for more than 50 C in comparison with the natural temperature of the reservoir. In addition, in water objects where cold water fishes (salmon and whitefish) are present: 200 C in summer and 50 C in winter and for other water objects 280 C in summer and 80 C in winter	
Reaction (pH)	Should not exceed 6,5 - 8,5			
Water Mineralization	Not exceeding 1000 mg/l, of which: chlorides -350 mg/l, sulphates -500 mg/l	Standards are applied according to the above “taste” indexes	Standards are applied according to the taxation of the fishery water objects	



Oxygen in water	Should not be less in any water period:			
	4 mg/l	4 mg/l	6 mg/l	6 mg/l
BOD At 20°C should not exceed:	3 mg/l	6 mg/l	3 mg/l	6mg/l
COD Should not exceed	15 mg/l	30 mg/l		
Disease causing	Water should not contain disease causing elements – viable helminth eggs, oncospheres of tenidia and viable protozoa cysts of pathogenic intestines			
Lactose positive intestine bacillus	1 in 10000	1 in 5000		
Coliphages not exceeding	1 in 100 l	1 in 100		
Water toxicity			Should not have severe toxic impact on test-objects at the points of discharge of the sewage waters into the water objects. The water from the water object at the control cross section should not have chronic toxic impact on test-objects	

**Maximum Permissible Concentrations of the Contaminant Substances in Reservoirs According to Water Use Categories (Appendix 2 of Rules of the Protection of the Surface Waters of Georgia from Pollution)**

S. No	Ingredient name	Hazard class	For potable-economic-household water use reservoirs		For fishery water use reservoirs	
			Limited indexes of harmfulness	Maximum Permissible Concentration mg/l	Limited indexes of harmfulness	Maximum Permissible Concentration mg/l
1	2	3	4	5	6	7
1.	amine nitrogen	3	sanitary-toxicological	0,39	toxicological	0,39
2.	aluminum	2	sanitary-toxicological	0,5	sanitary-toxicological	0,5
3.	barium	2	sanitary-toxicological	0,1	organoleptic	2,0
4.	beryl	1	sanitary-toxicological	0,0002	sanitary-toxicological	0,0002
5.	boron	2	sanitary-toxicological	0,5	toxicological	10,0
6.	arsenic	2	sanitary-toxicological	0,05	toxicological	0,05
7.	vanadium	3	sanitary-toxicological	0,1	toxicological	0,001
8.	quicksilver	1	sanitary-toxicological	0,0005	toxicological	0,00001(should not be)
9.	tungsten	2	sanitary-toxicological	0,005	toxicological	0,0008
10.	zinc	3	general sanitary	1,0	toxicological	0,01
11.	cadmium	2	sanitary-toxicological	0,001	toxicological	0,005
12.	cobalt	2	sanitary-toxicological	0,1	toxicological	0,01
13.	caprolactam	4	general sanitary	1,0	toxicological	0,01
14.	magnesium	3	organoleptic	0,1	toxicological	1,0
15.	molybdenum	2	sanitary-toxicological	0,25	toxicological	0,01
16.	nitrites	3	sanitary-toxicological	45,0	sanitary-toxicological	0,012
17.	nitrites	2	sanitary-toxicological	3,3	toxicological	40,0
18.	nickel	3	sanitary-toxicological	0,1	toxicological	0,08
19.	iron	3	organoleptic	0,3	toxicological	0,01
20.	selenium	2	sanitary-toxicological	0,001	toxicological	0,005
21.	copper	3	organoleptic	1,0	toxicological	0,0016
22.	sulphates	4	organoleptic	500	sanitary-toxicological	0,001
						100,0



**(Legislative Herald of Georgia 18.12.2007. art. N 179 1973)**

Registered in The Ministry  
of Justice of Georgia  
Registration number  
470.230.000.22.035.011. 242

**Decree N 349/N of The Ministry of Labor, Health  
and Social Affairs of Georgia  
December 17, 2007**

**About Approval of Technical Regulation of  
Drinking Water**

According to “The Public Health Law”, “V” sub-paragraph of the article #3 and the first paragraph of the article #23, I give order:

1. To approve the enclosed ‘Technical Regulation of Drinking Water’.
2. The decree comes into force from the date of publication.

D. Tkeshelashvili

**Technical Regulation of Drinking Water**

**Article 1. General provisions**

1. The Technical Regulation is made on the basis of the Law of Georgia about “Public Health”, recommendations of the World Health Organization, European directions, regional characteristics of the country and climate-geographical conditions and sets the safe sanitary norms of human being for drinking water.

2. Liabilities by this Technical regulation should cover the following:

a) Natural or treated water, which is used for drinking, in food and other domestic purposes, in spite of origin and the supply method (distribution network, tank or cistern, bottle or container);

b) Water, which is used in food-stuffs or food-stuff products.

3. Liabilities by this Technical regulation should not cover the following:

a) Curing-mineral waters;

b) Medical water and water with other special targets;

c) Drinking water supplied by some individual source, the capacity of which 10m<sup>3</sup>/per day serves less than 50 persons not included in commercial or public network.

d) Natural mineral waters, where the mineralization exceeds 1500 mg/L.

4. The following characteristics and their normative size are defined by the Technical Regulation of drinking water:

- a) Organoleptic characteristics;
- b) Microbiological, inframicrobiological and parasitological characteristics;
- c) Chemical characteristics (general characteristics, inorganic and organic substance);
- d) Characteristics of radiative safety;
- e) Standards of harmful chemical substance, as a result of water treatment;

5. The compliance tests defined by the Technical Regulation, must be carried out as follows:

- a) In cases of water distribution systems inside buildings and storehouses, directly from the tap that supplies water to the consumers;
- b) In cases of tanks and cisterns from the delivery point;
- c) In cases of canning in the bottling point of water and in the selling point;
- d) At the point of usage in those enterprises involved with food-stuffs and food products;

6. Any organization implementing the supply service of drinking water, despite the organizational-legal structure and departmental subordination, is liable to carry out the control and monitoring of compliance of drinking water with the defined characteristics under the Technical Regulation; providing accessibility of information and collected data.

7. In cases where the required standards are not met under the Technical Regulation, the supplier of drinking water is liable to carry out appropriate measures, including report to relevant organs, urgent analysis of pollution reasons, restriction of water usage and other measures for the safety of population.

## **Article 2. Sanitary Requirements on Drinking Water**

1. Drinking water must be safe from the epidemical and radiative point of view and by chemical composition; Drinking water must have benevolent organoleptic characteristics.

2. Quality of drinking water must be in compliance with the sanitary standards under this Technical Regulation.

3. The organoleptic characteristics of drinking water must be in compliance with the requirements in the schedule N 1:

Schedule N1

Index	Measuring unit	Standard not more than:
Smell	Numbers	2
Taste	Numbers	2
Coloration	Degree	15
Turbidity	Turbidity unit (by	3,5

	formazin) or mg/L (by kaolin)	2
--	-------------------------------------	---

4. The existence of outer membrane and water organisms seen with the naked eye is not allowed in drinking water.

5. The following analysis in the schedule #2 (according to the reason) must be carried out for detection and elimination in case of deterioration of organoleptic characteristics of drinking water:

#### Schedule N2

Index	Measuring unit	Standard not more than:
Sulphate ( $\text{SO}_4^{2-}$ )	mg/L	250
Chloride ( $\text{Cl}^-$ )	mg/L	250
Oil products, total	mg/L	0,1
Surfactant substance anionoactive	mg/L	0,5
Rigidity	mg-eq./L	7-10
Calcium (Ca)	mg/L	140
Magnesium (Mg)	mg/L	85
Sodium(na)	mg/L	200
Zinc ( $\text{Zn}^{2+}$ ),	mg/L	3,0
Iron (Fe, total),	mg/L	0,3

6. Epidemical safety of drinking water is defined by microbiological, inframicrobiological and parasitological characteristics in accordance with the given standards in the schedule #3.

#### Schedule N 3

Index	Measuring unit	Standard
Mezophilic aerobes and facultative anaerobes	Colony forming unit/ML $37^0\text{ C}$ $22^0\text{ C}$	Not more than:  20 100
Total coliformic bacterias	Amount of bacteria in 300 ML	not allowed
E. coli	Amount of bacteria in 300ML	not allowed
Pathogenic microorganisms, including Salmonella	In 100 ML	not allowed
Coliform	Negative colony forming unit in 100ML	not allowed
Pseudomonas aerugiosa (only for pre- aliquoted)	In 250ML	not allowed

Streptococcus faecalis	In 250LM	not allowed
Lambliia cysts	Amount of cysts in 50L	not allowed
Dysentery (amoebiasis) cysts	Amount of cysts in 50L	not allowed

7. Amount of mezophilic aerobes and facultative anaerobes must not exceed 100 colony forming unit in 1 ML in case of flood and other natural calamities.

8. Amount of mezophilic aerobes and facultative anaerobes and standards of total coliformic bacteria must not exceed in 95% of tests during 12 months in the water intake points of the water line network.

9. Definition of total coliformic bacterias and E. coli is implemented in the three parallel 100-100 ML tests.

10. Definition of lamblia cysts and Dysentery (amoebiasis) cysts is implemented in the water supply systems of surface sources.

11. Chemical composition of drinking water must satisfy requirements in the schedule #4.

#### Schedule N 4

Index	Measuring unit	Standard not more than:
<b>Common characteristics</b>		
Hydrogen index	PH	6-9
Permanganate oxidation	mg O <sub>2</sub> /L	3,0
Total mineralization (dry remains) mg/L		1000-1500
<b>Nonorganic substance</b>		
Barium (Ba <sup>2+</sup> )	mg/L	0,7
Boron (B, total)	mg/L	0,5
Arsenic (As, total)	mg/L	0,01
Quicksilver (Hg, nonorganic),	mg/L	0,006
Cadmium (Cd, total)	mg/L	0,003
Mangan (Mn, total)	mg/L	0.4
Milobden (Mo, total)	mg/L	0,07
Nickel(Ni, total)	mg/L	0,07
Nitrate(short impact by NO <sub>3</sub> <sup>-</sup> )	mg/L	50
Nitrite (long impact by NO <sub>2</sub> <sup>-</sup> )	mg/L	0,2
Selenium(Se, total)	mg/L	0,01
Copper(Cu, total)	mg/L	2,0
Lead (Pb, total)	mg/L	0,01
Flourine (F <sup>-</sup> )	mg/L	0,7
Chromium (Cr <sup>6+</sup> )	mg/L	0,05
Antimony(Sb)	mg/L	0,02
Cyanide(CN <sup>-</sup> )	mg/L	0,07
<b>Organic substance</b>		
Total content of pesticides	mg/L	0,05

12. The control and monitoring must be implemented only on those pesticides, which can be contained in the water supply source. Together with this, the accordance of index must be defined individually for each pesticide and standard of aldrin, dieldrin, heptachlore and heptachlor epoxide content must be 0,030 microgram in Liter.

13. The following pesticides, their metabolites and products of reaction and dissolution are regulated for the provision of safety of drinking water:

- a) Organic insecticides;
- b) Organic herbicides;
- c) Organic fungicides;
- d) Organic nematocides;
- e) Organic acaricides;
- f) Organic alhycides;
- g) Organic rodenticides;
- h) Organic slymicides;
- i) Similar products (including growth regulators).

14. Content of those harmful substances which occur in the water supply sources as a result of economic activity (not listed in the schedule #4), must not exceed quality standards set by the Ministry of Labor, Health and Social Affairs.

15. Radiative safety of drinking water is defined by the accordance of total  $\alpha$  and  $\beta$ - radioactive characteristics with the standards in the schedule #5.

Schedule N

5

Index	Measuring unit	Standard not more than:
Total $\alpha$ - radio-activity	bk/L	0,1
Total $\beta$ -radio-activity	bk/L	1,0

16. Identification of radionuclide in water is implemented in case of exceeding of total radio-activity standards. Estimation of revealed concentrates is implemented according to the radiative safety regulations.

17. Content of harmful chemical substance in the process of water treatment in the water supply system must be in compliance with the requirements given in the schedule #6. Together with this, the index of control is defined according to the concrete treatment technology.

Schedu

le N 6

Index	Measuring unit	Not more than:

Chlorine remains free	mg/L	0,3 -0,5
Chlorine remains connected	mg/L	0,8-1,2
Chloroform (during chloration)	mg/L	0,3
Ozone remains	mg/L	0,3
Aluminium ( $Al^{3+}$ )	mg/L	0,1
Formaldehyde (during ozonization)	mg/L	0,05
Acrylamide	mg/L	0,0005
Active silicate acid (with Si)	mg/L <sup>3</sup>	10
Polyphosphate (according to $PO_4^{3-}$ )	mg/L	3,5

18. Duration of the chlorine contact with water during deactivation with free chlorine-no less than 30 minutes, with connecting chlorine-no less than 60 minutes.

19. The total concentration must not exceed 1,2 mg/L during simultaneous content of free and connected chlorine in drinking water.

20. The control of the ozone remains is implemented after mixing box; The contact of ozone with water-no less than 12 minutes.

21. In case of detection of several chemical substances in drinking water, which are regulated by the same limitative index, total correlation of each must not exceed 1 with the utmost admissible concentration.

### **Article 3. The Internal Control and Monitoring of Drinking Water**

1. The internal control and monitoring of drinking water is implemented by the supplier.

2. The definition characteristics of drinking water and amount of research tests must be in compliance with the requirements in the schedule #7.

3. During the analysis of microbiological and organoleptic characteristics, the water samples are taken once in month in the distribution system of water supply, which supplies water to 20 000 residents.

4. With coordination of the competent state organs, the enhanced control regime must be implemented in case of flood and other natural calamities.

Schedul

e N7

	Number of samples per year/no less than				
Index	Number of consumers connected to the water supply system (thousand consumers)				
	Ground source			Surface source	
	Up to 20	20-100	More than 100	More than 100	More than 100
Microbiological	12	24	365	365	365

Parasitology	(is implementing)	not		4	4
Organoleptic	12	24	365	365	365
General characteristics	4	6	12	12	24
Nonorganic and organic substances	1	1	1	4	12
Radiological	1	1	1	1	1
Index/ Connected to the technology of water treatment	Chlorine remains, ozone remains (no less than one in an hour), reagent remains (no less than one in shift)				

5. The necessary control samples which must be taken after the repair of the distribution network and other maintenance are not included in the amount of samples defined in the second item.

6. In case of detection of total coliformic bacteria and E. coli in the sample of drinking water, it is necessary to define them urgently in the secondary sample. Chloride, nitrites and nitrates must be defined simultaneously for detection of pollution reasons.

7. In case of detection of total coliformic bacteria and E. coli in the secondary sample, the analysis of water is implemented according to the existence of pathogenic bacterium of intestinal group and (or) streptococcus faecalis.

8. All the samples from the ground and surface water supply lines require definition of organoleptic characteristics (except samples for the analysis of neutralizing reagents).

9. The laboratory analysis must be implemented according to the following criteria for the routine monitoring:

- a) Organoleptic: smell, taste, coloration, turbidity;
- b) Microbiological: Mesophilic aerobes and facultative anaerobes, total coliformic bacteria E.coli ;
- c) Chemical: PH, nitrogen forms (ammonia, nitrate, nitrite), chlorides, rustiness, chlorine remains.

#### **Article 4. The State Control of Drinking Water**

1. The scheme of the state control and monitoring of drinking water, sequence, characteristics for definition and amount of samples are defined according to the law of the relevant state controlling unit.

2. The samples of drinking water must be taken in accredited independent laboratory in compliance with the law.

## Appendix 4

### Technical Regulation of Environmental Protection, 2008 (Decree N745), Minister of the Protection of the Environment and Natural Resources of Georgia

Parameter	Limited admissibility concentration in waste water
Suspended particle matter	60mg/L
Biochemical oxygen demand	25mgO <sub>2</sub> /L
Chemical oxygen demand	125.gO <sub>2</sub> /L
Total phosphorus	2mg/L
Oil products	5,0mg/L
Total nitrogen	15mg/L
Detergents	2,0mg/L
Suet (fats)	5mg/L
Carbolic acid (phenol)	0,1mg/L
Chrome (Cr <sup>+6</sup> )	0,1mg/L
Nickel (Ni <sup>+2</sup> )	1,0mg/L
Zinc (Zn <sup>+2</sup> )	4,0mg/L
Pb Lead (Pb <sup>+2</sup> )	1,0mg/L
Faeces (Sn <sup>+2</sup> )	2,0mg/L
Total iron	2,0mg/L
Copper (Cu <sup>+2</sup> )	3,0mg/L
Formaldehyde	0,05mg/L
pH	6,5-8,5
temperature	The temperature of waste water should not exceed 5 <sup>0</sup> C in comparison to the average monthly temperature of the most hot season during last 10 years of the surface water object



## APPENDIX 5A: REA Checklist for Water Supply Projects

### RAPID EXAMINATION ASSESSMENT (REA) CHECKLIST FOR POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

Country/Project Title: GEO/ Georgia Urban Sector Improvement Investment Program

Project Name:

Sector Division: CWRD - Urban Services

Conducted by

Date:

#### Instructions:

- ☐ This checklist is to be prepared to support the environmental classification of a project. It is to be attached to the environmental categorization form that is to be prepared and submitted to the Chief Compliance Officer of the Regional and Sustainable Development Department.
- ☐ This checklist is to be completed with the assistance of an Environment Specialist in a Regional Department.
- ☐ This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB checklists and handbooks on; (i) involuntary resettlement; (ii) indigenous peoples planning; (iii) poverty reduction; (iv) participation; and (v) gender and development.
- ☐ Answer the questions assuming the “without mitigation” case. The purpose is to identify potential impacts. Use the “remarks” section to discuss any anticipated mitigation measures.

SCREENING QUESTIONS	Yes	No	REMARKS
<b>A. PROJECT SITING</b>			
Is The Project Area...			
▪ Densely populated?			
▪ Heavy with development activities?			
▪ Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site			
• Protected area			
• Wetland			
• Mangrove			
• Estuarine			
• Buffer zone of protected area			
• Special area for protecting biodiversity			
• Bay			
<b>B. POTENTIAL ENVIRONMENTAL IMPACTS</b>			
Will the Project cause...			
▪ pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, and soil erosion runoff?			
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?			
▪ hazard of land subsidence caused by excessive ground water pumping?			
▪ social conflicts arising from displacement of communities ?			
▪ conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters?			
▪ unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)?			
▪ delivery of unsafe water to distribution system?			
▪ inadequate protection of intake works or wells, leading to pollution of water supply?			
▪ over pumping of ground water, leading to salinization and ground subsidence?			
▪ excessive algal growth in storage reservoir?			
▪ increase in production of sewage beyond capabilities of community facilities?			
▪ inadequate disposal of sludge from water treatment plants?			

SCREENING QUESTIONS	Yes	No	REMARKS
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities?			
▪ impairments associated with transmission lines and access roads?			
▪ health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals.			
▪ health and safety hazards to workers from the management of chlorine used for disinfection and other contaminants?			
▪ dislocation or involuntary resettlement of people			
▪ social conflicts between construction workers from other areas and community workers?			
▪ noise and dust from construction activities?			
▪ increased road traffic due to interference of construction activities?			
▪ continuing soil erosion/silt runoff from construction operations?			
▪ delivery of unsafe water due to poor O&M treatment processes (especially mud accumulations in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems?			
▪ delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals?			
▪ accidental leakage of chlorine gas?			
▪ excessive abstraction of water affecting downstream water users?			
▪ competing uses of water?			
▪ increased sewage flow due to increased water supply			
▪ increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant			

## APPENDIX 5B: REA Checklist for Sewerage Projects

### RAPID EXAMINATION ASSESSMENT (REA) CHECKLIST FOR POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

Country/Project Title: GEO/ Georgia Urban Sector Improvement Investment Program

Project Name:

Sector Division: CWRD - Urban Services

Conducted by

Date:

#### Instructions:

- ☐ This checklist is to be prepared to support the environmental classification of a project. It is to be attached to the environmental categorization form that is to be prepared and submitted to the Chief Compliance Officer of the Regional and Sustainable Development Department.
- ☐ This checklist is to be completed with the assistance of an Environment Specialist in a Regional Department.
- ☐ This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB checklists and handbooks on; (i) involuntary resettlement; (ii) indigenous peoples planning; (iii) poverty reduction; (iv) participation; and (v) gender and development.
- ☐ Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

SCREENING QUESTIONS	Yes	No	REMARKS
<b>B. PROJECT SITING</b>			
Is The Project Area...			
▪ Densely populated?			
▪ Heavy with development activities?			
▪ Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site			
• Protected area			
• Wetland			
• Mangrove			
• Estuarine			
• Buffer zone of protected area			
• Special area for protecting biodiversity			
• Bay			
<b>A. Potential Environmental Impacts</b>			
<b>WILL THE PROJECT CAUSE...</b>			
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?			
▪ interference with other utilities and blocking of access to buildings; nuisance to neighboring areas due to noise, smell, and influx of insects, rodents, etc.?			
▪ dislocation or involuntary resettlement of people			
▪ impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?			
▪ overflows and flooding of neighboring properties with raw sewage?			
▪ environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?			
▪ noise and vibration due to blasting and other civil works?			
▪ discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?			
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities?			

SCREENING QUESTIONS	Yes	No	REMARKS
▪ social conflicts between construction workers from other areas and community workers?			
▪ road blocking and temporary flooding due to land excavation during the rainy season?			
▪ noise and dust from construction activities?			
▪ traffic disturbances due to construction material transport and wastes?			
▪ temporary silt runoff due to construction?			
▪ hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?			
▪ deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?			
▪ contamination of surface and ground waters due to sludge disposal on land?			
▪ health and safety hazards to workers from toxic gases and hazardous materials which maybe contained in sewage flow and exposure to pathogens in sewage and sludge?			

## **APPENDIX 6: OUTLINE OF AN EIA/IEE REPORT**

1. This outline is part of the Safeguard Requirements 1. An environmental assessment report is required for all environment category A and B projects. Its level of detail and comprehensiveness is commensurate with the significance of potential environmental impacts and risks. A typical EIA report contains the following major elements, and an IEE may have a narrower scope depending on the nature of the project. The substantive aspects of this outline will guide the preparation of environmental impact assessment reports, although not necessarily in the order shown.

### **A. Executive Summary**

2. This section describes concisely the critical facts, significant findings, and recommended actions.

### **B. Policy, Legal, and Administrative Framework**

3. This section discusses the national and local legal and institutional framework within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

### **C. Description of the Project**

4. This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

### **D. Description of the Environment (Baseline Data)**

5. This section describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

### **E. Anticipated Environmental Impacts and Mitigation Measures**

6. This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media [Appendix 2, para. 6]), and physical cultural resources in the project's area of influence, in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement; identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, transboundary, and cumulative impacts as appropriate.

## **F. Analysis of Alternatives**

7. This section examines alternatives to the proposed project site, technology, design, and operation—including the no project alternative—in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. It also states the basis for selecting the particular project design proposed and, justifies recommended emission levels and approaches to pollution prevention and abatement.

## **G. Information Disclosure, Consultation, and Participation**

8. This section:

- (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders;
- (ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and
- (iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

## **H. Grievance Redress Mechanism**

9. This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

## **I. Environmental Management Plan**

10. This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

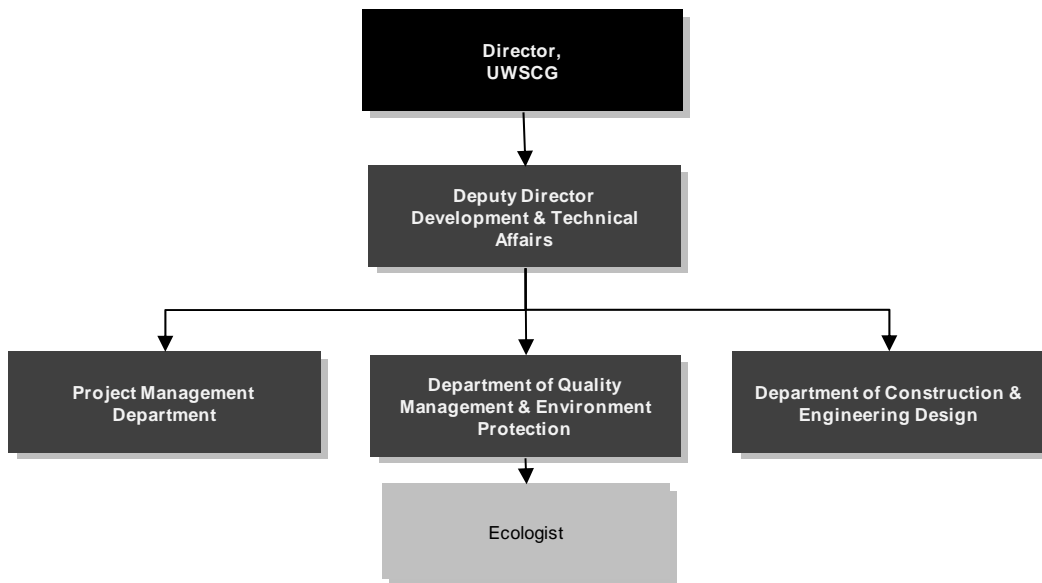
- (i) Mitigation:
  - (a) identifies and summarizes anticipated significant adverse environmental impacts and risks;
  - (b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and
  - (c) provides links to any other mitigation plans (for example, for involuntary resettlement, Indigenous Peoples, or emergency response) required for the project.

- (ii) Monitoring:
  - (a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and
  - (b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.
- (iii) Implementation arrangements:
  - (a) specifies the implementation schedule showing phasing and coordination with overall project implementation;
  - (b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and
  - (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan.
- (iv) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

## **J. Conclusion and Recommendation**

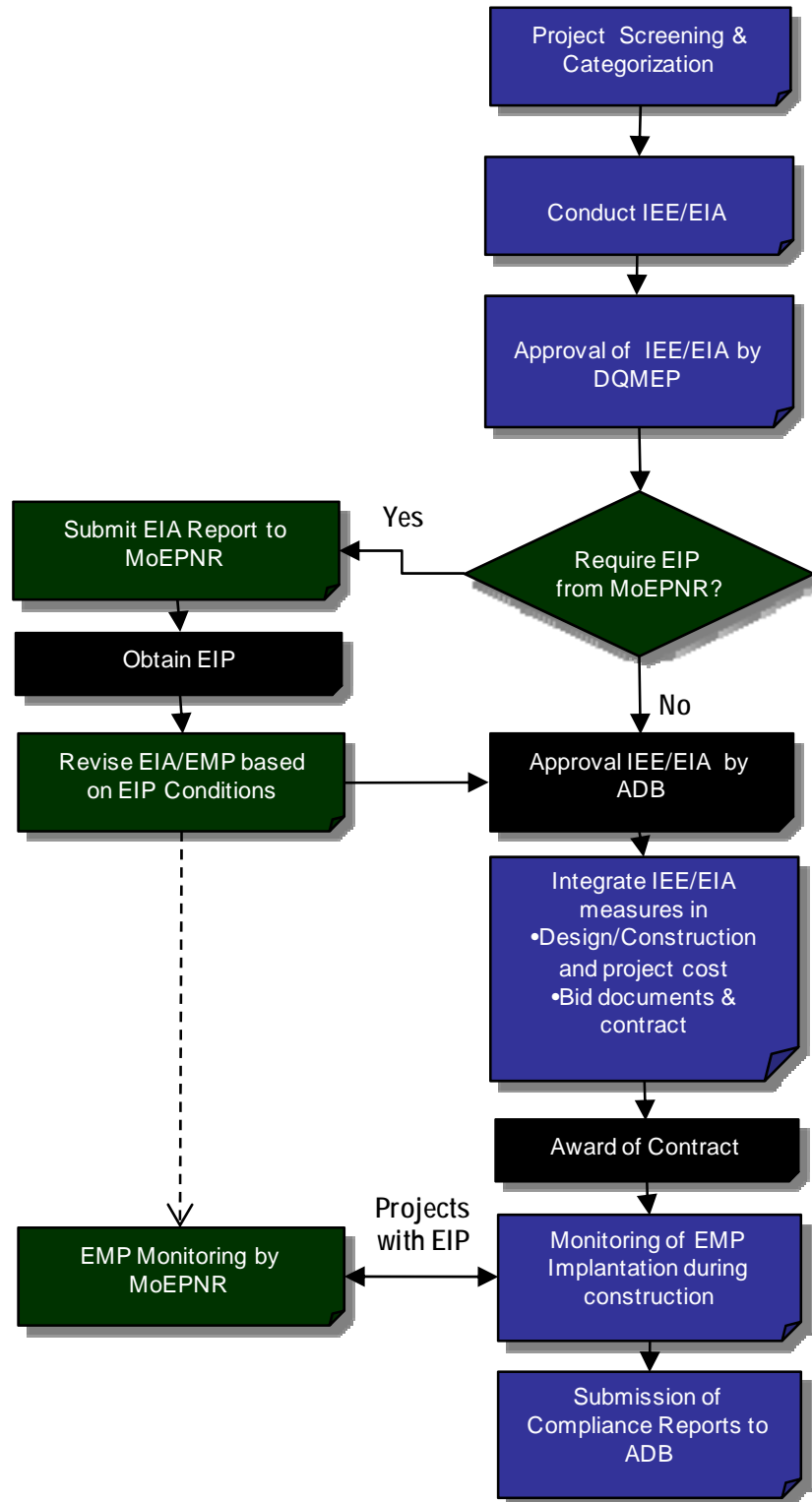
11. This section provides the conclusions drawn from the assessment and provides recommendations.

## Appendix 7: DQMEP Organizational Chart





## Appendix 8: Environmental Safeguard Compliance Process Flowchart



### Appendix 9: Organizational Capacity Assessment of DQMEP

Tasks	Are tasks part of existing responsibilities	Adequacy of Existing Capacity	Capacity Development Activities
General compliance tasks <ul style="list-style-type: none"> <li>• Project selection</li> <li>• Project categorization</li> <li>• Review/update EARF</li> <li>• Periodic compliance reporting to ADB</li> </ul>	No	<ul style="list-style-type: none"> <li>• No experience in dealing with ADB procedures</li> <li>• Requires capacity development and support in implementation</li> </ul>	<ul style="list-style-type: none"> <li>• Intermittent support of a well experienced environmental management system (EMS) to advise/assist</li> <li>• Staff training to develop long-term capacity</li> </ul>
Conduct IEE, EIA studies	Yes, but limited to projects requiring EIP under Georgia law and with the help of consultants. Department role is limited to coordinating with MoEPNR, review of EIA, organizing public consultation and disclosure	<ul style="list-style-type: none"> <li>• Existing system of consultant usage can be continued</li> <li>• No experience in dealing with ADB procedures</li> <li>• Requires capacity development &amp; support</li> </ul>	<ul style="list-style-type: none"> <li>• Consultants with experience in EA studies as per ADB SPS 209</li> <li>• Intermittent support to advise and assist</li> <li>• Staff training to develop long-term capacity</li> </ul>
Implement EMP	No. There are no specific tasks mandated although DQMEP is responsible protection of water supply sources of UWSCG	<ul style="list-style-type: none"> <li>• No experience in EMP implementation</li> <li>• Requires capacity development &amp; support</li> </ul>	<ul style="list-style-type: none"> <li>• Expert support to implement and oversee, reporting</li> <li>• Staff training to develop long-term capacity</li> </ul>
Environmental Management during operation	Yes	<ul style="list-style-type: none"> <li>• Requires capacity development</li> </ul>	<ul style="list-style-type: none"> <li>• Staff training to develop long-term capacity</li> <li>• Expert support on need basis</li> </ul>
Obtaining government clearances & permits	Yes	<ul style="list-style-type: none"> <li>• Adequate</li> </ul>	No

## **APPENDIX 10**

### **OUTLINE TERMS OF REFERENCE FOR ENVIRONMENT MANAGEMENT SPECIALIST (EMS) OF DESIGN CONSULTANTS**

**Objective:** The objectives of the services are assist the Implementing Agency in conducting all activities (planning, design and contracting), in compliance with the EARF, ADB Safeguard Policy Statement, 2009 and National Legislation.

#### **Scope of Work/Tasks**

- (i) Coordinate with technical experts to ensure that projects are selected in compliance with subproject selection criteria and all EARF provisions
- (ii) Conduct project screening
- (iii) Undertake the IEE/EIA study to assess the direct and indirect environmental impacts of the project
- (iv) prepare the IEE/EIA report in accordance with ADB's Safeguard Policy Statement (2009) and Public Communications Policy (2005);
- (v) Prepare Environmental Management Plan including budget
- (vi) Conduct formal public consultations with affected people (at least two consultations for EIA and at least one consultation for IEE).
- (vii) submit the reports to UWSCG/IPMO and make presentations as required to obtain environmental impact permit from MoE
- (viii) Integrate design/location related measures in subproject design
- (ix) Integrate construction related measures including EMP into contract documents

#### **Qualification & Experience**

- Graduate in environmental science/engineering, Agro-ecology, geological science, engineering hydrology, biology, or related discipline
- 10 years of experience in environmental management and monitoring of projects, environmental assessment, and/or design and implementation of environmental mitigation measures
- A reasonable command of the English language, both spoken and written, is required.

## **APPENDIX 11**

### **OUTLINE TERMS OF REFERENCE FOR ENVIRONMENT MANAGEMENT SPECIALIST (EMS) OF SUPERVISION CONSULTANTS**

**Objective:** The objectives of the services are assist the Implementing Agency in conducting all activities, during the construction of infrastructure, in compliance with the EARF, ADB Safeguard Policy Statement, 2009 and National Legislation.

#### **Scope of Work/Tasks**

- (i) Monitor implementation of mitigation measures by Contractor; identify remedial actions for unanticipated impacts, and participate in grievance redress
- (ii) Conduct environmental quality monitoring surveys as per the Environmental Monitoring Plan
- (iii) Prepare monthly monitoring reports on implementation of EMP and its effectiveness

#### **Qualification & Experience**

- Graduate in environmental science/engineering, Agro-ecology, geological science, engineering hydrology, biology, or related discipline
- 10 years of experience in environmental management and monitoring of projects, environmental assessment, and/or design and implementation of environmental mitigation measures
- A reasonable command of the English language, both spoken and written, is required.

## **APPENDIX 11**

### **OUTLINE TERMS OF REFERENCE FOR ENVIRONMENT MANAGEMENT SPECIALIST (EMS) INDEPENDENT CONSULTANT TO SUPPORT DQMEP**

**Objective:** The objectives of the services are assist and advise the Department of Quality Management and Environmental Protection (DQMEP) and the UWSCG in program implementation in compliance with the, ADB Safeguard Policy Statement, 2009 and National Legislation, and oversee the work of DCs and SCs in safeguard compliance.

#### **Scope of Work/Tasks**

- (i) Assist the IPMO/DQMEP in program implementation in compliance with EARF
- (ii) Assist in fulfilling safeguard related loan covenants, if any
- (iii) Assist DQMEP in project screening & categorization, overseeing the IEE/EIA Process including public consultation and disclosure in compliance with ADB SPS 2009 and ADB EAG 2003
- (iv) Assist DQMEP in review of IEEs/EIAs Reports
- (v) Advise DCs in addressing ADB comments on IEEs/EIAs
- (vi) Assist the DQMEP in consolidating monthly monitoring reports of DSCs and submit bi-annual reports to ADB for review
- (vii) Oversee environmental management activities conducted by DSCs - ensure all mitigation measures as specified are integrated into design and contract documents as required, and are actually and affectively implemented
- (viii) Assist DQMEP in period update/revision of EARF

#### **Qualification & Experience**

- Graduate in environmental science/engineering, Agro-ecology, geological science, engineering hydrology, biology, or related discipline
- 10 years of experience in environmental management and monitoring of projects, environmental assessment, and/or design and implementation of environmental mitigation measures
- A reasonable command of the English language, both spoken and written, is required.