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Integrated Natural Resource Management Plan, Upper Rioni Pilot Watershed Area

Republic of Georgia

Integrated Natural Resource Management Plan Series

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CENN Caucasus Environmental NGO Network

UNESCO-IHE Institute for Water Education

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FIU Florida International University Miami's public research university

Integrated Natural Resources Management in the Republic of Georgia Program

Integrated Natural Resource Management Plan, Upper Rioni Pilot Watershed Area

Republic of Georgia

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LIST OF ACRONYMS AND ABBREVIATIONS

ADB – Asian Development Bank
CARE International - Cooperative for Assistance and Relief Everywhere International
CBO – Community-based Organization
CENN – Caucasus Environmental NGO Network
EBRD – European Bank for Recunstruction and Development
EU – European Union
GLOWS – Global Waters for Sustainability
GIZ - Deutsche Gesellschaft für Internationale Zusammenarbeit, the German Society for International Cooperation
GNERC - Georgian National Energy and Water Supply Regulation Commission
INRMW – Integrated Natural Resources Management in Watershed
IWMP – Integrated Watershed Management Plan
KfW – Kreditanstalt für Wiederaufbau, German Development Bank
km^2 – square killometer
Ltd – Limited Liability Company
MDF – Municipal Development Fund
MIA – Ministry of Internal Affairs of Georgia
MoA – Ministry of Agriculture of Georgia
MoENRP – Ministry of Environment and Natural Resources Protection of Georgia
MES – Ministry of Education and Science of Georgia
MESD – Ministry of Economy and Sustainable Development of Georgia
MoF – Ministry of Finance of Georgia
MoH – Ministry of Health of Georgia
MRDI – Ministry of Regional Development and Infrastructure
NEA– National Environment Agency,
NGO – Non-governmental Organization
PAs – Protected Areas
Sida – Swedish International Development Cooperation Agency
WEAP – Water Evaluation and Planning System
UNDP – United Nations Development Program
UNESCO-IHE – UNESCO Institute for Water Education
USAID – US Agency for International Development
UWSCG- United Water Supply Company of Georgia
WB –World Bank
DEMO – demonstration projects

1. BACKGROUND

The Rioni River is a major water course in Western Georgia; being the largest water body of the region, it has a total catchment area of about 13,400 km^2 that is approximately 20% of the whole Georgian territory. The upper Rioni pilot watershed area, for which the given Integrated Natural Resources Management Plan (hereafter Integrated Watershed Management Plan-IWMP) is developed, geographically encompasses the Ambrolauri and Oni municipalities with a total area of more than 2,500 km^2. The pilot territory is mostly mountainous, less populated, and rich in virgin forests with high ecological and aesthetic value. These forests form habitats for many species.

The waters and associated resources of the Rioni river basin, including land and biological resources, have various essential and economic functions, involving but not limited to: provision of drinking water, nutritional base, energy and clean environment to the population; provision of water for industries, fisheries and power generation; provision of local resources (e.g. fire wood, timber and wood chips as construction materials, non-timber resources, etc.) for subsistence economies; maintaining ecosystem integrity, richness and healthiness (water, soil and climate regulation, etc.); disaster risk reduction (prevention/control of floods, landslides, mudflows and avalanches); and provision of recreational resources to the population.

Ecosystems of this watershed have, compared to commercial value, more value for supporting biodiversity, maintaining ecosystem integrity, providing high quality recreational resources and supporting the subsistence economies of local communities. The pilot territory is not densely populated and, compared to the lower courses of the Rioni River; the technogenic pressure on natural landscape and ecosystems is less. Natural resources including water, land and forest are used for essential uses and for sustaining local livelihoods (drinking water, heating, cooking, small farmers, cattle breeding, bee keeping, etc.).

The upper course of the basin is rich in natural forests with high ecological and aesthetic value as the habitat for many species. However, the rate of illegal logging and poaching is high. Because of intensive hunting, the West Caucasian Tur is facing greater threat over time. Irregular logging increases the threat of landslides, mudflows and snow-slips in the region. Due to unavailability of alternative energy resources, the local population intensively uses wood resources for firewood. Due to the absence of a unified forest policy, standards, norms and monitoring systems, uncontrolled logging resulting in the degradation of soil in the adjacent territories and the deterioration of climate-regulatory and water-regulatory functions. The result is that the region is characterized by flash floods, landslides and snow-slips. These geo-dynamic processes are very intense in the Racha-Lechkhumi mountainous parts.

The pilot watershed area is rich in mineral resources. During the Soviet period, the mineral extraction industry was well-developed in the territory, but presently it is not functioning any more. However, the waste, mostly arsenic based, from the mineral extraction related activities is still precariously stored near the Lukhuni River, representing one more source of pollution of soil, surface and ground waters.

The pilot region is rich in surface and underground resources. Water in the upper course of the basin is used for drinking and hydro-energy production. Water from natural springs is bottled for commercial purposes. The hydro-power potential of the basin is not sufficiently exploited and the government plans to maximize the use of water resources. While profitable, the hydropower stations functioning on the rivers create rather serious environmental problems. Construction of a large hydropower station planned in the Racha-Lechkhumi region will negatively impact the river's waters, especially the solid sediments of the river. According to the "Evaluation of the vulnerability of upper Rioni pilot watershed area river runoff to climate change"[1], within a 40-year horizon, the annual flow of the Rioni River (currently 997.20 million m^3 at the Utsera gauging site) will increase by 26%; stream flow of other rivers of the watershed will increase correspondingly. From the data on current water use and the existing water flows, no deficiency of water resources is expected for the upper Rioni pilot watershed area during this century, especially with a predicted 26% increase in water flow in the coming 40-50 year period. However, in accordance with CENN climate change, disaster vulnerability, and risk assessment[2] conducted under the INRMW-Georgia program, climate change will have an impact on the seasonal and annual regime of precipitation. In the Oni Municipality, in the years 2020-2050, compared to the base period, annual precipitation is anticipated to increase by 13 to 19% (48% in winter and 18% in summer). The maximum amount of daily precipitation and its average values will increase significantly for all seasons except for summer. In the summer, this parameter will decrease by 12-15%, however, the frequency of heavy rains will increase. It is also expected that the number of days per year with daily precipitation exceeding 10, 20 and 50 mm will increase. In the Ambrolauri municipality, an insignificant increase in the annual precipitation and decreases in the maximal daily precipitation are expected. It is important, however, to take into consideration the fact that in the territory of the neighboring Oni municipality, which is entirely located in the upper course of the drainage basin of the Rioni River, almost all of the parameters of precipitation are expected to increase significantly according to climate forecasts. Thus, in the upper Rioni pilot watershed area, the frequency of floods and flashfloods compared to the base period is not likely to decrease.

The rural population has very limited access to safe drinking water due to poor technical conditions, an obsolescence of existing centralized water supply systems and an absence of drinking water treatment facilities. The quality of drinking water is monitored regularly only in Ambrolauri and Oni. There is no drinking water quality monitoring for rural systems.

None of the villages have sewerage systems or treatment facilities; untreated wastewater is directly discharged on the earth's surface or into the nearby streams and rivers. In urban areas, where centralized sewerage systems are present, there are no wastewater treatement plants and, similar to rural areas, untreated wastewater is directly discharged into surface waters. This causes

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The study - Detailed Assessment of Natural Resources of the upper Rioni pilot watershed area was developed under INRMW project. http://www.globalwaters.net/wp-content/uploads/2012/12/UpperRIONIdetailedAssesment04-08-13.pdf

[1] Upper Rioni pilot watershed area -Assessment of the Vulnerability to Natural Disasters and Climate Change. Plan of Mitigation and Adaptation Measures. May 2013

pollution of surface waters. Groundwaters are also polluted from the seepage of pollutants from pit latrines.

Waste management is also very poor in the pilot area; legal and illegal waste disposal sites do not meet any sanitary requirements and they represent one of the major sources of pollution for waters and the overall ambient environment.

Ambient water quality monitoring is very weak in the targeted watershed area. There is no ground water monitoring system and surface water quality is measured only at two points. Therefore, it is very difficult to judge the exact state of the surface and ground waters.

In order to address the above issues, the Integrated Natural Resources Management Plan for the upper Rioni pilot watershed area (hereafter, Upper Rioni Watershed Management Plan) was developed under the USAID/GLOWS program INRMW-Georgia, and implemented by the GLOWS consortium lead by Florida International University in partnership with CARE International, Winrock International UNESCO-IHE and CENN.

2. METHODOLOGY AND LIMITATIONS

The integrated watershed planning process included the following stages: 1. Identification of priority problems by the target communities; 2. Identification of priority problems by local experts hired under the INRMW program; 3. Synthesis of the problems identified by experts and local stakeholders and validation at the community and local authority level; 4. Identification of priority interventions by the INRMW program experts, local communities and authorities; and 5. Compilation of watershed issues, needs, opportunities and interventions into one document – IWMP by the INRMW program team.

In order to identify the priority watershed issues, needs and opportunities as well as to define the priority interventions at the community and/or watershed level, a holistic approach was utilized to incorporate the specific problems recognized in the larger context of the watershed and to achieve cooperative, integrated watershed resource planning and management. Another conceptual idea in the designing of the planning process was a participatory approach to ensure engagement of all interested parties in the course of action. The specific steps designed to employ these methods into the process of developing the watershed plans are described below.

Based on the two major principles described above, the planning activity was conducted by means of: 1. Intensive consultations with and engagement of the local stakeholders (members of 15 target communities, selected through an application of multiple criteria,[3] well-representing the rural population of the upper Rioni pilot watershed area, and representatives of local authorities- achieved through conducting community quesionnaires and a series of stakeholder meetings and workshops; and 2. The work of the expert team, composed of local experts, tasked to characterize and assess the overall condition of the watershed and its resources, including various geographic, geologic, hydrologic, socio-economic, ecological and other considerations. Land and forest use, as well as water body conditions, pollutant sources and monitoring data (although the data was very limited due to the weakness of the monitoring system), were also assessed. Next, based on the expert analysis and recommendations, as well as the stakeholder input ensured by the participatory meetings conducted in Ambrolauri and Oni the priority problems were identified and the recommendations for a solution were developed.

Along with a number of meetings with local authorities, several workshops hosting the representatives of the local target communities were conducted. The goal of the first workshop was to identify the priority issues of the targeted villages and communities. The priority issues revealed through this collaborative and participatory process were based on the extent of their impact on key ecosystem functions and the services as well as on their economic and health impacts (see Annexes 2 and 3). More specifically, the watershed issues were listed with maximum attainable scores assigned to them as per specially elaborated environmental and socio-economic

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Detailed description of the entire process, methodology and outcomes of the selection of target communities is included in the following documents: i) Technical Report 4. Selection of Target Communities in Pilot Watersheds (Ambrolauri, Oni, Telavi and Akhmeta Municipalities), October, 2011. http://www.globalwaters.net/wp-content/uploads/2012/12/Technical-Report-4-Selection-of-Target-Communities-in-Pilot-Watersheds-October-2011.pdf and ii) Technical Report 5. Selection of Target Communities in Pilot Watersheds (Khobi, Senaki, Dedoplistskaro Municipalities, October 2012. http://www.globalwaters.net/wp-content/uploads/2012/12/INRMW-Lower-Pilot-Watersheds-Community-Selection-Report.pdf.

criteria: 1. Negative impact on the health status of villagers; 2. Negative impacts on the environment of the targeted villages and their surroundings; and 3. Negative socio-economic impacts on the local population. Based on those criteria, target community members and INRMW experts assessed watershed issues to meet the following objectives : protection of human health; improvement of environmental quality/natural ecosystem integrity; promotion of sustainable and effective utilization of natural resources; disaster risk reduction; maintaining exsisting reserve of water resources storage; maintaining biodiversity; promotion of organic agriculture and reduction of land degradation, and development of tourism potential. In accordance with the issues prioritization exercise, at least three major issues were identified as top priorities for each community. On the following workshop, the final list of issues was presented to local stakeholders in order to build a common understanding and secure an agreement of the interested parties on the priority issues. The next step was the synthesizing of the prioritized issues, identified by local communities and experts, by the INRMW program team and its final assessment; during this process, among various evaluation criteria, ecosystems values, functions and services impacted by the issues were applied (Please see Annex 4).

Issues identification and prioritization exercises were followed by the development of recommendations on potential interventions to tackle watershed issues and manage its resources more sustainably. These suggestions were made by the INRMW experts. Based on these recommendations, the INRMW program team elaborated a menu of potential structural and non-structural measures to present to target communities and authorities and prioritize these interventions through active participation of the local stakeholders. Potential interventions were prioritized based on the expected impact of the recommended measures on the environment, local economy and people's health. In the workshop that was conducted, its participants filled in the prepared questionnaire (Annex 5), grading the suggested measures by points (maximum possible points of 5 were given to public health; maximum points of 3 were given to the impact on the environment; and maximum points of 3 were given to socio-economic impacts). The list derived out of this exercise was finally merged with the recommendations made by the local experts. The combined list of potential interventions was presented to the local stakeholders, who confirmed the validity of the presented measures (see Annex 6 for the workshop agenda and lists of participants).

Based on the priority issues, needs, opportunities and interventions identified through the stakeholder participation and the experts' assessments, the IWMP for the upper Rioni pilot watershed area was developed. Geographically, the plan covers the area located in the north-west of Georgia and encompasses the two municipalities of Ambrolauri and Oni under the Racha-Lechkhumi and Kvemo Svaneti regional administration. More specifically, the focus was directed on 15 pilot communities, eight in the Ambrolauri municipality and seven in the Oni municipality, selected within the project and described in Annex 1.

The final plan consists of feasible and time-bound structural and non-structural measures that address priority watershed issues at the community, municipality and/or watershed level. Their prioritization is based on the number and quality of the ecological functions/services that they support, critical importance assigned to the measures by local stakeholders and experts, and the cost of the activity.

During the detailed assessment conducted for developing the IWMP, certain limitations were noted with reference to many historical and current socio-economic and environmental data. There is a very limited network for water quality monitoring and no comprehensive database on environmental quality exists in the country. Furthermore, various studies differ in terms of completeness of data and inconsistencies between reports are common, which can be considered as limitations of the conducted assessment. Thus, in many cases, expert analysis and extrapolations of the accessible information were employed to fill the existing gaps in the data.

3. WATERSHED MANAGEMENT PLAN

3.1 Goals and Objectives

The long-term development goal of the IWMP for the upper Rioni pilot watershed area is the sustainable development of the pilot watershed through the protection and integrated management of its ecosystems and resources. This goal will be supported by achieving the following specific objectives: 1. Reduction of the environmental pollution/improvement of environmental quality; 2. Protection of human health through provision of safe drinking water; 3. Maintaining the existing reserves of water resources through sustainable and efficient utilization; 4. Disaster risk reduction; 5. Conservation, recovery and sustainable use of natural ecosystems, including maintaining biodiversity; 7. Reduction of land degradation through application of sustainable land management practices; 8. Promotion of organic/traditional agriculture; and 9. Development of eco, agro and cultural tourism potential.

3.2 Planned Actions

3.2.1 Priority Measures

Findings of the watershed assessment as well as the priority setting exersices indicate that for both municipalities selected in the upper Rioni watershed area, the measures dealing with the drinking water supply and sewerage systems, improvement of the hazardous waste disposal site condition, municipal waste collection system and condition of the landfills, as well as the measures dealing with forest reclamation, renewable energy technologies, energy efficiency, establishment of organic farms, energy efficient measures, the development of local renewable energy resources and the application of clean energy technologies and ecotourism development supportive activities are the most important.

The focus made by the community representatives was reflected in the IWMP. The synergic effect of multiple practices was also considered when determining the measures directed towards attaining each objective. The specific activities suggested to address the prioritized issues include:

a) Structural measures*:* These measures are those intended for intervention at the community/ municipal/village level to address and solve the problems especially acute for the pilot area of the upper Rioni watershed area, e.g., the remediation of an arsenic-based industrial waste site in the Lukhuni Gorge, improvement of a waste collection system, improvement of management of the existing landfills, renovation of urban/rural water supply systems, construction/renovation of urban and rural storm water drainage systems, cleaning of river-beds, reforestation of severely damaged forests, implementation of energy efficient measures, construction/renovation of micro or small hydropower plants, etc.

The structural measures also include public awareness activities, which include the selected demo-projects, planned to be implemented under the small grants component of the INRMW program or through grass root initiatives other than the INRMW program, to solve the issues that require immediate intervention and can be implemented in a shorter time period with relatively low cost requirements and will have tangible and easily replicable impacts on the lives of the locals. These include, for example, renovation/construction of rural water supply systems, fencing of sanitary

zones at the water intakes, Installation of water treatment/ chlorination facilities/devices at the water intakes, construction of small scale (rural) sewerage systems, arrangement of drainage system and wastewater treatment facilities on the existing landfills, arrangement of dry toilets for public buildings that do not have relevant water treatment plants, establishment of traditional organic farms, implementation of energy efficient measures, construction/renovation of micro or small hydropower plants, and others (see Table 1 for details).

b) Nonstructural measures: These are the higher scale measures that do not involve physical intervention but aim to reduce the identified risks and impacts through improving policies and laws in corresponding spheres, as well as through raising public awareness, trainings and education. The examples of the most vital nonstructural measures suggested for the upper Rioni watershed pilot area include: development of a regional waste management strategy for the Racha region and municipal waste management plans for the Oni and Ambrolauri municipalities; development of overall forest policies, corresponding legal bases, including regulations on forest use, establishing effective tariffs and their implementation systems in water use and waste management sectors; strengthening law enforcement systems; and strengthening national monitoring network for surface and ground water resources, etc.

Furthermore, suggested measures were categorized as: i) Long-term; ii) Medium-term; and iii) Short-term, considering the existing capacity for their implementation. Short-term activities are those that require immediate intervention and can be implemented in a time period up to one year (including the demo-projects planned under the INRMW project); Medium-term activities are those that require about one-five years for realization; and Long-term activities are those that will need more than five years to be carried out.

The cost ranges for the suggested measures/activities were categorized as: i) L - low-cost (up to $20,000); ii) M - medium-cost ($20,000-$100,000); and iii) H - high-cost (more than $100,000). Likewise, the time-scale of suggested measures was broken down into: i) S - “Short-term” implying the period of time up to one year; ii) M - “medium-term” – one to five years and; and L - “long-term” – > five years.

For the list of the measures suggested, see Table 1 below.

Table 1. Matrix of Watershed Management Plan of the Upper Rioni Pilot Watershed Area

Goal	Objectives	Measures	Scale of the measure	Ecosystem Functions/values influenced	Cost Range $	Timeline	Responsible Agent	Potential Source of Funding
1. Sustainable development of the pilot watershed area through protection and integrated management of its ecosystems and resources	***Objective 1:*** *Reduction of the environmental pollution/improvement of environmental quality*	**Structural Measures**						
		1. setting up of waste collection system; procurement of waste containers and closed trucks for transportation of waste (Oni- 100 and Ambrolauri - 120-130 containers, and 2 trucks per municipality)	Municipal centers – Oni and Ambrolauri and Communities	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H >100,000- (~200,000 – 400,000)	M	Regional and municipal governments	Central and local budgets; Development agencies (Sida, USAID, EU etc.); development banks (ADB, EBRD, WB, KfW).
		2. Improving management of existing landfills - implementation of low-cost protection measures for controlled existing waste disposal site /landfill: fencing and locking; arranging diversion channels, placing warning signs; constructing drainage and water retention and purification ponds, preparing access roads to landfills, etc.	Existing landfills of Oni and Ambrolauri	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	M: 20,000 – 100,000 (initial activities) (~2 projects - ~40,000)	M	Central government: MRDI and MoENRP; Municipal ment; LTD "Company of Solid Wastes".	Central and local budgets
		3. Construction of a new EU-standard municipal solid waste landfill	Municipal, Ambrolauri	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value	H: >1,000, 000	L	Central government: MRDI and MoENRP; Municipal government; LTD "Company of Solid Wastes"	Development Banks (ADB, EBRD, KfW, WB, etc.); Multi-lateral development agencies (EU,

			8. Tourism				USAID, etc); development banks (ADB, EBRD, WB, KfW)
	4. Arranging waste segregation and processing facility	Regional or municipal (1 project – Ambrolauri city)	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H: >100,000	L	Central government: MRDI and MoENRP; Municipal government; LTD "Company of Solid Wastes" or private sector.	Central and local budgets; Development agencies (Sida, USAID, EU etc.); development banks (ADB, EBRD, WB, KfW).
	5. Conservation of the existing solid waste landfills (after construction of new landfill)	Oni and Ambrolauri landfills	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H: >100,000-1,000,000	L	Central government: MRDI and MoENRP; Municipal government; LTD "Company of Solid Wastes".	Central and/or local government; Development agencies (USAID, Sida, EU, etc.); development banks (ADB, EBRD, WB, KfW).
	6. Construction of municipal/ medical waste incinerator	Regional, or Municipal, Oni or Ambrolauri city	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H: 100,000-1,000,000	L	Central government: MRDI and MoENRP; LTD "Company of Solid Wastes" or private sector.	Private sector; Development agencies (USAID, Sida, EU, etc.).
	7. Construction of a Waste transfer station in Oni municipality. This is relevant for the option when Ambrolauri and Oni municipalities have a common landfill in Ambrolauri	Oni	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H: >100,000	M	Central governments: MRDI and MoENRP; LTD "Company of Solid Wastes".	Central government; Development agencies (USAID, Sida, EU, etc.); development banks (ADB, EBRD, WB, KfW).

		8. Renovation of the urban sewerage systems	Urban scale: Oni and Ambrolauri	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H: >1,000,000	M-L	Central governments: MRDI, MoENRP; LTD "UWSCG" Regional and municipal government.	Central budgets; development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.) development banks (ADB, EBRD, WB, KfW).
		9. Construction of urban wastewater treatment plants	Urban scale: Oni and Ambrolauri	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H: 100,000-1,000,000 (2 projects, >200 000)	M-L	Central government: MRDI and MoENRP; LTD "UWSCG" Regional and municipal government.	Central and local budgets; Development banks (ADB, EBRD, WB, KfW).
		10. Construction of small-scale (rural) sewerage systems with treatment plants	Municipal: Village level (at least 17 villages[4])	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H: >1, 000,000 (~20,000-100,000 per each project)	M-L	Central government: MRDI and MoENRP; LTD "UWSCG"; Water companies of villages; Municipal governments; CBOs.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); NGOs.
		11. Remediation of arsenic-based industrial waste site	Ambrolauri municipality Lukhuni gorge - 60 000 tons Of waste (taking into consideration the project started by the Dutch	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H: >100,000	M	Central government: MRDI and MoENRP; Municipal governments.	Central and local budgets; Development agencies (USAID, UNDP, EU, Dutch government, GIZ, Sida, etc.); NGOs

[4]These are the pilot villages of INRMW-Georgia program which identified the issue as priority

		Government)					
		Non-structural measures					
	1. Development of regional waste management Strategy for Racha region, and municipal Waste management plans for Oni and Ambrolauri municipalities	Regional and Municipal	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	M: 20,000-100,000	S	Central government: MoENRP and MRDI; Regional authorities (Racha governor's office); local municipal governments.	Central and local authorities; Bilateral and/or multilateral development agencies (USAID, Sida, EU, bilateral donors, etc.).
	2. Improvement of fee system for waste management and enforcement of tariff payments	National; Regional.	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	M: 20,000-100,000	M	Central government: MoENRP, MRDI and MoF; Regional government.	Central and local authorities; Bilateral and/or multilateral development agencies (USAID, Sida, EU, bilateral donors, etc.).
	3. Strengthening of law enforcement system	National	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	M: 20,000-100,000	M	Central government: MoENRP and MoF.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	4. Strengthening of national network for surface and ground water quality monitoring	National	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	H: >100,000 (100,000-1,000,000)	M-L	Central government: MoENRP, MoF and NEA.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	5. Improvement of	National	1. Health protection value	M: >20,000-	S-L	Central government:	Central

		existing regulations on wastewater discharge in harmonization with EU directives		2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	100,000		MOENRP.	budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
		Awareness raising and DEMO projects						
		1. Awareness raising and capacity building of local population and municipal authorities in waste management	Municipal	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	M: 20,000 - 100,000	S-M	Central government: MoENRP and MRDI; NGOs; Eco-clubs; Development Agencies; NGOs.	Bi-lateral and/or multilateral development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); NGOs.
		2. Construction of on-site wastewater treatment facilities for small industries, hotels and public buildings	Community level	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	M: >20,000 (~2 demo-projects, ~40,000)	M	CBOs/NGOs; Private sector.	Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private Sector, NGOs; private sector.
		3. Arrangement of dry toilets for public buildings, households and hotels with no Relevant wastewater treatment plants	Communities ~5 buildings,)	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Drinking water quality 5. Agricultural production 6. Aesthetic/recreational value 7. Cultural value 8. Tourism	M: ~20,000 per project (~100 000 total)	S	NGOs/CBOs; Private sector.	Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private Sector; NGOs; private sector.
	Objective 2: *Protection of*	**Structural Measures**						

	Human health through provision of safe drinking water	1. Renovation of urban water supply systems for the cities of Oni and Ambrolauri[5]	Urban scale: Oni and Ambrolauri	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Cultural value 6. Tourism	H: >1,000, 000	M-L	Central government: MRDI and MDF; LTD UWSCG.	Central budgets; Development banks (ADB, KfW, WB, etc.); development banks (ADB, EBRD, WB, KfW).
		2. Renovation of rural water supply systems	Village level (at least 15[6] villages)	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Cultural value 6. Tourism	M: 20,000-100,000 (each project ≈ 20,000)	M	Central government: MRDI and MDF; LTD UWSCG; Regional and municipal governments, CBOs.	Local budgets; development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
		3. Construction of Rural water supply systems	Village level (at least 8[7] villages -3 in Oni: Gebi, Chala, Glola and 5 in Ambrolauri: Likheti, Bugeuli, Bareuli, Agara, Ukeshi)	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Cultural value 6. Tourism	H: 100,000 – 1,000,000	M-L	Central government: MRDI and MDF; Regional and municipal governments; CBOs/NGOs.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); development banks (ADB, EBRD, WB, KfW).
		4. Fencing of sanitary zones at the water intakes[8]	village-level Community level	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value	M: 20,000-100,000 (~5,000 for each intake)	S-M	Central government: MRDI and MDF; LTD UWSCG; CBOs/NGOS.	Central and local budgets; Development agencies (USAID, UNDP,

[5]See for a more detailed list of measures under the Water Safety Plan for Pilot Cities of GLOWS/INRMW program at http://www.globalwaters.net/projects/current-projects/inrmw/
[6] Pilot villages of INRMW program http://www.globalwaters.net/projects/current-projects/inrmw/
[7] Pilot villages of INRMW program http://www.globalwaters.net/projects/current-projects/inrmw/
[8]See more detailed list of measures under the Water Safety Plan for Pilot Cities of GLOWS/INRMW program at http://www.globalwaters.net/projects/current-projects/inrmw/

	(at least 24[9] villages)	5. Cultural value 6. Tourism					EU, bilateral donors, GIZ, Sida, etc.); development banks (ADB, EBRD, WB, KfW).
5. Installation of water treatment/chlorinati On facilities/devices of the villages	Community level At least 6[10] villages (information is not Available for most of the other villages)	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Cultural value 6. Tourism	M: 20, 000 - 100,000 (~7000 for each project)	S	Central government: MRDI and MDF; Regional and municipal governments; CBOs/NGOs.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); NGOs.
Non-structural measures						
1. Strengthening of state inspection system on drinking water	National	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Cultural value 6. Tourism	M: 20,000-100,000	S-M	Central government: MoENRP, MoA and MoH.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
2. Establishing effective tariffs and their implementation mechanisms for drinking water supply system	National	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Cultural value 6. Tourism	L: 20,000	M	Central Government: MoF and MRDI; GNERC; Municipal government.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
Public Awareness raising and DEMO projects						

[9] Pilot villages of INRMW program http://www.globalwaters.net/projects/current-projects/inrmw/
[10] Pilot villages of INRMW program http://www.globalwaters.net/projects/current-projects/inrmw/

		1. Awareness raising and capacity building of local population, local water companies and municipal authorities on rational use of drinking water resources	Municipal	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Cultural value 6. Tourism	M: 20,000-100,000	S-M	Central government: MoENRP, MRDI and MoH; Municipal government; CBOs/NGOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
		2.Renovation of small Scale water supply system	Villages	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Cultural value 6. Tourism	L:20,000	S-M	Municipal government; CBOs/NGOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	Objective 3: *Maintaining of existing reserves of water resources through sustainable and efficient utilization of water resources*	**Structural Measures**						
		1. Renovation of water supply system[11]	Cities and Villages	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Cultural value 6. Tourism	H> 1,000,000	L	Central government: MRDI/MDF, MoF; Municipal governments; CBOs/NGOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.)
		Non-structural Measures						
		1. Elaboration of new law and relevant sub-laws on water in harmonization with EU directives; Setting up of a River Basin	National	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Drinking water 5. Energy source 6. Livelihood value	M: 20,000 – 100,000	S-M	Central government: MoENRP; International and/local NGOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ,

[11] Please see more details under objective 2 of this table

	Management approach		7. Agricultural production 8. Cultural value 9. Tourism 10. Recreation				Sida, etc.).
	2. Development of national regulation on ecological flow of surface waters	National	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Drinking water 5. Energy source 6. Livelihood value 7. Agricultural production 8. Cultural value 9. Tourism 10. Recreation	L: 20,000	S	Central government: MOENRP.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	3. Establishing effective tariffs and their implementation mechanisms for water abstraction	National	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Drinking water supply 5. Irrigation 6. Energy source 7. Livelihood value 8. Agricultural production 9. Cultural value 10. Tourism 1. Recreation	M: 20,000	S	Central government: MoENRP MRDI, MoF and MoA;	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	4. Strengthening of law enforcement and inspection system	National	2. Human health 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Drinking water 6. Energy source 7. Livelihood value 8. Agricultural production 9. Cultural value 10. Tourism 11. Recreation	H: >100,000	M	Central government: MoENRP.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	5. Strengthening of National Hydrological	National Municipal	1. Human health 2. Ecosystem	H: >100,000	M-L	Central government: MoENRP and NEA.	Central budget;

		Monitoring Network		integrity/conservation value 3. Economic/commercial value 4. Drinking water 5. Energy source 6. Livelihood value 7. Agricultural production 8. Cultural value 9. Tourism 10. Recreation				Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
		Public awareness raising and DEMO projects						
		1. Awareness raising and capacity building of local population andmunicipal authorities on sustainable and rational use of water resources	Municipal	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Drinking water 5. Energy source 6. Livelihood value 7. Agricultural production 8. Cultural value 9. Tourism 10. Recreation	L: 20,000	S-M	Central government: MoENRP, MRDI and MoENRPSD; Municipal government; CBOs; NGOs. EU, bilateral donors, GIZ, Sida, etc.).	Central budget; Development agencies (USAID, UNDP,
	Objective 4: *Disaster risk reduction*[12]	**Structural measures**						
		1. Cleaning of river beds	Municipal level: River beds of Rivers: Rioni, Sakaura, Khoteura, Jojora, Garula, Latqishura, Ceshura, and other small streams	1. Human health 2. Ecosystem integrity/conservation value 3. Disaster Risk Reduction 4. Cultural value 5. Tourism 6. Recreation	H: > 1,000,000 ~ 700,000 for each project	M-L	Central government: MoENRP and MRDI; Regional and municipal governments.	Central and regional budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Development banks (ADB, EBRD, WB, KfW);

[12] For detailed information regarding this objective see in "Assessment of the Vulnerability to Natural Disaster and Climate Change and Plan of Mitigation and Adaptation Measures of the upper Rioni pilot watershed area ", developed under the INRMW-Georgia project.

	2. Construction of Gabions along the river beds	River banks: Rioni, Chanchakhi, Jojora, Shaora, and other small rivers	1. Human health 2. Ecosystem integrity/conservation value 3. Disaster Risk Reduction 4. Cultural value 5. Tourism 6. Recreation	H: 100,000 - 1,000,000	M-L	Central government: MoENRP and MRDI; Regional and municipal governments.	Central and regional budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Development banks (ADB, EBRD, WB, KfW).
	3.Construction of new storm water drainage systems	Village scale	1. Human health 2. Ecosystem integrity/conservation value 3. Disaster Risk Reduction 4. Cultural value 5. Tourism 6. Recreation	M: 20,000 – 100,000 ~ 40,000 for each project	S-M	Regional and municipal governments; CBOs.	Central and regional budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Development banks (ADB, EBRD, WB, KfW).
	Non-structural measures						
	1. Strengthening of natural disaster early warning information systems	National	1. Human health 2. Ecosystem integrity/conservation value 3. Disaster Risk Reduction 4. Cultural value 5. Tourism 6. Recreation	H: > 100,000	M-L	Central government: MoENRP, MIA and MRDI.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Development banks (ADB, EBRD, WB, KfW).
	Public awareness and DEMO projects						
	1. Awareness raising and capacity building of local population	Municipal	1. Human health 2. Ecosystem integrity/conservation value	M: 20,000 – 100,000	S-M	Central government: MoENRP, MIA and	Central budget; Development agencies

		and municipal authorities on DRR		3. Disaster Risk Reduction 4. Cultural value 5. Tourism 6. Recreation			MRDI; Municipal government; CBOs/ NGOs.	(USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.). .
		2. Construction/renovation of small size gabions along the river beds	village	1. Human health 2. Ecosystem integrity/conservation value 3. Disaster Risk Reduction 4. Cultural value 5. Tourism 6. Recreation	M: 20,000-100,,000	S	Municipal government; CBOs/ NGOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc).
		3. Renovation of Existing small scale storm water drainage systems	Villages	1. Human health 2. Ecosystem integrity/conservation value 3. Disaster Risk Reduction 4. Cultural value 5. Tourism 6. Recreation 1.	M: 20,000-100,000; ~20,000 at list one project	M-L	Regional and municipal governments; CBOs/ NGOs.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private sector.
		4. Renovation of eroded lands/river banks using bioengineering methods	village	2. Human health 3. Ecosystem integrity/conservation value 4. Disaster Risk Reduction 5. Cultural value 6. Tourism 7. Recreation	M: 20,000 - 100,000; (~20 000 at list one project)	M-L	Regional and municipal governments; CBOs/ NGOs.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private sector.
	Objective 5: *Conservation, recovery and sustainable use of natural ecosystems, including maintaining*	**Structural measures**						
		1. Afforestation/reforestation activities in the pilot areas with severely damaged forests	Municipalities	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction	H: >100, 000	M-L	Central government: MoENRP and National Agency of Forest; Regional and municipal	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral

	biodiversity within and outside the PAs			6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation			governments.	donors, GIZ, Sida, etc.).
		2. Establishment of open/closed tree nurseries	Communities	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation	M: 20,000 – 100,000	M	Central government: MoENRP and National Agency of Forest; Municipal governments; CBOs/NGOs; Private sector.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
		3. Building of roads to the lots allocated for communities to extract fuel wood	Municipalities	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation	M: 20, 000 – 100,000	S-M	Central government: MoENRP and National Agency of forest; Municipal governments; CBOs/NGOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
		4. Restoration of Degraded forest ecosystems (pest control for forests, sanitary logging, etc.)	Municipalities	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value Cultural value 8. Tourism 9. Recreation	M: 20,000 – 100,000	S-M	Central government: MoENRP and National Agency of forest; Municipal governments; CBOs/NGOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral Sida, etc.).
				Non-Structural Measures				
		1. Development of overall forest policies, Corresponding legal bases, laws and sub-	National	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value	M: 20,000-100,000	M	Central government: MoENRP and National Agency of Forest.	Central budget; Development agencies (USAID, UNDP,

	laws including enhancing law enforcement mechanisms on regulations of forest use		5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation				EU, bilateral donors, GIZ, Sida, etc.).
	2. Development of forests management plans for a watershed/ municipality that should include measures for using, maintaining, protection and restoration of forests	Watershed pilot area/municipalities	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation	M: 20,000 – 100,000	M	Central government: MoENRP and National Agency of Forest.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	3. Implementation of functional zoning of the forests, based on the standards of sustainable management and use of forest resources	National	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation	M: 20,000 – 100,000	M	Central government: MoENRP and National Agency of Forest.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	4. Inventory of forests, elaboration of forest cadastre	National; Municipalities.	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation	H: >100,000	M-L	Central government: MoENRP and National Agency of Forest.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).

5. Setting-up of forest monitoring systems	National; Municipalities.	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation	M: 20,000-100,000	M	Central government: MoENRP and National Agency of Forest.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
6. Determining the annual demand on fuel wood at the municipality level	Municipalities; Villages.	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation	L: 20,000	S	Central government: MoENRP and National Agency of Forest.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
7. Improvement of biodiversity related legislation policy and planning	National	1. Ecosystem integrity/conservation value 2. Economic/commercial value 3. Tourism 4. Recreation	M: 20,000-100,000	M	Central government: MoENRP.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
8. Establishment of comprehensive and efficient system of biodiversity monitoring and implementation of respective activities	National	1. Ecosystem integrity/conservation value 2. Economic/commercial value 3. Tourism 4. Recreation	H:>100,000	M-L	Central government: MoENRP.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
9. Strengthening law enforcement system on biodiversity and forest management laws and regulations	National	1. Ecosystem integrity/conservation value 2. Economic/commercial value 3. Tourism 4. Recreation	H: > 100,000	M-L	Central government: MoENRP. National Agency of Forest	Central budget; Development agencies (USAID, UNDP, EU, bilateral

						donors, GIZ, Sida, etc.).
	10. Establishment of Central Caucasus PAs with effective management	Central Caucasus Planed Protected Area	1. Ecosystem integrity/conservation value 2. Economic/commercial value 3. Tourism 4. Recreation	H: >100,000	M-L	Central government: MoENRP.	Central budget Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	Public awareness raising – DEMO projects						
	1. Awareness raising and capacity building of local population and municipal authorities on ecosystem functions and protection	Municipal	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction Energy source 6. Livelihood support value 7. Cultural value 8. Tourism 9. Recreation	M: 20,000 – 100,000	S-M	Central government: MoENRP, MESD and MES; Municipal governments; CBOs/NGOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	2. Promotion of using Alternative energy sources through implementation of demo project and awareness raising campaigns *(Please see more details under objective 6)*	Municipalities ; Villages; Households.	1. Human health 2. Drinking water supply 3. Ecosystem integrity/conservation value 4. Economic/commercial value 5. Disaster Risk Reduction 6. Energy source 7. Livelihood support value 8. Cultural value 9. Tourism 10. Recreation	M: 20,000-100,000	S-M	Central government: MoENRP and Ministry of Energy; Municipal governments; NGOs/CBOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	3. Establishment of fish farms or cooperative farms, including hatchery, nursery and grow-out facility	Communities, Farmers	1. Ecological value 2. Economic/commercial value 3. Livelihood support value 4. Aesthetic/recreational value 5. Cultural value 6. Tourism	H: > 100,000; (~4 demo-projects, ~200,000 for each project)	S-M	Municipal governments; CBOs/NGOs; Private Sector.	Local budgets; Private sector; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).

		4. Establishment of hunting farms	Communities	1. Ecological value 2. Economic/commercial value 3. Livelihood support value 4. Aesthetic/recreational value 5. Cultural value 6. Tourism	H: > 100, 000; (~2 demo-projects, ~200,000)	S-M	Municipal governments; CBOs/NGOs; Private sector.	Local budgets; Private sector; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc); Private sector.
	Objective 6: *Sustainable utilization of renewable energy resources*	**Structural measures**						
		1. Implementation of energy efficient measures	Public buildings; Individual households.	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Energy source 6. Livelihood support value 7. Tourism	M: 20,000-100,000 (~10 projects)	S-M	Municipal governments; CBOs/NGOs; Private sector.	Central and local budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private sector.
		2. Construction/renovation of micro to small-size hydropower plants	Municipal; Communities; Households.	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Energy source 6. Livelihood support value 7. Tourism	M-H: - Micro: >20,000; (~6 projects, ~100,000) - Small: >100,000 (~2 projects, ~200,000)	S-M	Regional and municipal governments; CBOs/NGOs; Private sector.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private sector.
		3. Production of wood-waste pellets/briquettes	Municial; Watershed pilot area.	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Energy source 6. Livelihood support value 7. Tourism	M: 20,000 – 100,000 (depending on scale. ~2 projects, ~100 000)	S-M	Municipal governments; CBOs/NGOs; Private sector.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private sector.
		Public awareness raising – DEMO projects						

		1. Promotion of using Alternative energy sources through implementation of demo project and awareness raising campaigns	Municipalitie; Villages; Households.	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Energy source 5. Livelihood support value Cultural value 6. Tourism 7. Recreation	M: 20,000 – 100 000	S-M	Central government: MoENRP; Municipal governments; NGOs/CBOs; Private sector.	Central and local budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private sector.
		2. Installation of solar systems	Public buildings; Individual households.	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Energy source 6. Livelihood support value 7. Tourism	M: 20,000-100,000; (~7projects, ~20,000 for each project)	S	Municipal governments; CBOs/NGOs; Private sector.	Central and local budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private sector.
		2. Construction of biogas digesters	Households; Communities.	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Energy source 6. Livelihood support value 7. Tourism	M: 20,000-100,000 (<20 000; for one project, ~5-7 project)	M	Municipal governments; CBOs/NGOs; Private sector.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private sector.
	Objective 7: *Reduction of land degradation through application of sustainable land management practices*	**Structural measures**						
		1. Reclamation of pastures and grasslands	Watershed pilot area – Municipalities /Communities	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value 6. Agricultural Production	H: >1, 000, 000	M-L	Central government: MoENRP and MoA; Municipal governments; CBOs/NGOs; Private sector.	Central and local budgets; Development agencies (USAID, UNDP, EU, bi-lateral donors,GIZ, Sida, etc.); Private sector.
		2. Implementation of land reclamation measures of eroded	Communities	1. Human health 2. Ecosystem integrity/conservation value	H: >100,000	L	Central government: MoENRP and	Central and local budgets;

	agricultural lands through the use of bio fertilizers, etc.		3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value 6. Agricultural Production			MoA; Municipal governments; CBOs/NGOs; Private sector.	Development agencies (USAID, UNDP, EU, bi-lateral donors, GIZ, Sida, etc.); Private sector.
	3. Carry out activities against land erosion - terracing, using no-tillage technologies, planting trees, grasses, etc.	Communities	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value 6. Agricultural Production	H: > 100,000 (~2 demo-projects, ~200,000)	L	Central government: MoENRP and MoA; Municipal governments; CBOs/NGOs; Private sector.	Central and local budgets; Development agencies (USAID, UNDP, EU, bi-lateral donors, GIZ, Sida, etc.); Private sector.
	Non-structural measures						
	1. Introduction of effective land/ agricultural land management policy and its implementation mechanisms (land use zoning, land inventory and monitoring, land use fees, land allocation, etc.)	National	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value 6. Agricultural Production	M: 20,000 – 100,000	M	Central government: MoENRP and MoA);NGOs/CBOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	2. Conducting an inventory of eroded and degraded agriculture lands	National Municipal	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value 6. Agricultural Production	M: 20,000 – 100,000	M	Central government: MoA and MoA; NGOs/CBOs.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	3. Setting up regular state monitoring network for soil quality	National Municipal	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value	H: >100,000	M-L	Central government: MoA and MoA; Local authorities NGOs/CBOs.	Central and/or budget; Development agencies (USAID, UNDP, EU,

			6. Agricultural Production				bilateral donors, GIZ, Sida, etc.).
	Public Awareness raising – DEMO projects						
	1. Awareness raising and capacity building of local population and municipal authorities on ecosystem functions and protection, sustainable land management and traditional agricultural practice	Municipal	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value 6. Agricultural Production	M: 20,000 – 100,000	S-M	Central government: MoENRP, MESD and MoA; Municipal government CBOs/NGOs.	Central and/or budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	2. Reclamation of pastures and grasslands	Communities	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value 6. Agricultural Production	M: 20,000 – 100,000 (≈20,000-50,000 for each project)	S-M	Municipal governments; CBOs/NGOs; Private sector.	Central and local budgets; Development agencies (USAID, UNDP, EU, bi-lateral donors, GIZ, Sida, etc.); Private sector.
	3. Implementation of land reclamation measures of eroded agricultural lands through the use of bio fertilizers, etc.	Communities	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value 6. Agricultural Production	M: 20,000 – 100,000 (≈20,000-50,000 for each project)	S-M	Municipal governments; CBOs/NGOs; Private sector.	Central and local budgets; Development agencies (USAID, UNDP, EU, bi-lateral donors, GIZ, Sida, etc.);

							Private sector.
	4. Carry out activities against land erosion - terracing, using no-tillage technologies, plantingtrees, grasses, etc.	Communities	1. Human health 2. Ecosystem integrity/conservation value 3. Economic/commercial value 4. Disaster Risk Reduction 5. Livelihood support value 6. Agricultural Production	M: 20,000 – 100,000 (≈20,000-50,000 for each project)	S-M	Municipal governments; CBOs/NGOs; Private sector.	Central and local budgets; Development agencies (USAID, UNDP, EU, bi-lateral donors, GIZ, Sida, etc.); Private sector.
Objective 8: *Promotion of organic/ traditional agriculture*	**Non -structural measures**						
	1. Development of Central policy and its implementation mechanisms on Georgian agro-Biodiversity and Regulating GMO Materials and products	Watershed pilot area	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Livelihood support value 5. Agricultural Production 6. Cultural value 7. Tourism	H: > 100,000	M-L	Central government: MoENRP and MoA; Local government; International and/local NGOs.	Central budget; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	Public Awareness raising – DEMO projects						
	1. Establishment of traditional organic farms	Communities–farmer's level	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Livelihood support value 5. Agricultural Production 6. Cultural value 7. Tourism	H: > 100,000 20,000 – 100,000 per project (~10 demo-projects, ~200,000)	S-M	Municipal governments; CBOs/NGOs; Private sector.	Local budgets; Private sector; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	2. Introduction of seed materials to re-establish production of traditional endemic species	Watershed pilot area	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Livelihood support value 5. Agricultural Production 6. Cultural value 7. Tourism	M: 20,000 100,000; Demo's: 20,000 – (~5 demo-projects, ~100,000)	S-M	Municipal governments; CBOs; Private sector.	Local budgets; Private sector; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc).
	3. Establishment of herbal farms	Communities–farmer's level	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Livelihood support value	M: 20,000 – 100,000 (~6 demo-projects,	S-M	Municipal governments; CBOs; Private sector.	Local budgets; Private sector;

				5. Agricultural Production 6. Cultural value 7. Tourism	~100,000)			Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).
	Objective 9: *Development of eco, agro and cultural tourism potential*	**Public awareness – Demo projects**						
		1. Ecotourism development supportive activities - arranging tourist trails, shelters, picnic and camping areas, panoramic views, wildlife tracking spots, placing sign boards and banners, etc.	Central Caucasus Planed Protected Areas	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Livelihood support value 5. Cultural value 6. Tourism 7. Recreation	M:20,000 – 100,000 (3 projects, ~60,000)	S	Central and regional governments; Private sector.	Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private Sector.
		2. Establishment of environmentally friendly technologies for hotels and guest houses	Central Caucasus Planed Protected Areas	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Livelihood support value 5. Cultural value 6. Tourism 7. Recreation	M: 20,000-100,000 (~5 projects, ~100,000)	S		Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.); Private Sector.
		3. setting up of waste collection system at tourist trails, shelters, picnic and camping areas, panoramic views, wildlife tracking spots	Central Caucasus Planed Protected Areas	1. Health protection value 2. Ecological value 3. Economic/commercial value 4. Livelihood support value 5. Cultural value 6. Tourism 7. Recreation	M: 20,000-100,000 (~3 projects, ~150,000)	S		Central and local budgets; Development agencies (USAID, UNDP, EU, bilateral donors, GIZ, Sida, etc.).

3.2.2 Management and Funding Mechanisms

This IWMP (Table 1) for the upper Rioni pilot watershed area includes the list of responsible agents for each suggested measure. To make proper recommendations, the possible responsible/management organizations were categorized as: a) those practiced by governmental structures such as central, regional and municipal governments (e.g. MoENRP, MRDI, Racha Governor's office, United Water Supply Company of Georgia (UWSCG), etc.); and b) those practiced by the private sector: businesses, CBOs, international and local NGOs, eco-clubs and others. For each measure, a number of stakeholders will be involved in the implementation process, with a responsible party identified according to the specifics of its implementation needs and the accepted management practices of the structures listed above.

Potential funding sources are also recommended in the plan. Again, accepted funding practices were considered and the selection of the funding sources for specific measures was made based on the particulars of the type of activity, e.g., for nonstructural measures the potential funding sources are mostly central budget, bilateral and/or multilateral development agencies such as USAID, Sida, EU, the Dutch Government, etc. In some cases, the funds can be supplemented from the local budgets too for these measures. As for the structural measures, the possible funding sources may include but are not limited to: central and local budgets; development agencies (Sida, USAID, EU, etc.); development banks (ADB, EBRD, WB and KfW); multi-lateral development agencies (EU, USAID, etc); private sector – businesses, NGOs, etc.

It should be noted that the current legal and institutional setting does not allow for the management of natural resources within the boundaries of watersheds. Management repsonsibilities over local natural resource bases are dividied between the state government and local municipalities. Therefore, at this stage the most feasible measure is to create a watershed council with two units in each municipal government covered by this IWMP. It will be an advisory and consultative body for the effective monitoring and update of the IWMP. The council will be composed of local government, community and NGO representatives but will be open to other stakeholders including private buisnesses and donors. The council will be hosted by each local government on a rotational basis.

ANNEXES

Annex 1: List of the target communities selected in the Upper Rioni pilot watershed area

Table 1: Communities and villages in the Ambrolauri municipality

1	**Sadmeli**		**1,602**
		1. Bostana	353
		2.Dzirageuli	372
		3. Kldisubani	292
		4. Sadmeli	585
		5. Gviara	185
2	**Likheti**		**979**
		1. Likheti	417
		2. Uravi	401
		3. Abari	161
3	**Bugeuli**		**904**
		1. Abanoeti	120
		2. Bugeuli	407
		3. Bareuli	97
		3. Gorisubani	51
		4. Kedisubani	69
		5. Jvarisa	160
4	**Nikortsminda**		**765**
		1. Kachaeti	126
		2. Nikortsminda	639
		3. Kharistvala	3
5	**Cheliagele**		**732**
		1. Agara	138
		2. Tlugi	359
		3. Ukeshi	110
		4. Cheliagele	116
6	**Khidikari**		**675**
		1. Kvatskhuti	388
		2. Khimshi	287
7	**Tsesi**		**600**
		1. Mukhli	28
		2. Tsesi	572
8	**Znakva**		**452**
		1. Znakva	155
		2. Motkiari	27
		3. Saketsia	270

Table 2: Communities and villages in the Oni municipality

#	Community	Village	Population
1	**Gebi**		**723**
		1. Gebi	493
		2. Patara Gebi	230
2	**Tsedisi**		**295**
		1. Tsedisi	96
		2. Kvedi	122
		3. Iri	52
		4. Skhanari	5
		5. Kverdula	20
3	**Sheubani**		**486**
		1. Sheubani	160
		2. Lachta	210
		3. Chala	55
		4. Kristesi	1-7 households
		5. Nigvznara	1-7 households
		6. Khirkhonisi	1-7 households
		7. Khuruti	1-7 households
		8. Tsola	1-7 households
		9. Komandeli	61
		10. Skhieri	1
4	**Glola**		**390**
		1. Glola	390
5	**Sakao**		**765**
		1. Sakao	138
		2. Mazhieti	58
		3. Lagvanta	75
		4. Khidashlebi	37
		5. Bortso	28
6	**Gari**		**525**
		1. Gari	465
		2. Tsmendauri	60
7	**Utsera**		**441**
		1. Utsera	315
		2. Nigavzebi	39
		3.Paravneshi	12
		4. Naketi	75

Annex 2: Priority problems identified in the villages of the target communities

Table 1: Target communities of Ambrolauri municipality

Community	Village	Priority problem	Causes of the problems
1. Sadmeli			
	Bostana	Pollution of soil, underground water, rivers, and lakes	1. Improper management of household waste; 2. Domestic waste water discharge into surface water resources
	Dzirageuli	Swamping of the soil in agricultural fields	1. Lack of storm water drainage channels; 2. Natural landscape configuration
		Natural disasters – landslides, mudflows	1. Rising river flow rate during excess precipitation; 2. Absence of river bank protective structures
	Kldisubani	Pollution of soil and underground water	1. Improper management of household waste (absence of waste collection and transportation systems)
		Reduction of forest cover	1. Commercial logging
	Gviara	Pollution of soil, underground water rivers and lakes	1. Improper management of household waste (absence of waste collection and transportation systems); 2. Domestic waste water discharge into surface water resources
		Natural disasters – landslides, mudflows	1. Rising river flow rate during excess precipitation; 2. Absence of river bank protective structures
		Reduction of forest cover	1. Excessive logging.
	Sadmeli	Reduction of forest cover	1. Commercial logging
		Pollution of rivers and lakes	1. Improper management of household waste; 2. Domestic waste water discharge into surface water resources
2. Bugeuli			
	Bugeuli	Poor quality / insufficient quantity of potable water	1. The village received drinking water from the Jvarisa village water supply system; the capacity of the source water is insufficient for two villages, so the water supply is closed for Bugeuli due to lack of water in Jvarisa; 2. Kedisubani village water supply (the second source) is insufficient for the village due to amortized headworks; 3. Water mains and internal networks are depreciated; 4. The collection reservoir of the headwork is polluting the potable water and needs rehabilitation
	Abanoeti	Poor quality / insufficient quantity of potable water	1. Sufficient resources at the source; 2. The water mains and internal network are depreciated; 3. The headwork does not have a storage reservoir; 4. There is no chlorination
3. Znakva			

	Saketsia	Poor quality / insufficient quantity of potable water	1. The headwork is old and needs rehabilitation; 2. The water mains and internal network are depreciated; 3. There is no chlorination
		Seasonal natural disasters – landslides, mudflows (spring and autumn)	1. High level of groundwater; 2. High level of precipitation; 3. Not related to anthropogenic activities; 4. Absence of river bank protective structures
	Znakva	Insufficient quantity of potable water	1. Low water debit at the headwork; 2. Water mains and internal network are depreciated.
		Seasonal natural disasters – landslides, mudflows (spring and autumn) Local population has difficulty getting to the fields due to a damaged bridge on the Bakurtsikhe river.	1. High level of groundwater; 2. High level of precipitation; 3. Not related to anthropogenic activities; 4. Absence of river bank protective structures
4. Likheti			
	Likheti	Poor quality / insufficient quantity of potable water	1. Headworks are amortized; 2. Sufficient resources at the source; 3. Water mains and internal network are depreciated; 4. There is no chlorination
		Seasonal natural disasters – landslides, mudflows (spring and autumn)	1. Rising river flow rate during excess precipitation; 2. Absence of river bank protective structures
	Abari	Seasonal natural disasters – landslides, mudflows (spring and autumn)	1. Rising river flow rate during excess precipitation; 2 Not related to anthropogenic activities; 3. Absence of river bank protective structures
		Poor quality of potable water	1. Headwork is depreciated; pipes and storage reservoir are outdated; 2. There is no chlorination
	Uravi	Pollution of soil, underground water, rivers, and lakes	1. Arsenic deposits and improper management of hazardous waste.
		Seasonal natural disasters – landslides, mudflows (spring and autumn)	1. Rising river flow rate during excess precipitation; 2 Not related to anthropogenic activities; 3. Absence of river bank protective structures
5. Khidikari			
	Kvatskhuti	Natural disasters – landslides in several neighborhoods, mudflows, and flash floods affecting the main road of Ambrolauri and the population	1. Rising river flow rate during excess precipitation; 2. Channels and ravines need cleaning as they do not allow water to run during rainfall; 3. Channels near the roads need cleaning.
		Insufficient quantity of potable water	1. Drinking water sources / springs have disappeared as a result of landslides; 2. Water debit is reduced at the headwork; 3. Potable water is used for irrigation
	Khimshi	Insufficient quantity of potable water	1. Water mains and internal network are outdated; 2. Headworks are damaged and only one source of three supplies water; 3. Sufficient resources at the source

6. Nikortsminda		Seasonal natural disasters – strong landslides, mudflows (spring and autumn)	1. High level of groundwater; 2. Ravines do not allow water to run during rainfall (direction of drainage channels should be changed or new channels built).
		Decrease in agricultural fields	Foresting
	Nikortsminda	Seasonal natural disasters – floods, strong landslides, mudflows (spring and autumn)	1. High level of precipitation; 2. High level of groundwater. 3. Ravines do not let mud flow (ravines get gradually filled during floods)
		Pollution of soil, underground and surface waters	1. Improper management of household waste (absence of waste collection and transportation systems)
		Increased allergies among the population and decrease in agricultural fields	Spread of parasitic plants
	Kachaeti	Seasonal natural disasters – floods, landslides, mudflows (spring and autumn)	1. High level of precipitation; 2. High level of groundwater. 3. Ravines do not let mud flow (ravines get gradually filled during floods)
		Pollution of soil, underground and surface waters	1. Improper management of household waste (absence of waste collection and transportation systems)
		Increased allergies among the population and decrease in agricultural fields	Spread of parasitic plants
7. Cheliagele			
	Cheliagele	Pollution of surface water resources	1. Improper management of household waste (absence of waste collection and transportation systems)
		Reduction in forest cover	Logging for firewood and illegal logging previously
		Poor quality of potable water	1. Poor condition of the headwork;2. Collection reservoir is depreciated and polluted; 3. There is no chlorination
	Agara	Pollution of surface water resources	1. Improper management of household waste (absence of waste collection and transportation systems)
		Reduction in forest cover	Logging for firewood and illegal logging previously
	Ukeshi	Shortage of potable water	1. No water supply system exists (only a spring in the village); 2. Sufficient resources at the source
		Pollution of surface water resources	1. Improper management of household waste (absence of waste collection and transportation systems)
		Shortage of surface water resources	Small rivers dry out seasonally.

8. Tsesi	Tlugi	Poor quality of potable water	1. Water mains and internal network are depreciated (headwork has been rehabilitated); 2. There is no chlorination
		Pollution of soil, underground and surface waters	1. Improper management of household waste (absence of waste collection and transportation systems)
		Reduced biodiversity: fir-tree cones are abundant now but supply may be impacted by collecting	1. Entrepreneurial cone collection; 2. Cones are often collected improperly: twigs with cones are sawed off the tree
	Tsesi	Shortage of potable water	1. Headwork is depreciated and cannot collect water and let it flow; 2. Sufficient resources at the source; 3. High level of loss due to depreciation of water mains and internal network.
		Natural disasters – landslides, and mudflows	1. High level of precipitation; 2. High level of groundwaters (a channel should be built)
		Pollution of surface water resources	1. Improper household waste management. 2. Household and cattle shelter waste water run into small rivers where water flow is very low.

Table 2: Oni municipality target communities

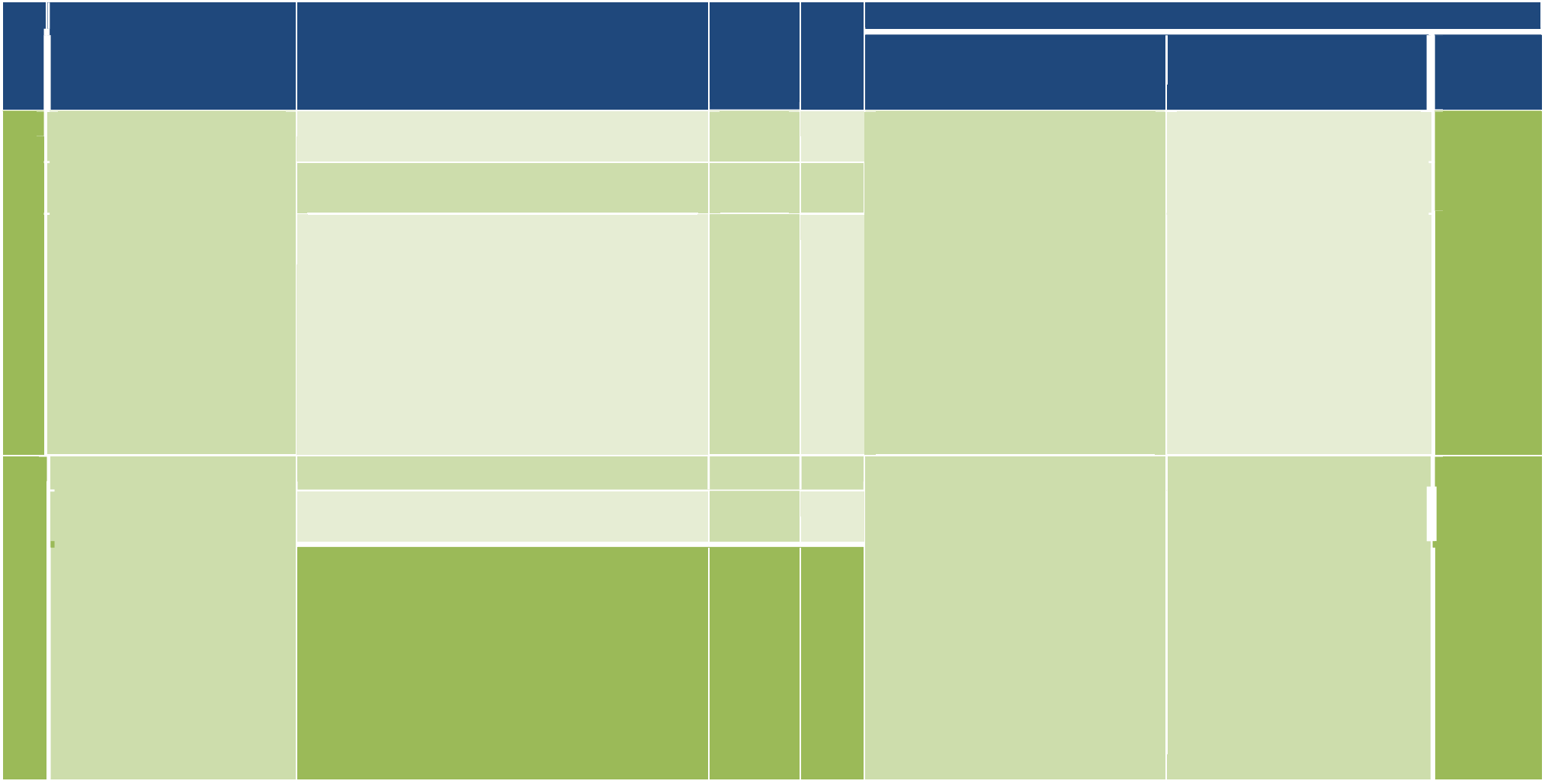
Community	Village	Priority problem	Reasons causing problems
1. Sheubani			
	Sheubani	Poor quality / insufficient quantity of potable water	1. Headwork is completely amortized; 2 Existing underground springs are sufficient for Sheubani, Lachta and other villages; 3. Due to depreciation of the headwork, water is abstracted from surface waters; 4. The storage reservoir of the headwork is damaged and cannot protect the water from pollution. 5. Water mains and internal network are depreciated.
		Natural disasters – mudflows, landslides (roads and population bear loss)	1. High level of precipitation; 2. Without drainage channels the soil gets swampy.
	Lachta	Poor quality / insufficient quantity of potable water	1. Water supply comes from the Sheubani headwork, hence the reasons are the same; 2. Water mains and internal network are depreciated.
		Natural disasters – mudflows, landslides (roads and population bear loss)	1. High level of precipitation; 2. Without drainage channels the soil gets swampy.
		Pollution of surface water resources	1. Household waste water flows into nearby small rivers. 2. Absence of household

			waste collection and transportation system
2. Gari			
	Gari	Seasonal natural disasters – mudflows, landslides in several zones	1. The Garula riverbed is full of sediment from the slopes. 2. Gabions and drainage channels are not operating. 3. Rising water level in the Rioni river
		Poor quality / insufficient quantity of potable water	1. Headwork was built 4 years ago, but existing resources cannot ensure full supply; 2. Additional abstraction from surface water; an underground source within 15 km can increase water debit; 3. The headwork is blocked due to debit shortage; 4. Internal network is outdated; 5. There is no water disinfection
3. Utsera			
	Utsera	Pollution of soil, groundwater and surface water resources (Mushuani river, other small rivers, and the Rioni embankment). The situation worsens in summer.	1. Improper management of household waste (absence of waste collection and transportation systems); 2. Discharge of untreated sewage water into surface water
		Seasonal natural disasters – frequent mudflows and landslides	1. Rising water level in the Mushuani river during heavy rains; 2. Ravines are blocked by falling rocks and do let water flow; 3. Overgrazing near the river embankments.
		Reduction in natural resources – mineral water is drying up at "Napertskala." (License is issued).	1. Earthquakes; 2. Rising water level in the Rioni river
4. Tsedisi			
	Kvedi	Insufficient quantity of potable water	1. Headwork and water mains are outdated; rate of loss is very high; 2. Sufficient resources at the source.
		Pollution of surface waters	1. Improper management of household waste (absence of waste collection and transportation systems); 2. A place for a landfill has not been designated; 3. Waste from wood processing enterprises.
		Natural disasters - landslides	1. Seasonal rains. 2. River beds and ravines are full of waste and ground. 3. Outdated embankment enforcement structures.
	Tsedisi	Insufficient quantity of potable water	1. The three headworks are located in the conflict zone (in territory controlled by Georgia). 2. Headworks are old and cannot ensure the water supply for whole village. 3. Sufficient resources at the source
		Natural disasters - landslides	1. Seasonal high level of precipitation. 2. River beds and ravines are full of waste and earth due to erosion. 3. Outdated embankment enforcement structures.
		Reduction of forest cover	1. Illegal logging and logging for firewood.

	Iri	Insufficient quantity of potable water	1. Headwork, water mains and internal network are old; 2. Sufficient resources at the source
		Pollution of surface water	1. Waste from the barite ore deposit is located near river embankments and is washed into the river during heavy rains
		Reduction of biodiversity – periodic reduction of trout in the rivers	1. River pollution from barite particles
5. Glola			
	Glola	Pollution of soil, underground and surface water resources (The Chanchakhi and Iori rivers)	1. Improper management of household waste (absence of waste collection and transportation systems); 2. Waste is spread from the Shovi resort upstream
		Poor quality / insufficient quantity of potable water	1. Internal network of water supply system needs rehabilitation.
		Biodiversity – withering of firs and other types	1. Spread of a parasite insect - Dendroctonus micans.
6. Sakao			
	Sakao	Natural disasters – floods, landslides	1. During heavy rains, water levels increase in the Sakaura, Bodeura, Khojora rivers; 2. Ravines are full of earth, waste, etc.; 3. Logging; 4. Overgrazing; 5. Absence of drainage channels
		Shortage of potable water	1. Headwork is old. 2. The capacity of the collection reservoir of the headwork is not sufficient. 3. Sufficient resources at the source
	Khideshlebi	Natural calamities - worse floods and landslides than in Sakao	1. During heavy rains, water levels increase in the Sakaura, Bodeura, Khojora rivers; 2. Ravines are full of earth, waste, etc.; 3. Logging; 4. Overgrazing; 5. Drainage channels need rehabilitation
		Insufficient quantity of potable water – especially in one neighbourhood	1. Headwork is old. 2. Network needs rehabilitation.
7. Gebi			
	Gebi	Poor quality / insufficient quantity of potable water (especially in Patara Gebi); people bring water from 300-400 meters	1. The headwork and system was built about 50 years ago; 2. Sufficient resources at the source. Water resources are sufficient for other villages as well; 3. Water gets polluted from damaged pipes.
		Strong natural disasters – landslides, mudflows and floods	1. Water levels rise in the Rioni, Latkishura, Cheshura and other small rivers. 2. Insufficient embankment enforcement structures

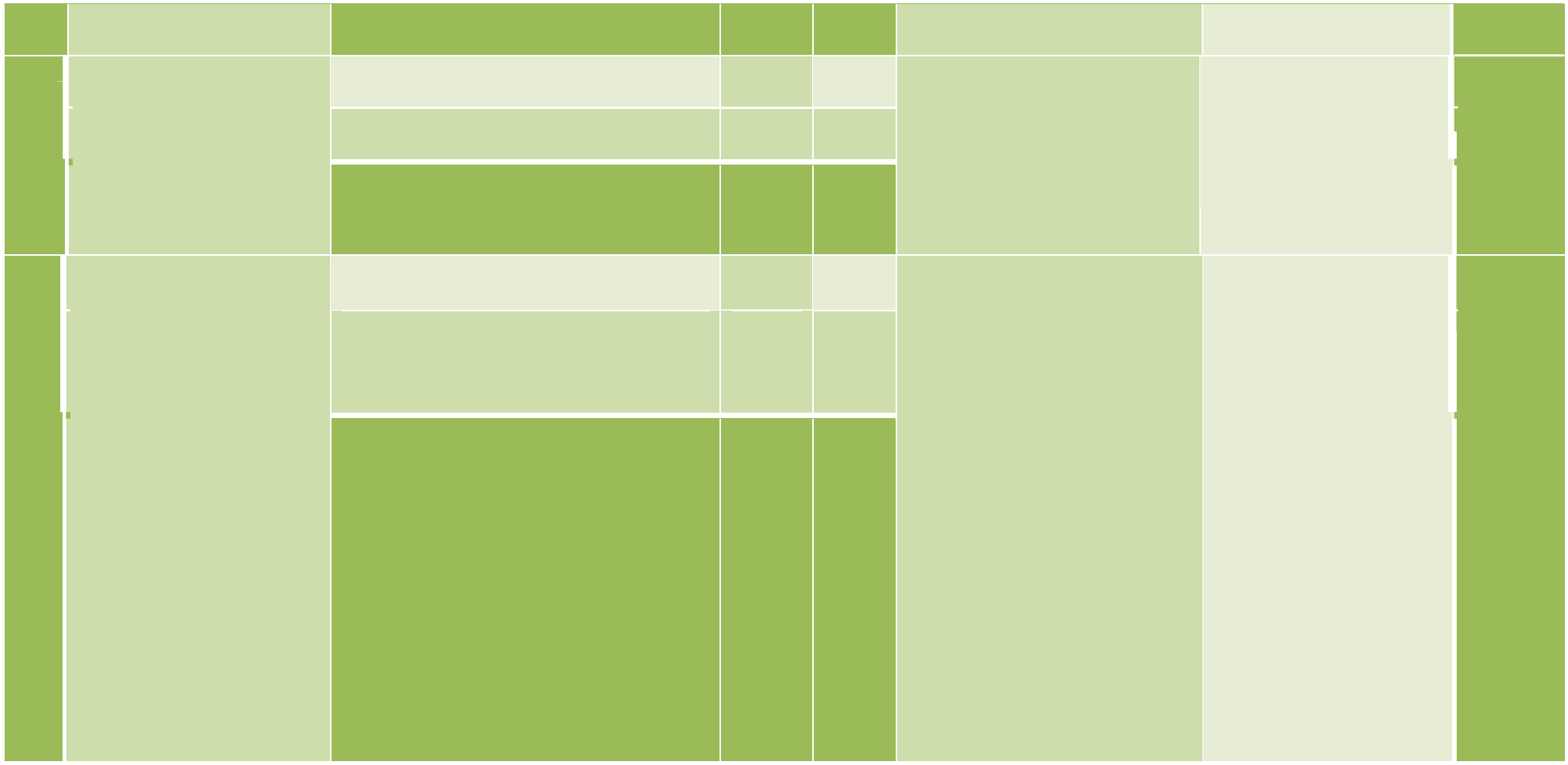
Annex 3: Matrix prioritizing problems identified by experts for Upper Rioni Pilot Watershed Area

Topic: Forest resources

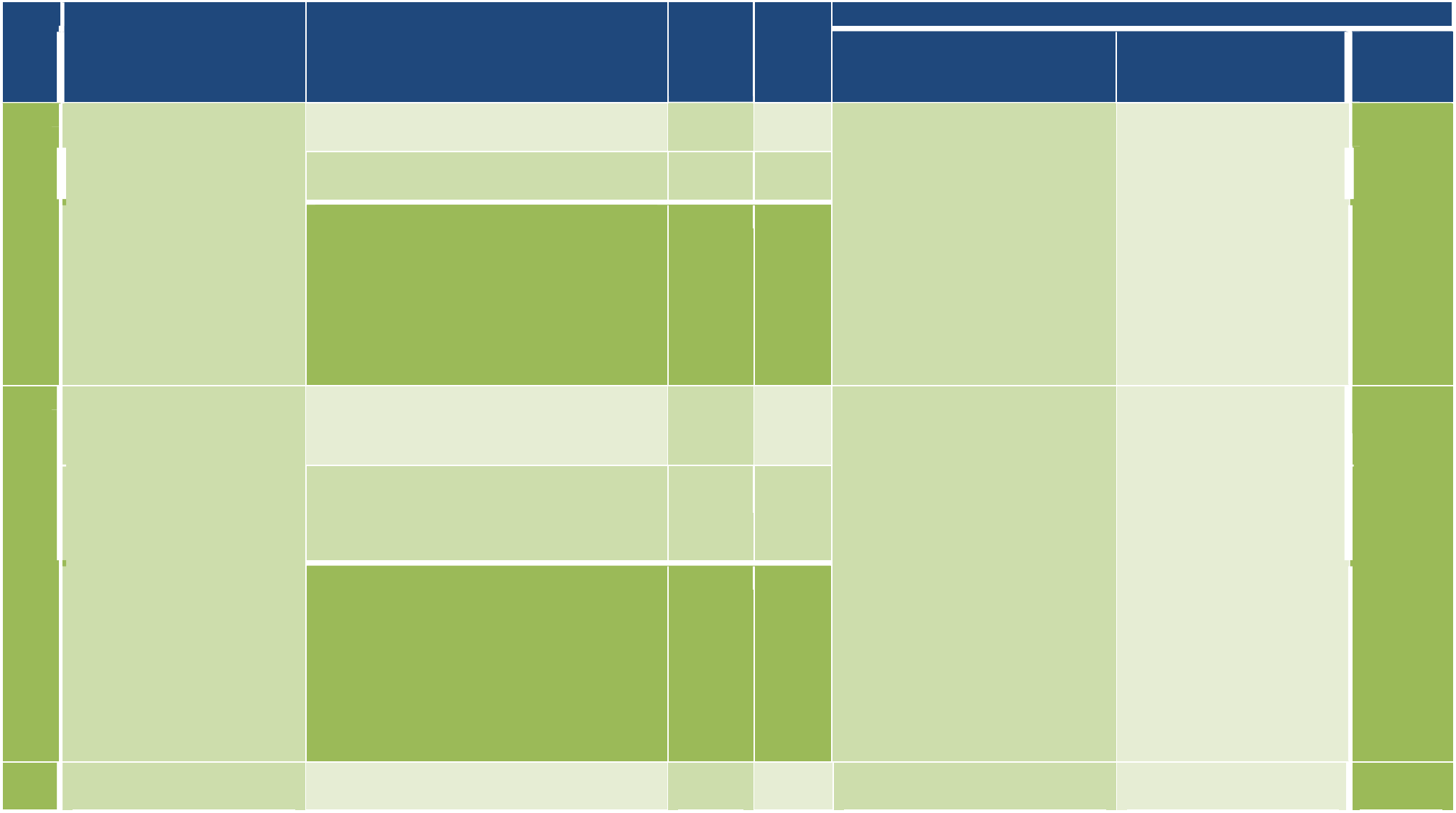


3.	Reduction in timber resources Total score: 18	On the health of the village population	10	6	Unsustainable use of timber resources; Uncontrolled cutting of trees for firewood; Failure to implementation of a monitoring system; underutilization of alternative (renewable) energy resources such as solar energy, wind energy and biogas; There is no set up optimal quota for timber use, that does not exceed the annual increment of timber; Absence of forest maintenance and restoration measures;	Degradation of forests and soil of adjacent territories; sharp decrease of climate and water regulatory functions; Deterioration of water balance and shortening of water resources; Decreasing of biodiversity and extinction of rare species; Ecosystem degradation.	Whole watershed
		On the ecological condition of the whole water catchment area	8	8			
		On socioeconomic conditions: dwellings, infrastructure, and agricultural fields	5	4			

Topic: Land resources



Topic: Waste management



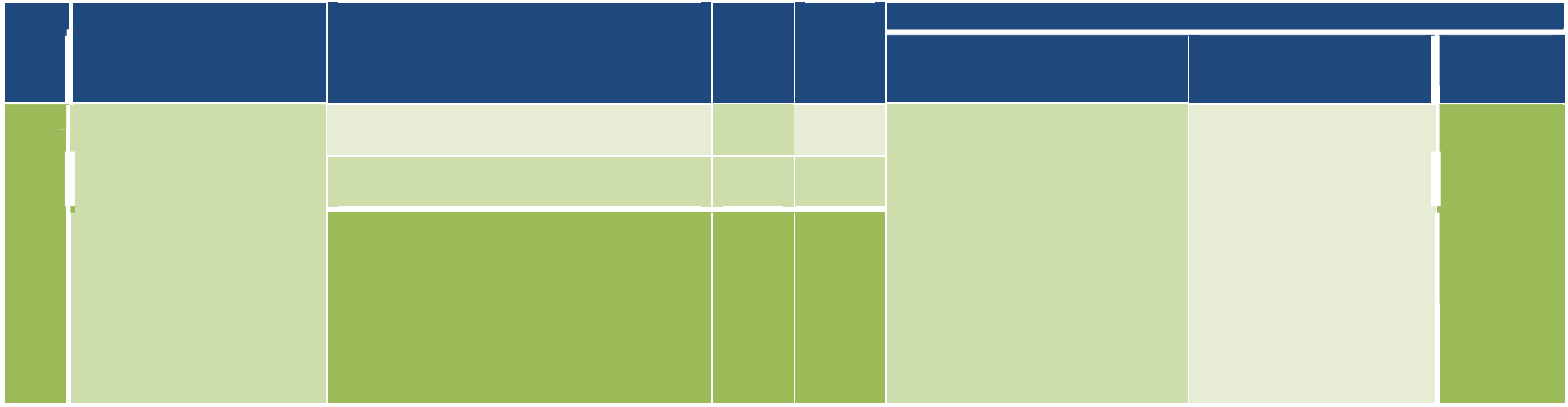
	Total score: 11	On the environment of the whole water catchment basin	8	4	enterprises and stations collecting recyclable materials) Absence of technical equipment (containers, etc.); Low awareness level of local population;	waste in landfills; Loss of land resources for landfills.	
		On socioeconomic conditions: dwelling, infrastructure, and agricultural fields.	**5**	**3**			

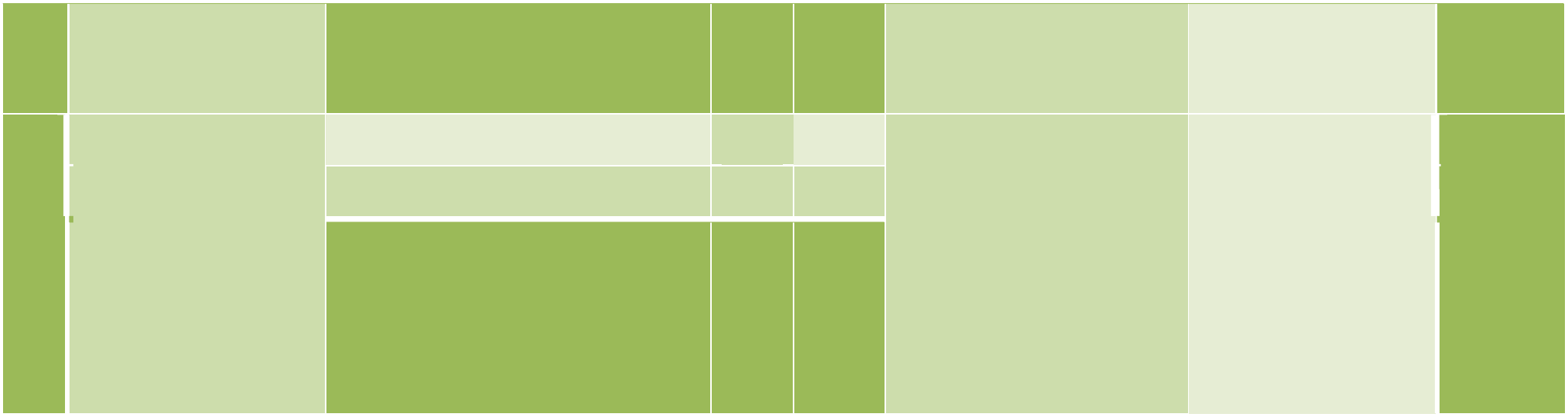
Topic: Water resources

1	Reduction of flood capacity of rivers and development	On the health of population	10	1	Non-systemized logging of forest cover;	Loss of a productive layer of soil and agricultural and	**Municipality**
		[illegible]			[illegible]	[illegible]	
		infrastructure, and agricultural fields			Increased intensity of atmospheric precipitation from climate change;		
		On the health of population	10	8			

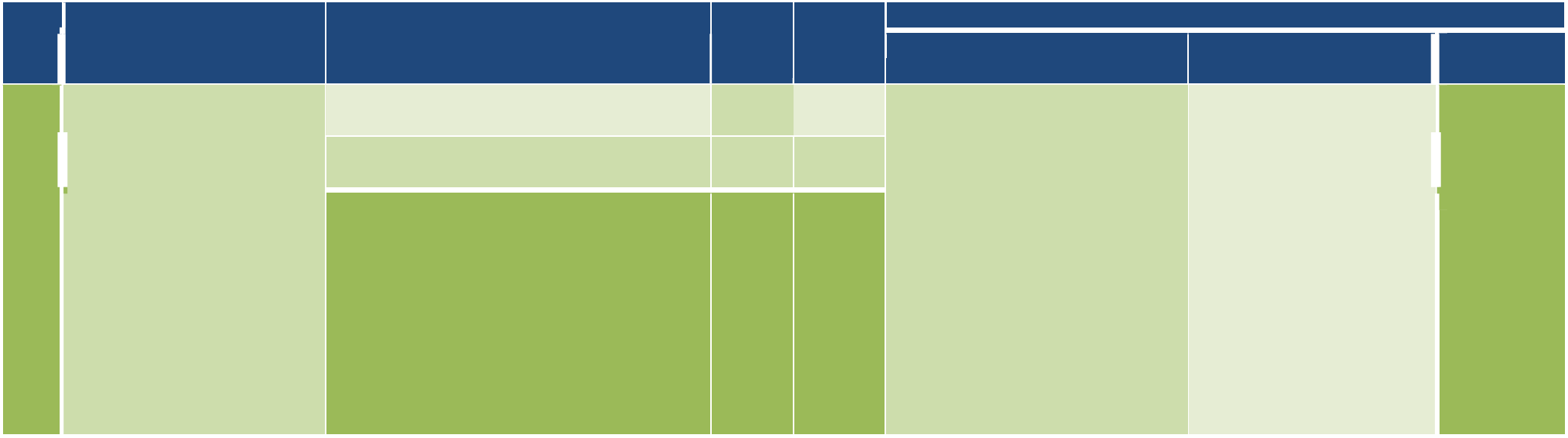
		On socioeconomic conditions: dwellings, infrastructure, and agricultural fields	**5**	**1**	Amortized centralized sewage systems in the cities and absence of waste water treatment plants; Absence of sewage networks in villages; Agriculture and urban runoff Insufficiently treated/untreated industrial wastewater; Poor monitoring systems for ambient water quality (underground and surface); Absence of effective regulations, including standards for wastewater discharges; Absence of a common effective policy on waste management; Poor law enforcement.	surface waters;	

Topic: water supply systems





Topic: Biodiversity



					environmental protection.		

Topic: Agriculture

		Negative impact	score	on	Causes	Negative impacts on other resources	Problem scale
1	Loss of traditional, endemic agricultural species (e.g., lentil, chickpea, flax, wheat) and wide use of GMOs.	On the health of population	10	8	Lack of control of gene-manipulated materials and products; Wide use of mass-production crops;	Agricultural genetic erosion.	National
		On the ecological condition of the whole water catchment area	8	5			
		On socioeconomic conditions: dwellings,	5	3			

Annex 4: Summary of priority problems of the Upper Rioni pilot Watershed Area

#	Area	Priority Issue	Watershed value/function/Service affected by the Issue	Max score	Evaluation
1.	**Forest resources**	1. **Deterioration of overall quality of high conservation value forests;** 2. **Reduction of timber resources** *Underlying causes:* unsustainable use of timber resources, including uncontrolled logging for firewood. *Root causes*: underutilization of alternative energy sources; local population can't afford unlimited access to secure energy sources (gas, electricity, etc.); low awareness of local population about energy saving and efficiency measures; absence of a common forest management policy, effective legislation and regulations; absence of forest inventory and monitoring systems; absence of forest maintenance and restoration measures; absence of an effective law enforcement system.	Human health	40	40
			Drinking water supply	40	40
			Ecosystem integrity/conservation value	40	40
			Disaster risk reduction	40	40
			Hydro-energy	30	25
			Forest resources used as fuel	30	30
			Agricultural production	30	10
			Mineral resources	30	10
			Cultural value	20	20
			Tourism	20	20
			Recreation	20	20
Total score					295

#	Area	Priority Issue	Watershed value/function/Service affected by the Issue	Max score	Evaluation
2.	**Water quantity**	1. **Shortage of drinking** water 2. **Reduction of flood control capacity of rivers** **Other issues that may emerge in a 20-50-year horizon:** 3. **Reduction of annual average river runoff and** 4. **Change in seasonal water flow** *Underlying causes for problem 1*: inefficiency of existing systems due outdated and obsolete technologies and inefficient use of water by consumers. *Root causes*: insufficient capital to rehabilitate existing systems/build new efficient systems; absence of effective water use tariffs and implementation systems (proper institutions, billing and bill collection systems, penalties). *Underlying causes for problem 2*: river bank erosion; river bed sedimentation/silting; change in river morphology. *Root causes*: forest degradation, slope erosion and naturally-occurring tectonic processes; *Underlying and root causes for problems 3 and 4* are climate change.	Human health	40	40
			Drinking water supply	40	40
			Ecosystem integrity/conservation value	40	30
			Disaster risk reduction	40	40
			Hydro-energy	30	30
			Forest resources used as fuel	30	20
			Agricultural production	30	30
			Mineral resources	30	-
			Cultural value	20	20
			Tourism	20	20
			Recreation	20	20
Total score					290

#	Area	Priority Issue	Watershed value/function/Service affected by the Issue	Max score	Evaluation
3.	**Water quality**	**1. Pollution of surface and ground waters.** **2. Pollution of tap water** *Underlying causes for problem 1*: 1. Discharge of untreated wastewaters from point sources of pollution (sewerage systems, industries, etc.) into surface waters; 2. Agriculture and urban runoff; 3.Seepage of leachates from pit latrines and controlled and uncontrolled waste disposal sites (including toxic industrial waste kept in damaged containers in some riverbeds). *Root causes*: 1. Absent or deteriorated sewerage systems; 2. Absence of wastewater treatment facilities; 3. Absence of standards-based sanitary landfills and poor condition of existing landfills; 4. Lack of state finances to rehabilitate/build centralized sewerage systems and construct WWTPs and standards-based landfills; 5. Poor ambient water quality and soil monitoring; 6. Absence of effective regulations, including standards for wastewater discharge; 7. Absence of common effective policy on waste management; 8. Poor law enforcement; 9. Low environmental consciousness in local communities. *Underlying causes for problem 2*: absence of sanitary zones/failure to protect existing zones around water sources; obsolete and damaged infrastructure; absence of tap water treatment in virtually all communities with centralized water supply systems *Root causes*: shortage of funds to rehabilitate existing systems; absence of effective regulations, law enforcement, monitoring mechanisms and local capacity for tap water quality; low environmental consciousness in local communities.	Human health	40	40
			Drinking water supply	40	30
			Ecosystem integrity/conservation value	40	30
			Disaster risk reduction	40	10
			Hydro-energy	30	-
			Forest resources used as fuel	30	-
			Agricultural production	30	20
			Mineral resources	30	-
			Cultural value	20	20
			Tourism	20	20
			Recreation	20	20
Total score					190

#	Area	Priority Issue	Watershed value/function/Service affected by the Issue	Max score	Evaluation
4.	**Waste Manage-ment**	**1. Poor sanitary hygienic condition in urban and rural settlements as a result of waste dumping** **2. Pollution of streams, rivers, ground waters and soils from dumping of wastes in dry ravines, canals and river beds; from seepage of pollutants from the controlled and uncontrolled waste disposal sites – especially the Arsenic-based waste in Lukhuni river bed.** *Underlying cause for problem 1*: Absence of/inadequate waste collection systems in most rural areas. *Root causes*: lack of financial, technical and human resources/capacity to	Human health	40	40
			Drinking water supply	40	30
			Ecosystem integrity/conservation value	40	40
			Disaster risk reduction	40	-
			Hydro-energy	30	-
			Forest resources used as fuel	30	10
			Agricultural production	30	25
			Mineral resources	30	15

		organize effective waste collection, transportation and disposal systems; absence of effective waste collection and disposal tariffs; poor enforcement of tariff payments. *Underlying causes for problem 2:* presence of unsanitary legal and illegal waste disposal sites in urban and rural areas frequently located very close to streams and settlements; improper operation and maintenance of existing waste disposal sites. *Root causes*: lack of capital to build standards-based sanitary landfills and/or properly operate and maintain existing ones; absence of waste recycling and processing capacity; poor law enforcement; low environmental consciousness in local communities .	Cultural value	20	**20**
			Tourism	20	**20**
			Recreation	20	**20**
Total score					220

	Area	Priority Issue	Watershed value/function/Service affected by the Issue	Max score	Evaluation
5.	**Land resources**	**1. Land erosion and degradation** **2. Loss of high productivity agricultural lands** **3. Land pollution.** *Underlying causes for problem 1*: active geo-dynamic processes; intensive, uncontrolled logging; unsustainable agricultural practices; absence of land reclamation measures. *Root causes*: absence of sustainable forest management laws and policies and effective mechanisms for enforcement; lack of funds for implementing erosion control/land reclamation measures; absence of policy/plan for sustainable land management; low awareness of local farmers of sustainable water use and agriculture practices. *Underlying cause for problem 2:* Large areas of high productivity agricultural lands have been unused for years. *Root causes*: absence of effective agricultural land management policy and implementation mechanisms (land use zoning, land inventory and monitoring, land use fees, land allocation, etc.) *Underlying causes for problem 3*: leaching of pollutants from waste dumps, open-pit mines, and pit latrines; urban storm water and agriculture run-off; discharge of untreated wastewaters onto the earth's surface. *Root causes:* absence of regulatory and law enforcement mechanisms for soil quality; absence of effective waste and wastewater control regulatory and/or economic mechanisms; absence of financial, technical and human resources for implementing effective waste management and water sanitation policies.	Human health	40	**40**
			Drinking water supply	40	**35**
			Ecosystem integrity/conservation value	40	**40**
			Disaster risk reduction	30	**40**
			Hydro-energy	30	**10**
			Forest resources used as fuel	30	**10**
			Agricultural production	30	**30**
			Mineral resources	20	**20**
			Cultural value	20	**10**
			Tourism	20	**15**
Total score					250

#	Area	Priority Issue	Watershed value/function/Service affected by the Issue	Max score	Evaluation
6.	Bio-diversity	**1. Degradation of natural ecosystems and biomes through destruction, modification and transformation** **2. Destruction of habitats** **3. Reduction in populations of keystone species.** *Underlying causes*: intensive logging, overgrazing, introduction of invasive species, poaching and unsustainable tourism. *Root causes:* poor biodiversity-related legislation, policy, and planning; weak enforcement of biodiversity and forest management laws and regulations; poor economic conditions in rural communities heavily dependent on local resources for subsistence; low public awareness of environmental protection.	Human health	40	30
			Drinking water supply	40	30
			Ecosystem integrity/conservation value	40	40
			Disaster risk reduction	40	30
			Hydro-energy	30	10
			Forest resources used as fuel	30	20
			Agricultural production	30	10
			Mineral resources	20	-
			Cultural value	20	20
			Tourism	20	20
Total score					210

#	Area	Priority Issue	Watershed value/function/Service affected by the Issue	Max score	Evaluation
7.	Agriculture	**1. Land erosion** **2. Loss of high productivity agriculture lands** **3. Loss of traditional, endemic species (e.g., lentil, chickpea, flax, wheat, etc.)** **4. Wide use of GMOs** *Underlying and root causes for issues 1 and 2* are discussed above in land resources. *Underlying cause for problem 3* :wide use of mass-production crops *Root causes:* absence of state policy and implementation mechanisms on agro-biodiversity; loss of local knowledge of traditional agriculture. *Underlying cause for problem 4*: wide availability and low price of GMO seeds and products compared to ecologically clean seeds and products. *Root causes*: absence of legal, policy and institutional frameworks for regulating GMO materials and products and low public awareness.	Human health	40	35
			Drinking water supply	40	-
			Ecosystem integrity/conservation value	40	30
			Disaster risk reduction	40	30
			Hydro-energy	30	-
			Forest resources used as fuel	30	-
			Agricultural production	30	30
			Mineral resources	30	-
			Cultural value	20	20
			Tourism	20	20
			Recreation	20	20
Total score					185

Annex 5: Identification of Priority Measures for Upper Rioni Pilot Watershed Management Plans - Matrix

Integrated Natural Resources Management in Watersheds (INRMW) of Georgia Program
Identification of Priority Measures for Upper Rioni Watershed Management Plans

Group				
#	Measures	Criteria - Positive Impact on	Maximum possible	Given points
1	Rehabilitation/construction of water supply systems	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
2	Construction of small-scale noncentralized treatment systems	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
3	Construction/rehabilitation of on-site waste water sewerage systems for the municipal centers	Population health	5	

		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
4	Construction of on-site waste water treatment facilities for the municipal centers	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
5	Implementation of river bank/erosion protection measures	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
6	Construction/rehabilitation of drainage channels	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	

		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
7	Improvement of waste collection system	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
8	Implementation of hazardous waste disposal site remediation/reclamation measures	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
9	Existing waste disposal site/landfill protection/ improvement measures	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	

		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
10	Construction of new municipal solid waste landfill	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
11	Arranging waste segregation and processing facility in existing/new landfill site	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
12	Construction of municipal/medical waste incinerator	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	

		Total		
13	Conservation of the existing landfills/waste disposal sites	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
14	Afforestation/reforestation activities	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
15	Establishment of tree nurseries	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		

16	Establishment of farms for utilizing forest non-timber resources	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
17	Establishment of traditional/organic farm(s)	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
18	Establishment of hunting farm(s)	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		

19	Establishment of fish farm(s)	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
20	Implementation of low-cost energy efficiency measures (thermo insulation, furnaces of complete burning)	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
21	Rehabilitation/construction of micro to small hydropower plants	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		

22	Installation of solar systems	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
23	Construction of biogas digesters	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		
24	Production of woodwaste pellets/briquettes (construction of pellet/briquette mill or installation of pellet/briquette production line)	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		

25	Eco-tourism development supportive measures (setting up tourist trails, shelters, picnic and camping areas, panorama views, wildlife viewing spots, placing signboards and banners, etc.)	Population health	5	
		Environment (ecosystems like forests, plains, floodplains, animal species and their habitats)	3	
		Social-economic conditions: (homes, infrastructure, agriculture lands, etc.)	3	
		Total		

List of participants
Names:
1.
2.
3.
4.
. . .

Annex 6: List of Participants and Agenda of the Workshop on Identification of INRMW Priority Actions, Upper Rioni Pilot Watershed Area

Integrated Natural Resources Management in Watersheds (INRMW) of Georgia Program

The workshop is organized by GLOWS consortium members - ***Representative Office of Florida International University in Georgia*** (ROFIU-GE) and ***CARE International in Caucasus*** (CARE) with contentwise contribution from all INRMW partners

The purpose of the Workshop on Identification of INRMP Priority Actions is to discuss the INRMP potential interventions with local stakeholders and prioritize them through stakeholder participation

Participants - local government authorities, trustees, CBO and CBO incentive group representatives of selected communities of Oni and Ambrolauri Municipalities, USAID, INRMW program team

12.00-12.30 Registration
12.30-13.15 Welcomming by ROFIU-GE and Care, introduction of participants
13.15-13.45 Presentation of watershed interventions, ROFIU-GE team
13.45-14.00 Q&A, discussion
14.00-15.00 Break
15.00-15.30 Presentation of IRNMP actions prioritization methodology, including criteria, INRMP Team Leader
15.30-16.00 Q&A
16.00-17.00 INRMP actions prioritization exersice (work in 2/3 break-up groups)
17.00-17.45 Five minute Presentations by breakup groups, Q&A
18.00 Wrap-up and closing remarks

#	Name/Title
1	Mariam Shotadze, USAID/GLOWS INRMW Program Country Director, ROFIU-GE
2	Eliso Barnovi, USAID/GLOWS INRMW Program Country Deputy Director, ROFIU-GE
3	Ekaterina Shalutashvili, USAID/GLOWS INRMW, Communications Officer/Translator. ROFIU-GE
4	Malkhaz Adeishvili, USAID/GLOWS INRMW Program Community Engagement Component, Grants Manager, Care International
5	Nino Kikabidze, USAID/GLOWS INRMW Program Community Engagement Component, Field Coordinator, Care International

6	Giorgi Shamugia, USAID/GLOWS INRMW Program Community Engagement Component, Community Mobilizer, Care International
7	Malkhaz Talakhadze, USAID/GLOWS INRMW Program Community Engagement Component, Community Mobilizer, Care International
8	Kote Gamkrelidze, USAID/GLOWS INRMW Program Community Engagement Component, Community Mobilizer, Care International
9	Mariam Bakhtadze, USAID/GLOWS INRMW Program Energy Analysis Component, Team Leader, Winrock International
10	Irakli Kobulia, USAID/GLOWS INRMW Program DRR and CC component, Manager, CENN
11	Paata Shanshiashvili, USDoI-ITAP, Manager
12	Neli Javakhishvili, USAID/GLOWS INRMW, Project Assistant/Translator
13	Tariel Tchelidze, Trustee of Sadmeli Community, Ambrolauri Municipality
14	Gaga Mikiashvili, Member of CBO“Znakva 2012”
15	Giorgi Vakhtangadze, Trustee of Bugeuli Community, Ambrolauri Municipality
16	Badri Nameladze, Trustee of Tsesi Community, Ambrolauri Municipality
17	Gocha Omanidze, Trustee of Khidikari Community, Ambrolauri Municipality
18	Giorgi Agladze, Assistant to Trustee of Khidikari Community
19	Tamaz Shautidze, Assistant to Trustee of Sadmeli Community, Ambrolauri Municipality
20	Nodat Beshidze, Member of Likheti CBO, Ambrolauri Municipality
21	Iuri Chaladze, Member of Likheti CBO, Ambrolauri Municipality
22	Shalva Melashvili, Specialist, Likheti Community, Ambrolauri Municipality
23	Larisa Kharebashvili, Member of v. Glola CBO, Oni Municipality
24	Grigol Berishvili, Trustee of Glola Community Oni Municipality
25	Mamuka Kavlashvili Member of CBO Village of Sheubani, Oni Municipality
26	Kakhaber Chikviladze Trustee of Sheubani Community Village of Sheubani, Oni Municipality
27	Ivane Berelidze Member of CBO Village of Sakao, Onu Municipality

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