PROJECT DOCUMENT

Georgia Waters - Capacity Building on the Water Monitoring and Management in Georgia (Georgia Waters)

Submitted by the Finnish Environment Institute
in cooperation with
the National Environmental Agency of Georgia

SYKE

CONTENTS

LIST OF ABBREVATIONS

AP	Action plan
BOD	Biological oxygen demand
CEEN	Caucasus Environmental NGO Network
COD	Chemical oxygen demand
DEMMS	Development of Environmental Monitoring and Management System in Georgia, Finnish project 2007-2008.
EAP	Environmental Action Programme
EECCA	Eastern European, Caucasus and Central Asian countries
EC	European Commission
EPMD	Environmental Pollution Monitoring Department
EPR	Environmental performance review
FinWaterWEI	Programme for Finland's Water Sector Support to the EECCA Countries
ICI	Institutional Cooperation Instrument of the Finnish MFA
ICZM	Integrated Coastal Zone Management
IWRM	Integrated Water Resources Management
MAC	Maximum allowable concentration
MCDA	Multi-criteria decision analyse
MDGs	Millennium Development Goals
MFA	Ministry for Foreign Affairs of Finland
MEP	Ministry of Environment Protection of Georgia
MOU	Memorandum of Understanding
NEA	National Environmental Agency
NEAP	National Environmental Action Plan
NGO	Non-governmental organization
RBM	River Basin Management
REC	Regional Environmental Center for Central and Eastern Europe
SAP	Strategic action plan
SYKE	Finnish Environment Institute (Acronym from the institute's Finnish name Suomen Ympäristö Keskus)
TACIS	Technical Assistance to the Commonwealth of Independent States
UNECE	United Nations Economic Commission for Europe
USAID	U.S Agency for International Development
WEI	Wider Europe Initiative

1. Background and justification[1]

Finland financed a bilateral development co-operation project "Development of Environmental Monitoring and Management Systems in Georgia" (DEMMS) in 2007-2008. The first discussions regarding a possible continuation and its contents were held during the Study Visit of the DEMMS project to Finland in June 2008. In September 2008 the Minister of Environment Protection and Natural Resources Mr. Irakli Ghavaladze sent a letter on possible future co-operation in the water sector to the Finnish roving ambassador in Georgia in accordance with the preliminary Institutional Co-operation Instrument (ICI) procedures. The project preparation started during the project preparation mission to Georgia in October-November 2010.

This project document for the project "Georgia Waters – capacity building on the Water Monitoring and Management in Georgia, 2011-2013" has been prepared in close cooperation with the Georgian environmental authorities and is based on the experiences and the thorough mutual understanding of the future needs of Georgia in the water monitoring sector gained during the implementation of the DEMMS project and also on the discussions with Georgian environmental authorities during the preparation mission to Georgia. The agencies participating in and responsible for the cooperation are from the Georgian side the National Environmental Agency (NEA) and from the Finnish side the Finnish Environment Institute (SYKE).

The project will be implemented by using the Institutional Cooperation Instrument (ICI), which in particular stresses the capacity development aspects of the financed projects. The project is also part of the project portfolio of the "Strategic Cooperation Programme for Finland's Water Sector Support to the EECCA countries 2009-2013" (FinWaterWEI), financed by the Finnish Ministry for Foreign Affairs (MFA). FinWaterWEI is a flagship programme under MFA's Wider Europe Initiative (WEI) that strengthens Finland's development policy through a comprehensive approach to Finland's development cooperation in the EECCA countries. The FinWaterWEI Programme contains various types of activities, including institutional capacity building activities between organisations in Finland and in the EECCA countries. The themes of the Programme are:

- Water and health
- Transboundary waters
- Monitoring, reporting and assessment
- Climate change
- Dam safety

The overall objective of the institutional cooperation with Georgia is to improve the status of waters and water ecology and minimize the negative effects of climate change for the benefit of the Georgian economy, public health and sustainable development. The immediate purpose of the project is to strengthen the capacity of the National Environmental Agency (NEA) to monitor and manage surface waters in line with the principles of Integrated Water Resources Management (IWRM) and other international guidelines, namely UNECE Guidance on Monitoring and Assessment of Transboundary Rivers and Protocol on Water and Health.

[1] The main publications used as source material in this project document are:

- National Environmental Action Plan of Georgia (Ministry for Environmental Protection and Natural Resources, Tbilisi, 2010).
- National Report on the State of the Environment of Georgia 2007-2009 (Ministry for Environmental Protection and Natural Resources, Tbilisi, 2010).
- Environmental Performance Review of Georgia 2010 (UN, Economic Commission for Europe)

The National Environment Agency (NEA) is a Legal Entity of Public Law under the Ministry of Environment Protection of Georgia (MEP) and the authorized body for the national environmental monitoring in Georgia. The laboratories attached to the NEA are supplied with modern and reliable equipment. During the past years NEA has successfully taken part in many international projects financed by EU, USAID and other donors like Finland. The Finnish Environment Institute (SYKE) has in its turn participated in many countries in projects dealing with environmental monitoring and management, institutional strengthening, capacity building, transboundary cooperation and implementing the IWRM approach. SYKE's experience of the cooperation with NEA during the DEMMS project was very positive and this good cooperation was also highlighted in the Evaluation of the Finland's Development Cooperation in Central Asia and South Caucasus (MFA evaluation report 2009:1). This earlier cooperation gives NEA and SYKE a good basis for cooperation also in this proposed ICI project. Both institutes are also responsible for approximately the same environmental monitoring tasks, so the starting point for effective project implementation is very good.

Environmental policy making and state of the environment in Georgia

Since 2004 the Government of Georgia has been undertaking radical reforms in a number of key sectors. Liberalization of the economy and stimulation of economic growth, attracting foreign investments, creating a robust investment environment through regulatory reform and job creation as well as rapid infrastructural development and energy security are the major political priorities of the Government of Georgia. The initiatives implemented by the government have resulted in visible improvements and positive trends in many sectors. The economic growth brings wealth as well as considerable pressure on natural resources and the environment. Simultaneously, poverty drives people to unsustainable practices in collecting fuel wood, in grazing, and in consuming water resources. Internationally, Georgia has signed several environmental agreements, both globally and regionally, resulting in international obligations and access to international scientific and technological knowledge and funds.

In the Georgian National Environmental Action Plan (NEAP 2010) it is stated that due to insufficient monitoring of surface waters, the data for surface water conditions are limited. Water resources are managed according to a conventional model, based on administrative boundaries. Water policy, represented by numerous legislative acts, does not have clearly defined objectives which would direct towards restoration and maintenance of the ecological functions of water bodies. In other words, water policy is not target-oriented like the modern international approaches are. In addition, water management problems are linked to legislative inconsistencies. Water-related responsibilities are scattered among different state institutions, while horizontal as well as vertical cooperation and coordination between these institutions is not very strong. In some cases, responsibilities are vaguely defined and there are certain overlaps.

In order to effectively manage water quality, it is necessary to regularly collect monitoring data and assess water status in water bodies. This information is essential for planning measures to improve water quality where needed. The scarcity of basic hydrological and water pollution data in Georgia does not allow for drawing a comprehensive picture of surface water conditions. Only 29 hydrologic stations, out of the 140-160 functioning during the 1940s-1970s, are operational today. The stations are poorly equipped; only 7 stations have been rehabilitated and equipped recently. Monthly monitoring of physical-chemical quality parameters are carried out on only 22 rivers in comparison to the 72 rivers that were monitored until 1990s. In total, 33 parameters are measured, mainly inorganic ones. Although equipped recently, all three existing laboratories lack human resources and laboratory reagents.

In order to make the water management more effective, it is necessary to shift to more effective and sustainable water management models such as IWRM, which provides a strategic approach and ensures long-term sustainable water governance. River basin management (RBM) is the first step for successful implementation of IWRM. This approach provides unified management of all types of water bodies, including groundwater. In addition, RBM incorporates spatial planning and land use. Simultaneously,

consideration is given to the interests of all water user sectors as well as to the ecosystem. Public participation and stakeholder involvement, which are important parts of RBM, help to avoid conflicts and ensure more effective water use.

The Georgian NEAP for 2011-2015 describes long-term goals for eleven environmental themes: 1) Water resources, 2) Ambient air, 3) Waste and chemicals, 4) Black Sea, 5) Biodiversity and protected areas, 6) Forests and Forestry, 7) Land resources, 8) Mineral resources and groundwater, 9) Disasters, 10) Nuclear and radiation safety, and 11) Climate Change. The project addresses in particular four of these themes:

Theme	Long-term goal
Water resources	to ensure safe water quality and adequate quantity for human health and aquatic ecosystems
Mineral resources and groundwater	to safeguard the environment and human health from negative environmental impacts associated with the extraction of mineral resources; to ensure provision of safe drinking water to the Georgian people and promote economic development through entering the international market
Disasters	to eliminate the loss of human life; minimize the negative impacts to human health and the environment and minimize economic losses
Climate change	to ensure the security of the Georgian population by developing and implementing measures to respond to climate change and to reduce Green House Gases (GHG)

Water related issues such as floods and scarce and poor quality of the drinking water have already started to have a significant impact on the environment and people in Georgia. These effects will become even more severe in the future for economic development and societal well-being. Sustainable water resources management is important especially in achieving poverty reduction goal and the UN Millennium Development Goals such as to reduce by half the proportion of people without sustainable access to safe drinking water.

The Government of Georgia has made a commitment to bring its laws and practices closer to those of the European Community, including the water protection/management requirements. The objective of this "convergence" process is to support Georgia in its goal of developing economically and socially while maintaining a high level of environmental protection. The EC water related legislation is based on the integrated approach to water management, IWRM. Integrated approach is the key to cost effective and institutionally efficient implementation of the measures needed to ensure adequate quantities and quality of a nation's water resources to achieve sustainability for the future.

Water resources and their status in Georgia

Water resources are abundant in Georgia, comprising significant surface water and groundwater resources. Existing resources are sufficient to meet economic demand and public needs. Water covers 8,765 km² (11 %) of the country. More than 26,000 rivers with a total length of about 59,000 km flow all over the country. Most of them are very small: 97 % with a length of less than 10 km, 99 per cent below 25 km. The Likhi Range divides Georgia into two main river basins. Georgia has also huge groundwater resources in the limestone of Great Caucasus and many aquifers, especially in the lower slope of Great Caucasus and on the plateaux of Akhalkalaki and Marneuli. Renewable groundwater resources are estimated at 573 m3/s, of which 285 m3/s are usable.

The quality of Georgian fresh surface waters often fails to comply with the European water quality standards established for ecological sustainability of the waters. Untreated municipal wastewater is responsible for 65 % of all surface water pollution. Large amounts of nutrients and microbes entering the water bodies from these discharges cause in a long term eutrophication. Microbes have also negative effects on human health, for example, when using the surface water for bathing or untreated water for a drinking water. As of yet, the process of eutrophication has not been noticed in Georgian rivers, mainly due to the high flow rates and low water temperatures. Industrial sectors strongly affecting surface water

quality are mining, oil production and food production. Other serious sources of pollution are unsanitary landfills, illegal dumpsites and agricultural activities.

Due to insufficient monitoring of surface waters, the data on surface water conditions are limited. However, even the limited existing monitoring data indicate that pollution from urban wastewater discharges is a common problem. High levels of ammonia and BOD (Biochemical Oxygen Demand) are reported for most of the observed rivers. Concentrations of heavy metals exceed permissible levels at certain locations on particular rivers.

According to the latest National Environmental Action Plan (NEAP, 2010), the lack of effective water management, absence of effective pollution prevention and water extraction control mechanisms, and poor conditions of municipal wastewater systems are the major problems that Georgia faces with respect to the surface water sector.

The latest National Report on the State of the Environment of Georgia (2007-2009) states that renovation of the sewage network, including the construction of new wastewater treatment plants, and the construction of modern landfills are underway throughout the whole country (including the Black Sea Coastal Zone). These works will significantly reduce pollution loads entering Georgia's waters and improve the water quality in surface water bodies.

Water monitoring in Georgia and NEA's tasks and expertise

Water quality in Georgian lakes is not monitored on a regular basis. Monitoring conducted in 2009 at three Tbilisi recreational lakes has shown levels of the microbiological contamination which exceed allowable limits in some instances. This underlines the urgent need to establish a regular system of lake water quality monitoring and establishing an informing system to keep bathers informed of water quality in recreational lakes. Such monitoring will also help to identify the reasons for poor water quality.

In the water quality monitoring of rivers Georgia cooperates with Armenia in the Debed River catchment area and with Armenia and Azerbaijan in the Kura River catchment area. Since 2009, joint sampling has been conducted four times a year at six observation points in all three countries (four of the points are in Georgia). The interpretation of the data remains a problem owing to differences in MACs (Maximum Allowable Concentrations) in the three countries.

The Black Sea Monitoring Centre in Batumi sporadically monitors some chemical and hydrobiological parameters in sea waters. During the recreational season, the Centre takes bathing water samples at some ten observation points. It analyzes physical and chemical parameters, and zoobenthos, zooplankton and phytoplankton. The biological monitoring data of the Black Sea coastal waters of Georgia show an improvement of the ecosystem (as in the whole Black Sea). The quality of recreational sea waters is generally satisfactory although a number of cases of high levels of pollution were observed close to the river estuaries (Tchorokhi, Supsa, Bartskhana). Municipal wastewaters represent the main cause of pollution of these waters as well.

Groundwater quality monitoring is not currently being carried out. In 2004, the state system of groundwater monitoring that covered some 2,000 observation sites was abolished. Groundwater monitoring data from the 1990s showed that groundwater in many regions of Georgia was polluted by different harmful substances. More than half of the country's population abstracts drinking water from individual groundwater sources (from springs and wells) and uses it without any prior treatment. In view of this, the gradual re-establishment of groundwater quality monitoring is necessary, in particular in the regions within the boundaries of Samegrelo, Tskaltubo, Alazani, Kartli and Marneuli-Gardabani artesian basins.

Overall, water quality monitoring in Georgia still suffers from deficiencies, primarily due to aging monitoring equipment and insufficient funding over the past few years. Some improvements in the measurements were made thanks to the supply of a microbiological laboratory by Finland in 2008 (DEMMS project) and of water monitoring devices by EU/TACIS program in 2009.

At present, environmental monitoring activities are mainly undertaken by NEA which has been established on the basis of the former Hydrometeorological Service. It consists of six departments: Department of Geological Hazards and Geological Environment Management, Department of the Coastline Protection, Department of Spatial Information, Department of Hydrometeorology, Department of Environment Pollution Monitoring, and Administrative Department. The tasks of NEA are as follows:

- Preparation of normative and/or informational documents, forecasts, warnings regarding existing and expected hydro-meteorological and geodynamic processes, engineer-geo-ecological conditions of geological environment and environment pollution conditions;
- Monitoring over hydrodynamic and morpho-dynamic processes in coastline zones, permanent mapping of the territory, risk zoning and forecasting of coastline developments, management of coasting forming processes using engineer activities;
- Creation of environmental databases, metadata and ensuring its organizational management, including e.g.
    - Database on natural components and engineer infrastructure in coastline zones;
    - Database created on the basis of the information kept in geological, geodesic, cartographic and land resource state databases;
    - Database on forest resources;
    - State balance and cadastre database on mineral deposits and exposures;
- Inventorying and registration of industrial and scientific geological activities and participation in inventorying and registration of all types of activities carried out in forest sector of Georgia;
- Steadfast implementation of international liabilities taken by Georgia, in sphere of information distribution, regarding hydrometeorology, environment pollution monitoring, marine and river morpho-dynamics and engineer protection, mineral deposit resources and environment pollution conditions;
- Meteorological maintenance of civil aviation

Since 2003 NEA has reduced the overall number of observation points on the rivers and lakes. The main reason for this has been the lack of financial and human resources. Currently NEA monitors surface water quality at 41 stations on 24 water bodies which is below the requirements of the applicable water monitoring regulations. Permanent monitoring sites are located only on large water bodies. Seasonal observations (from May to September) are made on three additional points on two lakes and one reservoir located near Tbilisi and used for bathing. NEA finds it necessary to urgently increase the number of monitoring sites up to 60 by restoring all abandoned sites and establishing new ones to cover new stationary pollution sources. The current network provides data on a total of 33 chemical parameters. The presence of heavy metals is monitored only in the Kura and Rioni rivers. In 2009, pesticides measurements were introduced at some observation sites. The same year, measurements were extended to 3–4 microbiological parameters at eight points. By the end of 2009, the latter observations were extend to a further 10 observation sites.

SYKE and its expertise

SYKE is both a research institute, and a centre for environmental expertise. SYKE's research focuses on changes in the environment, and seeks ways to control these changes. SYKE expertise is based on long-term environmental monitoring, wide-ranging research results, and the Institute's highly-qualified staff. SYKE's

research programs assess environmental problems from a multi-disciplinary perspective, by integrating socio-economic considerations into scientific research. Research may focus on global environmental issues such as climate change and declining biodiversity, or on regional or local issues. SYKE's experts provide vital expert assistance on a wide-range of environmental issues for administrators, local authorities, industries, firms and other organisations. SYKE is producing detailed environmental assessments drawing on expertise from many fields. SYKE serves as the national centre for environmental data in Finland. The data which is stored in information systems is widely used for environmental monitoring, environmental modelling, forecasting and impact analysis. SYKE co-operates closely with other research institutes, universities, environmental experts and businesses, both in Finland and internationally.

Protection of waters and the scarceness of water resources have in general become important environmental issues in the last decades. In many other parts of the world, especially in developing countries, the situation is steadily getting worse. Climate change, more frequent extreme weather phenomena and population growth are challenges for the entire humankind. SYKE takes actively part in international projects where new local and global solutions to water issues are studied. SYKE e.g. supports water protection and water resources management by multidisciplinary research, by collecting information and by developing assessment tools and sustainable solutions to issues of water supply, wastewater treatment especially in scarcely populated areas, hydraulic construction, and utilization of water resources. SYKE is also responsible for the monitoring and assessment of the quantitative variations of water resources, the status of surface and ground water bodies and various biological variables. Changes in the status of waters are examined from a holistic perspective. The results of SYKE's research are used in socioeconomic evaluations of water-related issues and in making decisions concerning these issues. Among the most frequently used information services of SYKE are the nation-wide hydrological reports and forecasts which are based on extensive database material and on hydrological models.

NEA's needs for the capacity building and the project focus

During the preparation mission to Georgia in October-November 2010, Georgian environmental authorities and other stakeholders were met and in discussions with them the preliminary project goals were approved. These were:

- Adaptation to climate change: capacity building in flood risk management planning
- Promoting the principles of the Protocol of Water and Health (use of the indicators listed in the Protocol)
- Capacity building in the field of transboundary cooperation (cooperation between Georgia and Azerbaijan on Lake Jandar)
- Developing the hydrometeorological model of NEA, capacity building in the operative data handling
- Laboratory and field work capacity building: developing laboratory quality systems, developing the monitoring methods by using Remote Sensing, starting biological monitoring
- Capacity building in the field of strategic decision-making. Using Multicriteria Decision Analysis (MCDA) in water resources management

After this during the discussions with NEA it was agreed that the project "Georgian Waters – Capacity Building on the Water Monitoring and Management in Georgia, 2010-2013" will focus on the following three project components:

- Capacity building on transboundary cooperation of the Lake Jandar
- Adaptation to climate change: capacity building on flood risk management
- Institutional developing of the NEA in the field of environmental monitoring

All these components are among the basic elements of NEA's every day work and important parts of the whole environmental management system of Georgia. NEA's institutional readiness to work with SYKE for

the project is strong. The duration of the project will be around 2,5 years starting in June 2011 and ending in October 2013.

Stakeholders and beneficiaries

- National Environmental Agency, NEA (Georgian project partner)
- Ministry of Environment Protection (MEP) of Georgia

Other stakeholders of the project include:

- Other Environmental monitoring authorities like regional environmental authorities
- Ministry of Health, Labour and Social Welfare (get information of the microbiological status of Georgian waters)
- Ministry of Education and Science (the young students of Tbilisi State University will be asked to take part in the training in Georgia and if possible take part also in the field sampling)
- Ministry of Agriculture (Information about irrigation systems in the area of lake Jandar)

International agencies and donors:
UNDP, USAID, EU/Tacis and others (the project will implement the guidelines of international organisations and if possible work to gether with USAID project on field sampling. The project will deliver its results to these stakeholders and take part to donors' meetings)

Other:
NGOs (the project will work together with NGOs when arranging the Lake Jandar works)
Population in the transboundary water area

2. The objective of the cooperation and the approach

The overall objective of the cooperation is to improve the status of waters and water ecology and minimize the negative effects of climate change for the benefit of the Georgian economy, public health and sustainable development.

The immediate purpose of the project is to strengthen the capacity of NEA to monitor and manage surface waters in line with international standards including the principles of international guidelines, namely the UNECE Guidance on Monitoring and Assessment of Transboundary Rivers and Protocol on Water and Health.

Based on the findings and joint conclusions of the project preparation mission, the following simple logical framework has been designed to guide the implementation of the ICI-project. The frame will be further adjusted during project inception. The approach of the project implementation will be "doing together" and "hands-on" training. During the project three study tours to Finland will be arranged. The focus of study tours will be: Remote Sensing, GIS and data handling, flood risks management and laboratory quality practises.

Table 1. Logical framework of the project

LOGICAL FRAMEWORK

	INTERVENTION LOGIC	INDICATORS	SOURCES OF VERIFICATION	ASSUMPTIONS AND RISKS
OVERALL OBJECTIVE	To get more accurate information of the status of Georgian waters and water ecology and minimize the negative effects of climate change, enhance the cooperation between Georgia and Azerbaidzan on transboundary cooperation, adaption of good practices on water quality monitoring	1. Purpose oriented state of the environment information available for decision making. 2. State of the environment reports produced. 3. Transboundary cooperation between Azerbaidzan and Georgia started. 4. Best practices of laboratory work in use.	1. State of the environment reports 2. Governmental Lake Jandar commission and lake basin stakeholder documents, plans protocols, agreements etc. 3. Laboratory quality books etc. 4. Project Reports and documentation.	1. Sustainable development considered an important goal for Georgia. 2. Georgia continues to harmonize country's environmental legislation with European water legislation.
PROJECT PURPOSE	To strengthen the capacity of the National Environment Agency NEA to monitor and manage surface waters in line with IWRM and UNECE guidance on monitoring and assessment of transboundary waters	1. More effective environmental management system. 2. Data and reports on water issues produced. 3. UNECE guidelines used on transboundary water monitoring.	1. State of the environment reports. 2.Monitoring programs	1. Willingness to implement new monitoring and management methods. 2. Lack of human resources of NEA.
RESULTS	Component I (Capacity building on transboundary cooperation of Lake Jandar) Increased capacity to implement transboundary cooperation between Georgia and Azerbaizan	1. Analysis of existing situation on the Lake Jandar done. 2. Joint monitoring on Lake Jandar started and cooperation between the countries on environmental monitoring strengthened. 3. Information is exchanged and Lake Jandar monitoring data is shared by countries. 4. Expert missions. 5. Training arranged.	1. Joint monitoring program of Lake Jandar prepared and approved by the countries. 2. Lake commission established. 3. Project reports and documentation. 4. Minutes, protocols and relevant records of the meetings. 5. Training reports. 6. www-pages of NEA	1. Political will on both sides of the border. 2. Practical difficulties to arrange joint monitoring on Lake Jandar. 3. Environmental authorities' willingness to provide all the needed information. 4. The quality of data. 5. Lack of human resources.

		6.information about Lake Jandar on www-pages of NEA		6. Security risks (caused mainly traffic) when doing field works and site visits outside Tbilisi. 7. Trained personnel remain at NEA.
	Component II (Adaption to climate change: capacity building in flood risk management planning) Adaption to climate change enhanced through improved capacities on flood risk management	1. Analysis of existing situation on basis of background information (available and relevant data and data needed for the future) of the flood risk management of NEA. 2. Prepare the training plan for the flood risk management and arrange the training.	1. Report of the flood risk management in Georgia and recommendations for the future work on flood risk management. 2. Training plan, number of people trained, training reports.	1. NEA has enough human capacity to continue the work on flood risk management. 2. Poor background data. 3. Trained personnel remain at NEA.
	Component III: (Institutional developing of NEA in the field of environmental monitoring) Improved institutional capacity of NEA on environmental monitoring	1. Field sampling missions arranged 2. More accurate information about the status of Georgian waters. 3. Training on biological and microbiological methods arranged. 4. NEA using Remote Sensing methods on environmental monitoring. 5. Laboratory inter-comparison test done.	1. Sampling reports. 2. Laboratory inter-comparison test reports. 3. Demonstration of operative Black Sea surface temperatures on the www-pages of NEA 3. Number of people trained and training reports.	1. Trained personnel remain at the laboratory. 2. Security risks (caused mainly by traffic) when doing field works and site visits outside Tbilisi.

3. The expected results and activities

The project is divided in three components containing several activities. The three project components are:

1. Capacity building on transboundary cooperation of Lake Jandar
2. Adaptation to climate change: capacity building in flood risk management planning
3. Institutional developing of the NEA on environmental monitoring and quality assurance procedures

3.1. *Component I, Capacity building in transboundary cooperation of Lake Jandar*

General information about and problems related to the Lake Jandar

This lake is located at the border between Azerbaijan and Georgia, in Garayazi flat area at the left bank of the Kura River. 55 % of surface area belongs to Azerbaijan and 45 % to Georgia. Apart from the general information on Lake, the information on the Lake is deemed insufficient. For example, the hydrological regime of the lake has not been studied during about the past 30 years. Regular water monitoring of the lake has not been arranged. Reliable monitoring data would be needed, among others, for the different stakeholders of the lake catchment area, i.e. farmers using the lake water for irrigation, fishermen, recreational users, environmentalists et cetera whose interest can be in serious conflict.

Transboundary agreement between Georgia and Azerbaijan

The article 6 of Agreement between the Governments of Georgia and Azerbaijan Republic on Collaboration in the Environmental Protection (1997) is devoted to transboundary waters, including the Lake Jandar. Both parties have agreed on cooperation for protection of the basin and rational use of water resources of Lake Jandar. Main attention is given to the necessity of cooperation in supporting the boundary area ecosystem which is seriously affected by human activity.

Objective

The main objective of this component is to start regular joint monitoring of the Lake Jandar between Georgia and Azerbaijan by using the guidelines of the UNECE on Monitoring and Assessment of Transboundary Waters. The Lake Jandar has been selected as the object of the transboundary cooperation because both countries see it important and are willing to start the joint monitoring. Lake Jandar is also excellent for training purposes of the project as it locates about 50 kilomenter from Tbilisi and is therefore easy to reach.

Activities

The main activities of the component on the Georgian-Azerbaijan joint monitoring of the lake Jandar are:

- Analyze existing situation on the basis of background information (interviews and meetings of experts responsible for the lake monitoring). Seminars and roundtable discussions between the stakeholders.
- Prepare a monitoring programme for the lake Jandar in collaboration with Georgian and Azerbaijan environmental authorities by applying the UNECE Guidance on Monitoring and Assessment of Transboundary Waters.
- Strengthen the cross border cooperation between Georgia and Azerbaijan in effective transboundary management of water resources of lake Jandar. This will be done in close relation with the Georgian-Azerbaijan Joint Board on environmental protection of the lake.
- Start the regular exchange of water monitoring data on Lake Jandar between Georgia and Azerbaijan.
- Carry out an assessment of chemical, biological and ecological status of the lake.
- Make a socio-economic study (on Georgian side of lake) of the importance of the Lake Jandar for the local inhabitants living in the lake area.

- Make an integrated assessment of different methods to protect the Lake Jandar by using Multi-criteria analysis (MCDA)[2]. The problems of Lake Jandar are complex and the financial resources to improve the situation are quite limited. The use of Multi-Criteria Decision Analysis (MCDA) will give answers and options what are the real possibilities to protect the lake in most effective way and what is needed for that.
- Increase public awareness on the protection of the lake ecosystem.

Results

- Joint monitoring of Lake Jandar started and joint monitoring body between Georgia and Azerbaijan established and works organized
- Strong stakeholder participation and public awareness on measures on protection of the Lake Jandar ecosystem.
- Reports on ecological status of the lake.
- Report on socio-economic study of the importance of the Lake Jandar to local inhabitants.
- Report on the MCDAs: what are the real possibilities to protect the lake in the most effective way.
- Readiness of the staff of NEA to use modern environmental monitoring methods (chemical and biological).
- Training reports
- Number of trained people

The expertise of Finland in the transboundary waters issues

Finland has common transboundary waters with the Russian Federation, Sweden and Norway. During recent decades these waters have been regularly monitored. The monitoring in the transboundary area between Russia and Finland was started in 1966 within the Joint Finnish-Russian Commission. The monitoring focuses on rivers under the impact of waste waters from communities and industry, and from agriculture. SYKE has provided its expertise in the Water Protection Working Group and in the Integrated Water Management Working Group of the Commission. The transboundary River Commission between Finland and Sweden acts as a cooperation and permit authority. This long-term cooperation is promoted by the EU WFD directive that requires the bordering states to manage the transboundary waters together. The national border between Finland and Norway forms the northernmost 715 km long border of the European Union. The Finnish-Norwegian Transboundary Water Commission, established in 1980, acts as a body for cooperation and strives to preserve the good ecological state of the river Tenojoki. The monitoring programs of the transboundary rivers are carried out by local environmental authorities in Lapland.

3.2. *Component II, Adaptation to climate change: capacity building on flood risk management planning*

General information about the climate change and flood risks in Georgia

According to statistical data, the frequency of natural disasters during the last two decades has increased considerably in Georgia, which is indicative of climate change. Recent statistical data gained from the meteorological stations has shown changes in climatic parameters, in particular an increase of mean and extreme air temperatures but also changes in rainfall amounts and rainfall patterns in both western and eastern Georgia. The frequency of heavy rainfall has increased with dramatic consequences such as

[2] MCDA is a discipline aimed at supporting decision-makers faced with making numerous and sometimes conflicting evaluations. MCDA aims at highlighting these conflicts and deriving a way to come to a compromise in a transparent process. MCDA methods have been developed to improve the quality of decisions involving multiple criteria by making choices more explicit, rational and efficient. The goal is to create a structured process to identify objectives, create alternatives and compare them from different perspectives. MCDA is today an established methodology and the applications used are diverse including environmental planning, fisheries management, water management, climate policies and life-cycle analysis. SYKE's expertise in using MCDA methods is based on many years of experience in different research projects and the use of this method has proved to give good results when trying to find solutions to complex environmental problems.

landslides, avalanches, river floods, and tornados, all associated with climate change. Flood events are very frequent in Georgia and are registered throughout the territory. The February 1987 flood in the Tbilisi region alone killed 110 people, affected 36,000 others and caused an economic loss of US$ 546 million. In 1997, the flood events in the Tbilisi-Gori-Kvemo-Kartli region killed 7 people, affected 500 others and inflicted a reported economic loss of US$ 29.5 million. In June 2005, the flood in the Mtskheta-Tianeti region killed 1 person, affected 51 others and caused an economic loss of US$ 2 million.

For disaster management the long-term goal of Georgia is to avoid the human losses and minimize the negative impacts to human health and ecosystems as well as minimize economic losses. Prevention of catastrophes is paramount. When disasters occur, rapid response, minimization and mitigation are required.

Early warning system

Currently there are no well-developed early warning systems operational in Georgia. According to the latest NEAP an early warning system should include a baseline assessment of disaster level, regular monitoring, and dissemination of forecasts and warnings of expected natural hazards to decision-makers and mass media in a timely manner. For the effective functioning of an early warning system reliable data is crucial, but obtaining reliable data is not possible under existing monitoring and observation practices in Georgia. Specifically, present weather and hydrological forecasting systems are not adequate. Observation networks for standard hydro-meteorological parameters have been severely reduced, remote observations of special hydro-meteorological parameters are not conducted, the frequency and amount of field observations of hydro-meteorological processes have significantly decreased, weather and hydrological forecast models, as well as modern technologies for statistic processing of multi-year hydro-meteorological data are not well-adopted. Geological monitoring activities are also inadequate.

The EU Directive on the Assessment and Management of Flood Risks came into force in the end of 2007. The purpose of the directive is to reduce and control the flood risks that threaten human health, the environment, infrastructure, and property. The directive gives guidelines for the principles of flood risk control. It obliges the member countries to identify the significant flood risk areas and to prepare flood hazard maps and flood risk maps. Based on the maps, the countries will make their flood risk management plans by the end of 2015. Georgian environmental authorities are willing to apply the principles of the directive in Georgia.

Objective

The main objective of the project component is capacity building of NEA in the field of flood risks mapping.

Activites

- Capacity building of NEA in the methods of flood risks mapping.
- Assessment of the existing data and the data needs of NEA for flood risks mapping.
- Field studies on the River Rioni area.
- Hands-on training in flood risks management (arranged in Finland and Georgia).
- Renovation of some hydro-meteorological stations of the River Rioni catchment area as a part of the operative hydrological information system.

Results

- Training material and training reports.
- Number of trained people
- 2-3 renovated and equipped hydro-meteorological stations.

Flood management in Finland and SYKE expertise

The importance of sound flood management has increased in Finland, partly due to the EU flood directive. Flood management requires usable and reliable information about produced scenarios and flood history. A national flood information system, based on GIS and Web technology, has been developed to bring together the essential information on floods under a single user interface. The system contains flood hazard maps, water level and discharge scenarios, historic flood maps, hydrological flood observations, and recommended building levels. It promotes flood risk assessment, flood-oriented land use, and rescue operation planning. Evidently, it increases public awareness about flood risk and improves communication, since information can be delivered in a consistent and understandable form via SYKE's information networks. Moreover, it helps to distribute flood information across administrative boundaries and performs as a knowledge carrier.

The Finnish environmental administration together with the Finnish rescue service authorities are responsible for flood prevention and protection in Finland. The Centres for Economic Development, Transport and the Environment (so called ELY Centres) take care of general flood management but the regional rescue services will take charge in the case of hazardous flood. SYKE's role is to do flood research, support regional authorities in and supply tools for flood prevention and protection. SYKE is also responsible for national hydrological monitoring and flood forecasting. At regional level, the municipalities are responsible for land use planning, which indeed is an important means for flood damage prevention. SYKE has been in charge of developing an environmental information system called HERTTA to manage environmental data in Finland. HERTTA consists of a comprehensive group of subsystems covering a wide range of environmental disciplines. Particularly the subsystems 1) hydrological information, 2) watershed modelling and forecasting, 3) river basin management systems, and 4) map service are used in flood management in Finland. The first one provides important real-time hydrological observations, i.e. observations on water levels, discharge values etc. The second one is a conceptual rainfall-runoff model, which calculates important flood forecasts and warnings for every catchment in Finland. The third one is a powerful river basin management tool that is used for multi-objective simulation of discharges and water levels in river basins. The fourth, Map Service, is an interface to geographical information available in the Finnish environmental administration. The Finnish new flood information system combines various flood information together to improve flood management in Finland. The focus of the Finnish system has been on serving as a comprehensive and easily accessed flood information source for all interested.

3.3. *Component III, Institutional developing of NEA on environmental monitoring*

General information about the water monitoring and its capacity building needs in Georgia

The UNECE notes in the latest (2010) EPR of Georgia that since the first EPR, Georgia has made some progress in setting up an appropriate monitoring system, harmonizing environmental norms and standards with international ones, providing access to environmental information to the public and promoting public participation in environmental decision-making. Much still needs to be done by the Government and other relevant authorities to really make environmental monitoring an effective information and policy tool, promote public participation in decision-making and introduce the sustainable development principle into education and training at various levels. Water and air quality monitoring has suffered from aging monitoring equipment and insufficient funding over the past few years. Some improvements in the measurements since the last EPR have been made thanks to the international cooperation in this field, but staff training is still insufficient. At the same time, the groundwater monitoring system was abolished and now relies on entities receiving licenses to extract thermal, mineral or freshwater. Only information on groundwater quantity is assessed and used. Soil monitoring has been suspended since 2003, although laboratory capacity in Tbilisi to measure concentrations of pesticides, heavy metals and oil products in soils was restored in 2009.

It is mentioned in the EPR that Georgia should develop a strategy and action plan for further modernizing and upgrading the monitoring network in line with international guidelines and best practices in order to be able to assess better the progress in achieving environmental policy targets. In detail, this means:

- Enlarging the number of parameters that have to be controlled and introducing biological monitoring of the surface water bodies.
- Establishing more hydrological monitoring stations and sampling points.
- Linking environmental quality data with emission data by enterprises to establish cause-and-effect relationships to be reported to compliance control.
- Training personnel in proper handling of appropriate analysis equipment and ensuring a high quality of laboratory reagents.

Objective

The objective of the component is to increase the capacity of NEA in the field of environmental monitoring, remote sensing and laboratory quality systems.

Activities

During the project document preparation visit to Georgia the capacity building needs of NEA in the field of environmental monitoring were further discussed with the staff of NEA and MEP responsible for environmental water monitoring and laboratory activities. The following capacity building activities were agreed to be included in the project:

- Use of Remote Sensing methods in detecting the Black Sea surface water temperatures and suspend solids.
- Analyses of nutrients, heavy metals and pesticides. Two field sampling missions (one in 2011 and 2012) to Georgian main rivers.
- Training for NEA staff responsible for the microbiological water analyses (to be arranged both in Finland and Georgia).
- Capacity building of NEA staff in the field of environmental sampling (chemical and biological). Developing the certification system for the personnel responsible for the sampling (training to be arranged both in Finland and Georgia).
- Capacity building in the field of the laboratory quality management and accreditation. Arranging laboratory intercomparison tests between Georgian laboratories of NEA and SYKE.

Most of the actives mentioned above will be put into practice by hands-on training arranged by SYKE experts. The activities will start by preparing a detailed training plan. The trainings will be arranged at the premises of SYKE and partly in Georgia.

Results

- Guidelines for water monitoring/sampling procedures.
- Laboratory intercomparison test reports
- Training reports.
- Demonstration of operative Black Sea surface temperature maps delivered on the WEB –side of the NEA.
- More accurate information about the chemical and microbiological status of Georgian rivers.
- Number of the staff of the NEA trained

SYKE laboratory

The reference laboratory of SYKE is verified according to international standards for the comparative chemical and ecotoxological testing and sampling of water and solids and it offers reference laboratory services. The standardized methods of the laboratory guarantee comparability. The reference laboratory constantly devises and improves a wide range of measuring and analytical methods, also contributing to similar developments within the EU and the OECD. The laboratory co-operates closely on standardisation with international authorities including the European Committee for Standardisation (CEN) and the International Standardisation Organisation (ISO). The reference laboratory also organises tests to assess the validity of the chemical and biological methods used to study water, soil and sludge samples. These tests are conducted with the help of other environmental laboratories and research institutes in Finland and abroad. Inter-laboratory comparison and proficiency testing comprises a comparison based on the evaluation of measurements of the similar items by two or more laboratories in accordance with predetermined conditions. Through regular participation in proficiency testing, a laboratory obtains an external quality assessment of its performance and comparability of results.

Finnish certification of the environmental sampling personnel

The skills of sampling personnel are a major factor behind the reliability of research results and are therefore essential in environmental research. In Finland the certification system has in ten years developed from a governmental tool to a widely acknowledged quality control procedure. The sampling personnel in Finland are able to show their competence in sampling practices by certifying their personal skills. This certification system is based on the international standard ISO 17024. Certification of environmental sampling personnel is conducted through a special certification system set up to assure quality, known as SERTI. Over the last ten years more than 600 persons involved in sampling procedures have been certified. The certification system has been designed to ensure that sampling personnel have enough experience and expertise to do their job well even under difficult circumstances. The quality of sampling has increased both in governmental monitoring programme as well as in the sampling procedures of private companies. Today more than 50 % of the certified persons are working in private companies who benefit from the competitive advantage the certified sampling persons bring. Also the education of sampling personnel has improved significantly thanks to the certification system. More courses are available and the contents of the courses have improved. Also the certified persons are more motivated to participate in further training on regular basis.

The sampling experts of the certification body come from SYKE and the Finnish Meteorological Institute. Their work is in turn overseen by a certification board, whose members include representatives from the Ministry of the Environment, the Ministry of Health and Social Affairs, environmental organisations, consultants, trainers and the employers of sampling personnel, including water boards.

Remote Sensing products of the SYKE

The operational satellite-based water quality products of SYKE include surface water temperature and surface algal blooms for sea areas surrounding Finland. In addition, turbidity and chlorophyll a are reported seasonally. The products are supported by additional products, such as bloom indexes and chlorophyll a time series. The surface water temperature is estimated operationally for 12 large lakes in Finland. The processors developed in the MERIS Lake water algorithms project are tested in the estimation of total suspended solids and chlorophyll a, and their suitability for regular lake monitoring is evaluated. The satellite images used for water quality estimation are NOAA/AVHRR and ENVISAT/MERIS. The operational products are available on SYKE's internet pages.

Flooding and river discharge causes the distribution of turbid water to the sea areas. This transfer of inorganic matter and also nutrients from land areas has direct and indirect effects on the ecology of the water bodies. SYKE has operatively monitored the water quality of the Baltic Sea with remote sensing data since 2004. All the applications have potential to be applied in the Black Sea. In this project, selected water

quality end products will be demonstrated in the Black Sea. Selection will be conducted with the local authorities. Potentiality to operative end products will be discussed in the final stage of the project.

4. The approach on capacity building

The project will be implemented in Georgia and in the region of the transboundary Lake Jandar between Georgia and Azerbaijan. The Azerbaijani partner will be determined in autumn 2011 when NEA and SYKE will carry out negotiations with Azerbaijan. The environmental authorities of Azerbaijan have already expressed their willingness and interest in the project. The approach on capacity building in the field of transboundary cooperation is to work together with Georgian, Azerbaijani and Finnish experts to identify and discuss the possible solutions for improving the ecological status of the Lake Jandar. This will include also the starting of the joint monitoring on the Lake and training on the chemical and biological sampling methods. The working method in other project components is also "doing together" which is the best way to guarantee the institutional capacity building aspects in all project components.

The training of the laboratory staff and accreditation of the laboratory procedures were already started in the DEMMS project. This work will be continued and the lessons learnt in the earlier project will be taken into account. The fact that NEA and SYKE have similar kind of responsibilities in the field of environmental monitoring provides a very good basis for capacity building cooperation.

NEA does not yet have a training strategy for its laboratory staff. The strategy is under preparation as part of ISO 17025 standard which is going to be implemented. The exact participants of the training arranged by the project are still open. The participants will be nominated in autumn 2011. After each training session a query about the training will de distributed to the participants and an analysis of its results will form part of the training report.

5. Cross-cutting themes of the Finnish development policy

The cross cutting themes of the Finnish development policy are:

- promotion of the rights and the status of women and girls, and promotion of gender and social equality
- promotion of the rights of groups that are easily excluded and discriminated, particularly children, persons with disabilities, indigenous peoples and ethnic minorities, and the promotion of equal opportunities for participation
- combating HIV/AIDS; HIV/AIDS as a health problem and as a social problem

The project addresses to some extent to all themes, either directly or indirectly. A prerequisite for sustainable social and economic development is a healthy and secure environment. In the Georgia, poverty is often linked with unsafe and contaminated environment. Currently the population living near the polluting enterprises and waste dumping sites does not possess any information on the actual health hazards, which the contamination causes for them and their children. The project aims to ensure, that these people could at least have a possibility to acquire this information and democratically influence the authorities if they so decide. Public access to information, including information on the environment, is an important prerequisite for a democratic society. Therefore the project also has a democracy and human rights aspect. Strengthened environmental monitoring and management ensures that the decision makers have reliable environmental information, which enables them to make prioritised, cost-effective environmental management decisions when planning actions to improve the state of the environment in the country.

The main principle of IWRM is Equity - the basic right for all people to have access to water of adequate quantity and quality. Also the principle of environmental and ecological sustainability is included in the IWRM: The present use of the resource, like water, should be managed in a way that does not undermine the life-support system thereby compromising use by future generations of the same resource. In the long run, the activity has a positive impact on the lives of women, and on gender and social equality.

Gender

Gender issues have been gaining more attention throughout the South Caucasus region. The international donor community, regional or locally-based funds or NGOs in the region have taken some steps for community mobilization and participation, including women involvement, aiding marginalized groups of society, addressing some explicit gender issues, i.e., domestic violence and trafficking. However, gender indicators are rarely used to measure project success.

Regardless of social and economic difficulties experienced by Caucasus countries in the way of achieving their development goals, the situation existing in these countries is different from that of other developing countries of the world in terms of gender equality. In the South Caucasus, gender issues are more linked to deepening poverty, general deterioration of quality of life, and drastic marginalization of society, rather than to formal legal systems and institutional arrangements, creating gender-based constraints and fostering practices that put women in inferior position. National constitutions and laws guarantee equal rights for women and men. Both have equal access to major social benefits, such as health care services and education. However, this does not mean that gender disparity is not an issue for the region.

As a tradition, women are rarely advanced to leadership and managerial positions and are frequently under-represented in technical fields. In the private sector, male and female employment roles are differentiated. Women's roles are seen more in conducting clerical, administrative and operational tasks, while male employees are seen as experts, in managerial and leadership positions. Gender inequity becomes more obvious in rural areas, where women are traditionally less socialized and involved in community activities, have poor access to and control over community resources as well as limited mobility. Their roles are mostly limited to raising children and keeping households.

In this Finnish project the gender issues will be taken into account when choosing members of the co-ordinating body and participants of the training courses. Both women and men will be able to participate.

6. The proposed activities relation to the other activities of the partner agency

In order to avoid any major hindrance to everyday work of NEA, the project activities will be planned in close communication with the relevant experts of NEA. On the other hand it should be noted that the project is clearly aimed at supporting the normal activities of the agency for example in the field of environmental monitoring. The exact amount of human resources needed for implementing the project activities is difficult to define but it is foreseen that 4-6 Georgian experts would take part in each field trip in Georgia and around 12 people in the training sessions (3-4 in total) in Finland. NEA will provide the project with transport facilities, namely a car and a boat for the field trips. In case more transportation capacity will be needed it will be rented.

During the past years NEA and its predecessors have been involved in many international projects. Apart from one major EC funded project, the Georgian environmental administration, and NEA in particular, is currently involved only in few minor water projects. The ongoing, ended and planned water projects in Georgia are listed in annex 1.

7. Time schedule

The cooperation is planned to run for 2 years, ending in the end of October 2013. The project starts with an Inception Phase. During this phase, the Georgian Coordinator, Finnish Project Manager and all the project staff prepare detailed work plans for each project components and project activities. The inception phase of the project will start after the kick off meeting arranged in Tbilisi in June 2011.

In the first four months (starting from June) the project focuses on assessing in more detail the current institutional situation of the project components and the needed capacity building of NEA.

Between September 2011 and December 2011 capacity building in laboratory management, field sampling, certification of qualified sampling personnel, biological monitoring methods and remote sensing will start. Field works on Lake Jandar and Georgian rivers will start in 2012. All the training arranged in Finland will also start in 2012. Some field work and training will continue also in 2013.

A general time schedule for the components is presented in the following table (table 1).

	2011							2012													2013									
	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Kick-off meeting	X																												
Project Board meetings						X					X							X						X					X
Inception Report, workplans						X																							
Progress report							X						X						X						X				
Financial Report						X							X						X						X				
Project brochure (possible)				X																									
Component I Capacity building on transboundary cooperation of Lake Jandar																													
	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Analysing the existing situation	X	X	X	X	X																								
Approved joint monit. prog. for Lake Jandar																									X				
Field studies on Lake Jandar				X	X	X					X	X											X	X					
Social economical study of the lake Jandar and the lake area					X						X	X	X																
Multi-criteria analyses					X	X					X	X											X						
Assessment of chemical, biological and ecological status of the lake											X	X					X						X						
Component II Adaption to climate change, capacity building on flood risk management																													
	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Analysing the existing situation. Assessment of the current and needed data of NEA for flood risk assessments	X	X	X	X	X	X	X																						
Capacity building of NEA in the methods of flood risks mapping (training in Finland at SYKE)													X																
Component III Institutional developing of NEA in the field of environmental monitoring																													
	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Analysing the existing situation	X	X	X	X	X																								
Detecting the Black Sea surface temperatures detection by Remote Sensing				X													X												
Training on RS methods and GIS in Finland at SYKE									X	X																			
Field sampling missions on Lake Jandar											X	X				X													
Field sampling missions on Georgian rivers (possible)				X	X						X	X										X							
Training on microbiological water analyses (possible part of the training in Finland)					X				X			X										X							
Capacity building of NEA in monitoring					X						X	X																	
Capacity building of NEA laboratory in quality management (possible part of training in Finland)					X	X				X	X	X									X								
Laboratory Inter-comparison tests						X							X																
Equipment procurement						X						X									X								
Training on purchased equipment												X	X								X								

8. Sustainability and perceived risks

The overall objective of the cooperation is to improve the status of waters and water ecology and minimize the negative effect of climate change for the benefit of the Georgian economy, public health and sustainable development. This objective will be promoted by strengthening environmental monitoring and management capacity in Georgia. Earlier SYKE has implemented in Georgia one environmental project and the achievements of it have been evaluated being very good by international evaluators. Since 1980's, there have been many environmental projects in Georgia, financed e.g. by NATO, USAID, UNDP and OECD. These projects have included also environmental monitoring and management components, results and experiences of which have been implemented in the Georgian environmental administration giving a good basis for further development.

It is assumed that the identified partner organisations in Georgia will collaborate with the project. Changes in the institutional set-up may influence the responsibilities of different departments in NEA but it is not expected that this should in any case lead to refusal of participation in the project. During the recent years the organisation of the Ministry of Environment Protection has changed many times. The MEP is also now under pressure of changes. These possible changes may also have effect on the functions of NEA. To avoid that kind of administrative problems a good and exact project documentation, availability of training materials and regular project meetings are essential for the successful implementation of the project.

To reach the goals of the project requires that NEA monitoring has the possibility to allocate enough human resources for the project. The most important necessity for the favourable development of the nature conservation and environmental monitoring is that the positive economical and political progress continues in Georgia.

The exact capacity building components of the project are still partly open. When planning the trainings in detail, one of the most important things will be the selection of the right persons for the training courses - the persons attending the training courses should be the key persons who actually do the related work at the ministry, laboratories, inspection departments and other environmental institutions. They should be able and willing to distribute the acquired information in their organisations. This can be ensured by a careful selection of participants. In the selection process of potential trainees certain pre-selection criteria will be defined and used in order to make it clear, that the training is for professionals, who are willing to stay in NEA and other environmental institutions after the project. However, this cannot be fully guaranteed.

Socio-cultural aspects

The Georgian people are proud of their unique environment. Environmental issues are in very high on ranking when asking citizens' opinion on the priorities of welfare. The politicians' attitude to environmental matters is more ambiguous and during the last years the financial resources allocated for environmental protection and monitoring have been clearly insufficient.

Participation and ownership

The project has been suggested by the Georgian environmental authorities. It has been planned in close co-operation with them during the visit to Georgia in October-November 2010 and further communication during the preparation of the project document.

9. Project organisation

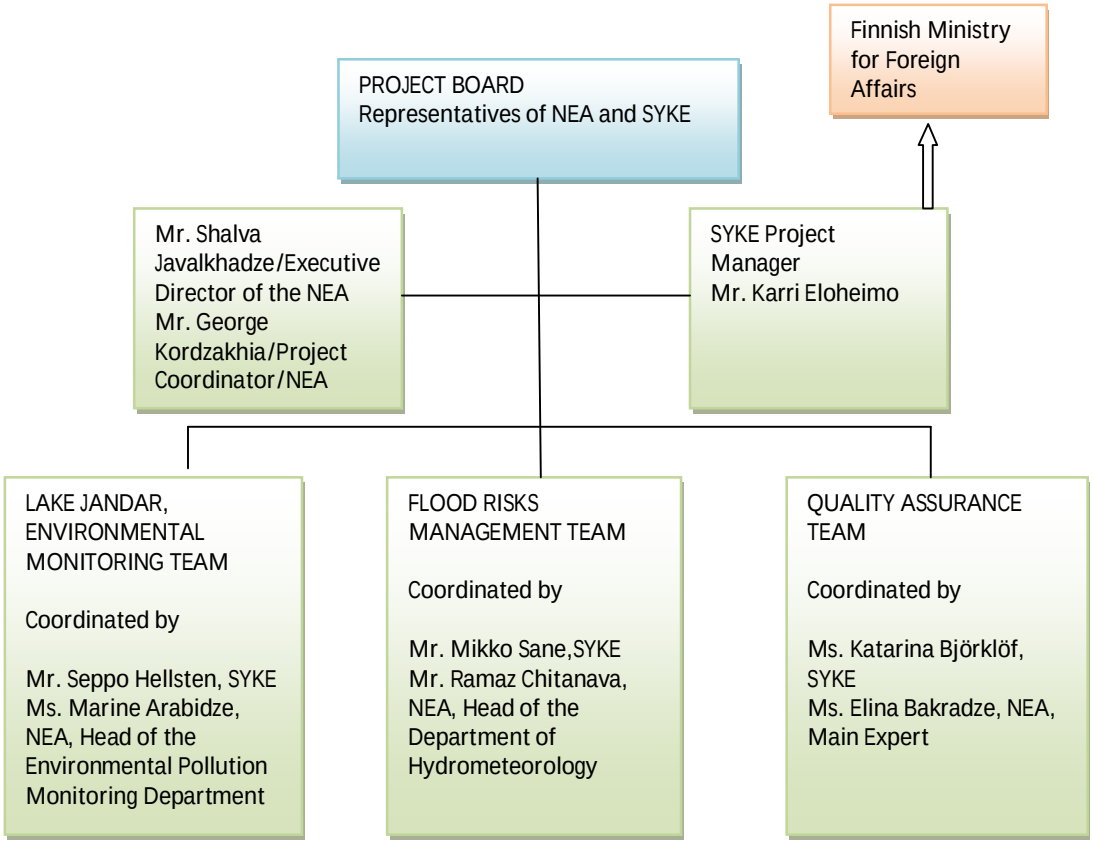
NEA will be SYKE's project partner in the project and responsible for the project on the Georgian side. The Executive Director of NEA Mr. Shalva Javalkhadze will be the overall supervisor of the project from the Georgian side and the Project Manager Mr. Karri Eloheimo from the Finnish side. Ms. Marina Makarova, Head of Water Resources Protection Division of MEP will be the adviser of the project.

The Finnish experts will assist NEA in the implementation of the project components. The Finnish partner will provide e.g. the following experts: Project Manager, Certification Expert, Laboratory Expert, Biological Monitoring Expert, IWRM Expert, Socio-Economic Research Expert, Remote Sensing Expert, Multi-criteria Analyses Expert and Flood Risks Management Expert. The CVs of Finnish and Georgian experts are included in Annex 2.

The Project Board (PB) will be the highest organizational body within the project. PB will meet once per year or in case of a specific need. The key function of PB is to monitor the project and to support the cooperating agencies in carrying out the activities. Specifically, PB will approve the final report before it is submitted to the Facilitation Consultant and to MFA. In case annual plans are prepared, PB will approve them, too. Progress and financial reports are sent to PB for information. The members of PB from the Georgian side will be:

Mr. Shalva Javalkhadze, Executive Director of NEA
Ms. Marina Makarova, Head of Water Resources Protection, Ministry of Environment Protection of Georgia
Mr. Ramaz Chitanava, Head of the Department of Hydrometeorolgy, NEA
Ms. Marine Arabidze, Head of the Environmental Pollution Monitoring Department, NEA
Ms. Elina Bakradze, Head of the Atmospheric Air water and soil laboratory, NEA

The project will also establish specific working groups under each project components. These will be open to everybody interested in the subjects.



10. Budget

Budget breakdown by result area (euro)

Result areas	Total costs
Result 1	
	193 870
Result 2	
	127 584
Result 3	
	147 850
Contingencies	
	18 696
Project preparation	
	12 000
Total costs	
	500 000

Partner agency commitments

The patner agency NEA gives strong support for implementing the project activities. This includes among other things: human expert resources, human technical resources, meeting room facilities, arranging transportation vehicles if possible.

Annex 1. Ongoing, ended and planned water projects in Georgia

Ongoing projects (2010)

Project Title	Contact Information	Date	Financed by	Grant amount
Support of the Improvement of Quality management System of Water Quality Monitoring and Information System as tool of Decision making Process in Water policy in Georgia	Contact Person: Mr.G. Kordzakhia, MOE, National Environmental Agency The Head of the Department of Environmental Monitoring Marina Arabidze Add: 150 D. Agmashenebeli ave	2009-2010	Slovak -ODA	24 550 €
II phase of management of Trans-boundary river Mtkvari (Georgia, Azerbaijan, Armenia)	Contact Person: Ms.Marina Makarova, MOE Head of Water Resources protection Division Tel: (995 32) 72 72 26	2008-2011	European Commission	5 mil €
Upgrading of Black Sea Scientific Network	Contact Person: Mr.G. Kordzakhia, MOE, National Environmental Agency The Head of the Division of International Projects Coordination and Relations Relations Mr. George Kordzakhia Add: 150 D. Agmashenebeli ave. Tel: (+995 32) 43 95 07	2002-2011	FP7 Program of EU Council	36.000 € for the National Environmental Agency-MOE of Georgia Total: 4 mil €
Identification of the legal and Institutional needs for accession and implementation of the UNECE Water Convention by Georgia and (Georgia-Azerbaijan)	Contact Person: Ms. Marina Makarova, MOE, Head of Water Resources protection Division Tel: (995 32) 72 72 26	2008-2010	UNECE/OSCE	35 300 €
River bank Protection activities	National Environmental Agency Contact person T. Beridze Add: 150 D. Agmashenebeli ave. Tel: (+995 32) 43 95 07	2010	State Budget	1 187 000 GL
Fostering Transboundary Co-operation in Kura- Aras River Basin				

Planned projects

Reducing trans boundary Degradation in the Kura-Aras basin	Contact Person: Ms.Marina Makarova, MOE Head of Water Resources protection Division Tel: (995 32) 72 72 26	2010-2013	GEF+EU	GEF-340000 $ EU-500 000 $ 840 000 $
Improvement of legal basis for major hazard prevention in Georgia	Ministry of Environment Protection and National Recourses Contact person: Irma Gurguliani	2010-2011	UNECE will identify	Unknown yet

Ended projects

Reduction of trans – boundary degradation Mtkvari-Araksi river basin	GEF Component coordinator Malkhax Adeishvili 297442 From UNDP Mariam shotadze998585	2005-2007	UNDP/GEF	798 000 $
Demonstration Project " Rivers and acoastal protection Adjara"	Division of Environment Protection and Natural Resources Adjara AR Contact person : Head Mr. David Pirtskhalaishvili, Tel:+995(222)73590	2008-2009	Dutch Government	398.000 €
Development of Environmental Monitoring and Management Systems in Georgia (DEMMS)	Contact Person: Ms. Marina Makarova, MOE, Head of Water Resources protection Division Tel: (995 32) 72 72 26)	2007-2008	Finnish Ministry for Foreign Affairs	680 155 € (MFA) 68 000 € (State budget)
Environmental Cooperation for the Black Sea	Contact Person: Ms. Marina Makarova, MOE, Head of Water Resources protection Division Tel: (995 32) 72 72 26)	2007 – 2009	TACIS	2.200.000 €

Improvement of trans boundary cooperation for early warning of accidents in the river Mtkvari basin	MoE Department of environmental policy and international relations, contact person: Irma Gurguliani 727223	2003-2006	German Ministry of Environment UBA	400 000 €
South Caucasus Water Program	Project manager Zurab Jincharadze 911485	2005-2008	USAID	4 459 266 $
Promoting the use of hydro resources for local community	The project manager: Paata Janelidze 507045 (office); 899 549962 (mob.) Address: Gulua str. #6,Tel: 727206 e-mail: janelidze@caucasus.net	2005-2007	UNDP/Government of Norway grant Co-financing USAID-50 000$	1.260 000 $
Rehabilitation of Black Sea ecosystem	MoE Contact person : Nino Tskhadadze 727243	2004-2007	UNOPS UNDP/GEF	6 000 000 $
Marine and land based oil spill prevention and mitigation	MoE	2006-2007	WB	305 000 $
Integrated Coastal Zone management project	ICZM, MoE	1999-2007	GEF -1.3mil USD, WB/IDA credit - 4.4mln USD, The Netherlands Government grant-1.0mlnUSD, Georgian Government-0.9mln USD	7.6 mil $
River bank protection activities	MoE Environmental Protection Agency	2007 2008 2009	State budget	2007 70 000 GL 2008-595 200 GL 2009- 9500000 GL
Combined EIA/feasibility Study for Rehabilitation of the Chorokhi River and Batumi Coast in Adjara	Government of Autonomous Republic of Adjara	2007	Netherlands Commission for Environmental Assessment (NCEA)	40 000 €
Scientific network of Black Sea, SCENE	MoE Environmental Monitoring Agency	2005-2008	EUF-6	50.000 €
Support to the safety development in the Black Sea region ASCABOS	MoE Environmental Monitoring Agency	2005-2008	EUF-6	10.000 €
Watershade management Mtkvari-Araks river basin	MoE Environmental Monitoring Agency	2003-2007	NATO-OESD	433 000 $