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FRESH WATER RESOURCE MANAGEMENT CURRICULUM

USAID GOVERNING FOR GROWTH (G4G) IN GEORGIA

29 September 2015

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GEORGIA

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ABSTRACT

USAID's Governing for Growth (G4G) in Georgia has analyzed the training needs of various levels of officials of Water Resource Management Service (WRMS) and Environmental Information and Education Centre (EIEC) under the Ministry of Environment and Natural Resource Protection of Georgia (MENRP). Based on the training needs assessment (TNA), an evolving curriculum has been developed.

The TNA survey has thrown light on important aspects for future training programs in broad areas such as: Water resource management, Geographic Information System (GIS) in water resource management, natural sciences, administration, environmental legislation, international conventions and treaties dealing with water and environment, green business, green economy, etc.

As per the TNA, an array of topics has been identified for future trainings to equip the officials with the latest knowledge in the sector. Human resource development (HRD) related topics have also been identified in order to enable the EIEC officials to undertake "Training of Trainers" (TOT) programs in the sector.

The training curriculum is designed in such a manner as to provide the officials with technical and policy knowledge for identifying, assessing and addressing important and emerging water sector issues to reduce environmental risks to public health. This report identifies a number of topics, capacity building initiatives and their periodicity. A few important recommendations have also been drawn from the TNA and presented in this report.

ACRONYMS

ADB	Asian Development Bank
EIEC	Environmental Information and Education Centre
EU	European Union
G4G	Governing for Growth in Georgia
GIS	Geographic Information System
GOG	Government of Georgia
GWP	Global Water Partnership
HR	Human Resources
HRD	Human Resource Development
IWRM	Integrated Water Resource Management
MENRP	Ministry of Environment and Natural Resource Protection
MSFD	Marine Strategy Framework Directive
TNA	Training Needs Assessment
TOT	Training of Trainers
USAID	United States Agency for International Development
WB	The World Bank
WRM	Water Resource Management
WRMS	Water Resource Management Service

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EXECUTIVE SUMMARY

USAID's Governing for Growth in Georgia was designed to support Government of Georgia (GOG) and civil society to create a better enabling environment in which the capacity building of the officials is carried out in a sustained and effective manner. G4G has analyzed the training needs of various levels of officials of Water Resource Management Service and Environmental Information and Education Centre under the Ministry of Environment and Natural Resource Protection in order to build their capacity.

Training and capacity development activities of the officials would be based on a robust and evolving curriculum. In order to be sure that the curriculum meets the requirements of the functionaries, a questionnaire was developed to carry out a need assessment survey. The survey findings have provided valuable insights for training needs and thereby in designing the curriculum.

As the responsibilities related to fresh water management lies with Water Resources Management Services, the curriculum for this target group has been primarily focused towards operational and technical aspects. The Environmental Information and Education Centre being the training providers, a "Training of Trainers" program curriculum has been designed.

The survey has assessed that the officials of WRMS in their current position require knowledge of Natural Sciences, Administration and Environmental Legislation. The competencies required are: elaboration of legislative, regulatory, financing mechanisms in the field of water resources management and protection.

With respect to the officials of EIEC, the survey has assessed that they require:

- Participation in project development
- Participation in the projects, supporting development of green economy and green business
- Participation in planning and implementation of the eco-labeling projects
- Participation in sustainable development policy elaboration and implementation
- International relations with respect to water resource management

The skill and competencies required are:

- Communication, negotiation skills, public relations
- Data and information systems management
- Presentation skills
- Planning and implementation of environmental education
- Assessment of training needs of other units within the Ministry
- Organizing regular trainings, seminars, awareness generation campaigns
- Participation in project implementation
- Development of training modules

Future Training needs:

The survey has thrown light on important aspects for future training programs in broad areas such as: Water resource management, Geographic Information System (GIS) in water resource management, natural sciences, administration, environmental legislation, general political issues and international conventions and treaties dealing with water and environment, green business and green economy, etc.

As per the TNA, the topics of training in future are:

- International best practices in river basin management
- Principles and instruments of environmental management
- Water and environment planning
- River basin management plan
- Restoration of water bodies (river, lakes)
- Marine Strategy Framework Directive (MSFD) directive and its analysis
- Wastewater management
- Marine litter and its management
- Environmental education

- Ecological flows
- Ecological status of water bodies
- Water quality assessment
- Others

In addition to the above mentioned topics, the officials of EIEC would require human resource development, related topics such as:

- Project management
- Effective communication
- Negotiations skills
- Conflict resolution skills
- Presentation skills
- Module development
- Training needs assessment

Most of the officials, both in the WRMS and EIEC, felt that the training should be intensive and on an annual basis. They also felt that the training should be of one or two weeks' duration and preferably in a foreign country. The officials strongly felt that the training should majorly comprise of interactive sessions, such as: working in small groups, presentations by participants, brain storming, or role playing. Practical sessions with analysis of case studies, and peer learning were also preferred pedagogies.

The training curriculum should provide the officials with technical and policy knowledge required to identify, assess and address important and emerging water sector issues to reduce environmental risks to public health. A number of options for delivering the program therefore has to be taken into account, such as:

- Intensive short-courses
- Training provided over a week or a two-week period
- Blended delivery: combinations of one or more options of classroom teaching, field trips, distance learning, webinars etc.

The periodicity of the capacity building program could comprise of:

- Annual training (technical)-once in a year
- Workshops (hands on experience)-once in a year
- Study tours-once in two years
- Webinars-every six months
- Human resources trainings-once in a year

The main recommendations are:

- Draw on existing faculty at local universities, wherever possible, both in the country and across the region
- Apply IWRM practice to draw on national, regional and international bodies (such as Global Water Partnership (GWP), European Union (EU), The World Bank (WB), United States Agency for International Development (USAID), Asian Development Bank (ADB), International River Basin Organizations, etc.)
- Link with universities offering similar degrees in region
- Link with other universities in Europe, the US, etc.
- Use distance learning as a tool for collaboration and additional courses
- The capacity building program has to be institutionalized with a pre-fixed annual calendar
- Budgetary allocation for capacity building in the sector needs to be institutionalized

Table 1 depicts the structure of the curriculum in further details:

TABLE 1: Curriculum of training programs for MENRP officials			
No.	Topic	Target audience	Mode of interaction
I Technical Courses			
1	Principles and instruments of environmental management	WRMS EIEC	Lectures and presentation Interactive sessions
2	Water and environment planning	WRMS EIEC	Lectures and presentation Peer learning exchange Case study discussions
3	River basin management plan and international best practices	WRMS EIEC	Interactive sessions Case study discussions Practical sessions
4	Restoration of water bodies (rivers, lakes)	WRMS EIEC	Interactive sessions Case study discussions Practical sessions
5	Water quality assessment	WRMS EIEC	Lectures and presentation Interactive sessions Peer learning exchange Case study discussions
6	Ecological status of rivers and other water bodies, environmental flows	WRMS EIEC	Interactive sessions Case study discussions Practical sessions Field trips
7	Law and Policy for WRM: Comparative, international, EU law and policy, transboundary WRM issues	WRMS EIEC	Lectures and presentation Interactive sessions Peer learning exchange Case study discussions
8	Economics of IWRM: Economic valuation of water, water resource economics, socio-politics of water resources, cost recovery and water tariffs	WRMS EIEC	Lectures and presentation Interactive sessions
9	Advanced methods for IWRM: Alternative water sources, alternative irrigation and water reuse strategies	WRMS EIEC	Lectures and presentation Interactive sessions Peer learning exchange
10	Wastewater management and treatment: Technological options and best available techniques	WRMS EIEC	Lectures and presentation Interactive sessions Peer learning exchange Case study discussions
11	Hydrological and groundwater data management: Permits, information management for use by decision makers	WRMS EIEC	Interactive sessions Peer learning exchange Case study discussions
12	Environmental education	WRMS EIEC	Lectures and presentation Interactive sessions Peer learning exchange Case study discussions
13	MSFD and its analysis	WRMS EIEC	Interactive sessions Peer learning exchange Case study discussions
14	Marine litter and its management	WRMS EIEC	Lectures and presentation Interactive sessions Peer learning exchange Case study discussions
II TOT Courses			
1	Project management	EIEC	Lectures and presentation Interactive sessions

TABLE 1: Curriculum of training programs for MENRP officials

No.	Topic	Target audience	Mode of interaction
			Peer learning exchange
2	International conventions and treaties on water and environment	EIEC	Interactive sessions Peer learning exchange Case study discussions
3	Green growth strategies in protection of natural resources	EIEC	Lectures and presentation Interactive sessions Peer learning exchange
4	Module development	EIEC	Interactive sessions Peer learning exchange
5	Effective communication	EIEC	Lectures and presentation Interactive sessions Peer learning exchange
6	Training needs assessment	EIEC	Interactive sessions Peer learning exchange
7	Negotiations/conflict resolution skills	EIEC	Interactive sessions Peer learning exchange
8	Presentation skills	EIEC	Interactive sessions Peer learning exchange
9	Awareness generation activities	EIEC	Discussion Interactive sessions Peer learning Brain storming
III	Other Technical Courses (Optional)		
1	Institutions for IWRM: International organizations, environmental enforcement, EU Water Framework Directive	WRMS	Lectures and presentation Interactive sessions Peer learning exchange Case study discussions
2	Flood, drought and risk management and early warning system	WRMS	Lectures and presentation Interactive sessions Case study discussions
3	Climate change and WRM: Meteorology, climate change, oceanography courses	WRMS	Lectures and presentation Interactive sessions Case study discussions
4	Public health and IWRM: Waterborne disease, social marketing, disease vectors, sanitation management	WRMS	Interactive sessions Peer learning exchange Case study discussions
5	Stakeholder participation in WRM: stakeholder analysis, social marketing, gender mainstreaming, sociology of development	WRMS	Interactive Sessions Peer learning exchange Case study discussions

Training is only effective if the information is retained and applied on the job. Evaluation of training is critical and TNA exercise should be carried out periodically to improve the training curriculum and tailor it to the needs of the sector professionals.

APPENDICES

A.1 BACKGROUND

TNA has given an array of topics for the officials of WRMS and EIEC, which would be based on a robust and evolving curriculum. In order to be sure that the curriculum developed meets the requirements of the officials, a questionnaire was developed and survey carried out. The survey findings have provided valuable insights for designing the curriculum.

As the responsibilities related to fresh water management lies with Water Resources Management Services, the curriculum for this target group has been primarily focused towards operational and technical aspects. While a “Training of Trainers” program was developed for the Environmental Information and Education Centre. TOT program has been designed with technical as well as human resource centered approach to ensure:

- Facilitation of environmental education
- Public participation in environmental decision making
- Awareness raising campaigns and
- Creation and development of an environmental database

A.2 METHODOLOGY

Curriculum has been developed based on a survey to identify the needs existing among the officials of MENRP. Training topics have been identified based on the fact that they should be addressing particular needs identified by the officials and should be target oriented, comprehensive, specific and replicable. The various steps carried out in order to arrive at the curriculum are depicted in Fig. 1.

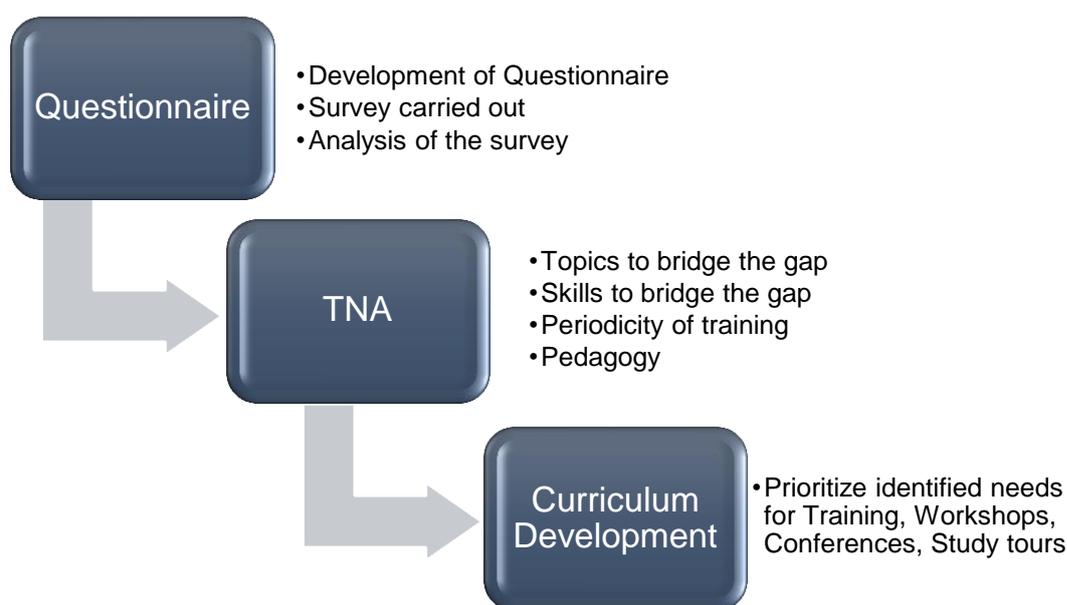


Figure 1: Curriculum development

Training needs analysis is a systematic approach for determining what training needs to take place. When planning training, there is value in identifying and considering:

- Business needs
- Current competencies
- Training methods
- Cost-effectiveness

Fig. 2 depicts the building blocks involved in Training Needs Assessment (TNA)

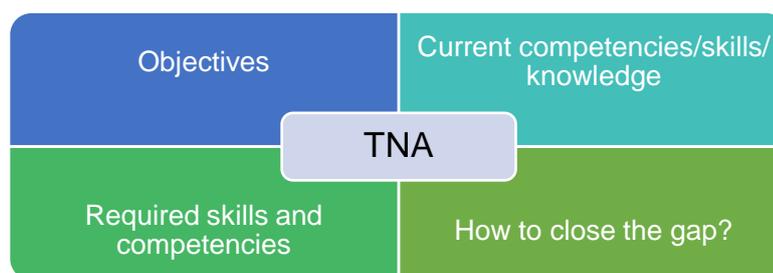


Figure 2: Training Needs Assessment

The following steps are vital in a TNA exercise:

Step 1: Determine desired outcomes. Clarify goal of the training and expected business outcomes. Training goal should correspond to a business objective. Examples of training goals: Improve customer service satisfaction ratings; Decrease the time it takes to complete service delivery, Improve employee morale through better supervision by management; Improve the speed at which orders are filled.

Step 2: Evaluate competencies and determine performance gaps. Evaluate current competencies and identify where there are gaps between current ability and desired ability. To evaluate current competency level use: Performance evaluations Tests; Surveys; Self-assessments; Interviews; Customer feedback.

Step 3: Prioritize Training Needs; Identify the percentage of employees who need training on the competencies; Consider the importance of the competencies to the business objectives; The need and the importance will allow you to identify training priorities.

Step 4: Determine how to conduct training; Consider adult learning theory and best practices in training on the particular competencies; Training methods can range from: On-the-job training, mentoring and coaching, classroom/lecture, web-based/e-learning, workshops, conferences and academic programs.

Step 5: Planning for training evaluation; Training is only effective if the information is retained and applied on the job; Evaluation of training is critical; Questions to consider in evaluation include: How much did the training improve the competencies? How did the training improve employees' job performance? How did the training support meeting of business objectives?

A.3 FINDINGS

A.3.1 KNOWLEDGE/SKILLS/COMPETENCIES

The survey has assessed that the officials of WRMS in their current positions require:

- Knowledge of Natural Sciences
- Knowledge of Administration
- Knowledge of Environmental Legislation

And the competencies required are:

- Participation in the elaboration of legislative, regulatory, financing mechanisms in the field of water resources management and protection.

The survey has also assessed that the officials of EIEC in their current positions require:

- Participation in the projects supporting development of green economy and green business
- Participation in planning and implementation of the eco-labeling projects
- Participation in project development
- Participation in sustainable development policy elaboration and implementation
- International relations

The skill and competencies required are:

- Communication skills-negotiation skills, public relations
- Data and information systems, data processing according to the different target audience; data interpretation; etc.
- Presentation skills
- Planning and implementation of environmental education
- Training needs assessment;
- Organizing regular trainings, seminars, awareness generation campaigns etc.
- Participation in project implementation
- Development of training modules

The survey has thrown light on important aspects for future training programs in broad areas such as: Water resource management, Geographic Information System (GIS) in water resource management, natural sciences, administration, environmental legislation, International conventions and treaties dealing with water and environment, green business and green economy, etc.

A.3.2 TRAINING TOPICS

The detailed topics are as mentioned below:

- International best practices in river basin management
- Principles and instruments of environmental management
- Water and Environment planning
- River Basin Management Plan
- Restoration of water bodies (river, lakes)
- Marine Strategy Framework Directive and its analysis
- Wastewater management
- Marine litter and its management
- Environmental education
- Ecological flows
- Ecological status of water bodies
- Water quality assessment
- Others

The officials of EIEC, who are engaged in TOT programs would require human resource development (HRD) related training topics such as:

- Project management
- Effective communication
- Negotiations skills
- Conflict resolution skills
- Presentation skills
- Module development
- Training needs assessment

A.3.3 IMPORTANT ASPECTS OF TRAINING

The functionaries in both the WRMS and EIEC felt that the training should be on an annual basis. However, some of the newly joined officials felt that it should be on a six-monthly basis, which is presented in Fig. 3.

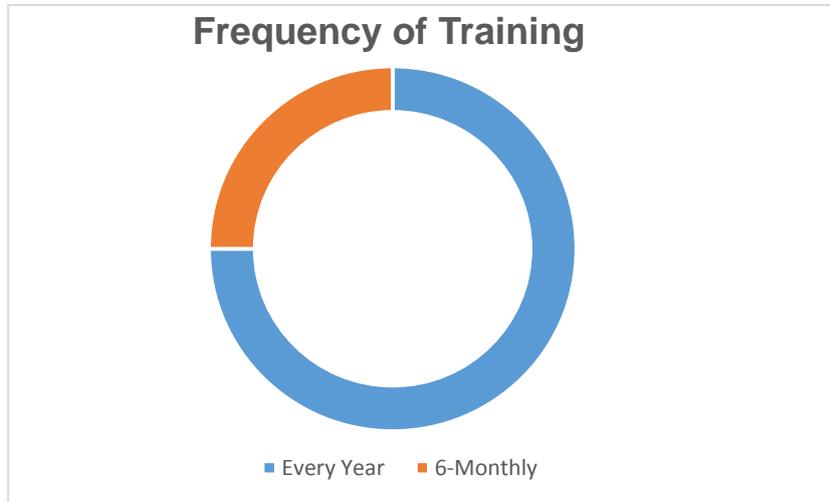


Figure 3: Frequency of Training

Majority of the functionaries felt that the training should be intensive. However, few felt that it could be extensive or on-the job training (Fig. 4).

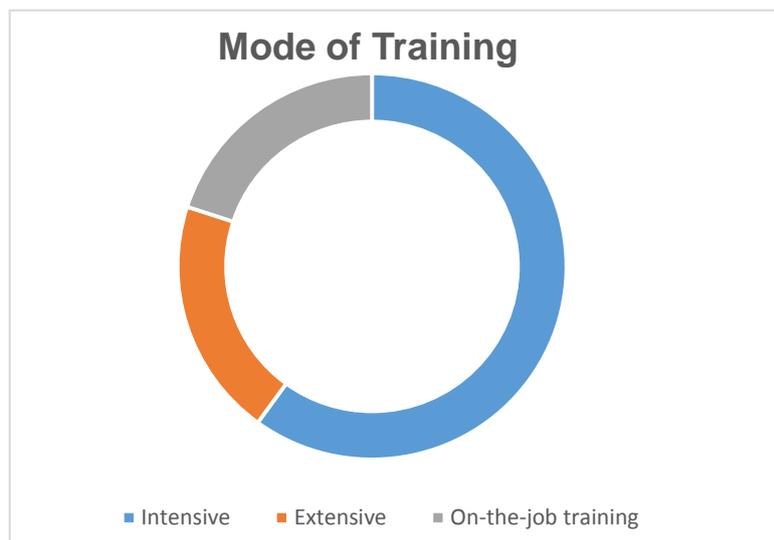


Figure 4: Mode of training

Most of the training participants were interested to have the training in a foreign country, while some were open to have it either in Georgia or in a foreign country as presented in Fig. 5.



Figure 5: Venue of training

The officials were equally divided on the duration of the training being for one-week or two weeks (Fig. 6). However, one person felt that the duration of the training did not matter.



Figure 6: Duration of training

Fig. 6 presents the preference of the officials for one or more of the following training pedagogies:

- Conducted in the form of lectures and presentations only
- Interactive sessions, such as working in small groups, presentations by participants, brainstorming, role playing etc.
- Practical sessions with analysis of case studies, and
- Peer learning.

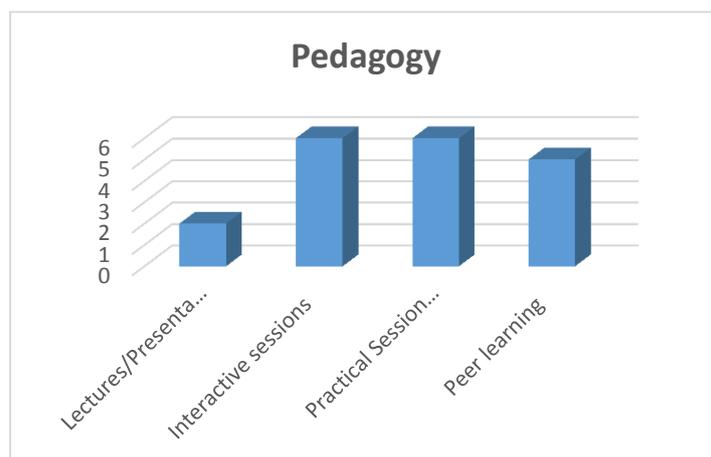


Figure 7: Preference for pedagogies

A.4 RECOMMENDATIONS

The curriculum is based on the TNA and is expected to provide analytical skills and tools to the officials for taking into account the current and future challenges facing the water sector. The training curriculum should provide them with technical and policy knowledge required to identify, assess and address important and emerging water sector issues to reduce environmental risks to public health.

A number of options for delivering the program therefore has to be taken into account, such as:

- Intensive short-courses
- Training provided over a week or a two-week period
- Blended delivery: combinations of one or more options of classroom teaching, field trips, distance learning, webinars etc.

The periodicity of the capacity building program could comprise of:

- Annual training (technical)-once in a year
- Workshops (hands on experience)-once in a year
- Study tours –once in two years
- Webinars-six monthly
- HR trainings-once in a year

The main recommendations are:

- Draw on existing faculty at local universities wherever possible both in the country and across the region
- Apply IWRM practice to draw on national, regional and international bodies (such as Global Water Partnership (GWP), European Union (EU), The World Bank (WB), United States Agency for International Development (USAID), Asian Development Bank (ADB), International River Basin Organizations, etc.)
- Link with universities offering similar degrees in region
- Link with other universities in Europe, the US, etc.
- Use distance learning as a tool for collaboration and additional courses
- The capacity building program has to be institutionalized with a pre fixed annual calendar for training, workshops, web based learnings and study tours
- Budgetary allocation for capacity building in the sector needs to be institutionalized
- TNA exercise should be carried out periodically to improve the training curriculum and tailor it to the needs of the sector professionals

A.5 ADDITIONAL INFORMATION

In addition to the topics mentioned in the TNA, additional topics on emerging issues may be considered (as mentioned in Table 1). These are:

- Institutions for IWRM – International Organizations, environmental enforcement, EU Water Framework Directive
- Flood, Drought and Risk Management and early warning system
- Climate Change and WRM – meteorology, climate change, oceanography courses
- Public Health and IWRM – waterborne disease, social marketing, disease vectors, sanitation management
- Stakeholder Participation – stakeholder analysis, social marketing, gender mainstreaming, sociology of development

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