

## I. COVER PAGE

### TERMINAL EVALUATION REPORT FOR

### UNDP-supported AF-financed Project “DEVELOPING CLIMATE RESILIENT FLOOD AND FLASH FLOOD MANAGEMENT PRACTICES TO PROTECT VULNERABLE COMMUNITIES OF GEORGIA” PROJECT

Outline of Project Details **Table 1:**

<b>Project Title:</b>	<b>“Developing Climate Resilient Flood and Flash Flood Management Practices to Protect Vulnerable Communities of Georgia” PIMS 4583</b>		
<b>PIMS ID:</b>	4583	<b>AF Project ID:</b>	GEO/MIE/DRR/2010/4
<b>UNDP Project ID:</b>	00076540	<b>Project financing</b>	<i>at endorsement (Million US\$)</i> <i>at MTE (Million US\$)</i>
<b>ATLAS Project ID:</b>	00060698	<b>AF financing:</b>	US\$ 4,900,000
<b>Country:</b>	Georgia	<b>IA/EA own:</b>	
<b>Region:</b>	South Caucasus and Western CIS	<b>Government:</b>	
<b>Focal Area:</b>	Tbilisi	<b>Other (UNDP):</b>	US\$ 160,000
		<b>Total co-financing:</b>	
<b>Executing Agency:</b>	Ministry of Environmental Protection of Georgia through the National Environmental Agency (NEA)	<b>Total Project Cost in cash:</b>	US\$ 5,060,000
<b>OtherPartners involved:</b>	Ministry of Infrastructure and regional development (MRDI); Emergency Management Department; Pilot municipalities.	<b>ProDoc Signature (date project began):</b>	Date: 11 June 2012
		<b>Planned closing date:</b>	July 2016
		<b>Revised closing date:</b>	February 2017

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**Timeframe in-country:** From 15 to 23rd December 2016

**Final Report:** Date: 15 February 2017

*Disclaimer: the contents of this report reflect the interpretation of the TE and not necessarily the views of the UNDP, of the Government of Georgia or of the Adaptation Fund*

The Terminal Evaluation (TE) team is thankful to the UNDP Georgia Country office for the support, guidance and information exchange provided; the Project Management Unit for making all the arrangements and facilitating field work and logistics; the officials met at the municipalities of Ambrolauri, Oni, Lentekhi, Tsageri, Tskaltubo and Samtredia as well as the community representatives from villages (Ianeti, Bugeuli, Oni) that were met in focus group discussions ; the availability of the different officials at the Ministry of Environment; the Emergency Management Agency; the Ministry of Regional Development and Infrastructure; the National Environment Agency (NEA), implementing partners and contractors. The information that was provided was analysed and coded to present the results contained in this draft evaluation report.

## II. EXECUTIVE SUMMARY

### ii.1 Project Description:

Even though Georgia is highly-prone to natural disasters, as an independent state, it has a short history of the disaster risk management. After the collapse of the Soviet Union the country experienced a lack of financial, administrative, human, and political capacity to exercise effective patterns for disaster risk reduction. This situation arose even though Climate Change induced changing weather patterns were increasing the dangers of natural disasters.

The project **objective is to improve resilience of highly exposed regions of Georgia to hydro-meteorological threats that are increasing in frequency and intensity because of climate change.** The project helped the government and the population of the target region of Rioni River Basin to develop adaptive capacity and embark on climate resilient economic development. The project is structured along **three outcome statements**: 1) Floodplain development policies in place to minimize exposure of highly vulnerable people of Rioni River Basin (RRB) to climate change induced flood risks; 2) Direct investments and local actions in highly exposed and vulnerable communities improve flood management practice on 8,400 km<sup>2</sup> and build resilience of 200,000 people; and 3) Institutional capacity developed for early warning and timely alert communication to vulnerable communities of the RRB.

The project specifically targeted the six municipalities of; Ambrolauri, Oni, Lentekhi, Tsageri, Tskaltubo and Samtredia and, while considerable focus was placed upon the capacity and resources required to build key national institutions like the National Environment Agency (NEA), the project also paid particular attention to the practical implementation component and addressed the direct interests of local communities ‘on-the-ground’ through their active participation and employment in the community-based adaptation measures, such as bank terracing, river bank protection works, and vegetative buffers and other agroforestry activities.

### ii.2 Progress towards Outputs, Outcomes, and Objective: Ratings & Achievements

#### Summary Table

##### a) Rating for Progress Towards Results

**The overall rating of project progress towards project outcomes is Highly Satisfactory (HS).** The project design is very comprehensive and provides a clear vision of the anticipated objective. The problem analysis that is addressed by the project is clear, well defined, adequately contextualised, and shows a very high level of technical knowledge and expertise that has gone into the preparation of the project document. The project document itself, albeit exceedingly ambitious given its time-frame for implementation and the level of resources available, possesses a very strong basis<sup>1</sup>. The technical studies and technical work of the project have been excellent. Several of the studies/research papers have leveraged interest from higher levels of government within different ministries, and some of the products are set to be used by the Government in the future.

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<sup>1</sup> UNDP comment: The sentence seems to imply that a certain level of un-achievability and that only the project document was available for guiding implementation. It should be noted that the project had a detailed methodology and work plan that show that the project implementation was carefully guided by these documents and not the PD alone. UNDP’s view is that while the project was ambitious and well executed, it was partly due to the use of these more detailed documents that the project was implemented.

The project objective has largely been met, as all the products that were developed as a result of the project implementation have contributed to outcomes that are supportive of the project objective. **The project has clearly achieved its objective of developing climate resilient flood and flash flood management practices to protect vulnerable communities of Georgia through the aggregate effects of the various project components.**

The project has shown that a combination of a very strong technical support, through the outstanding work of the Chief Technical Advisor (CTA) and that of the vetted international experts deployed during the project implementation, a visionary and very complete and comprehensive project design, an excellent project management team, and an important buy-in from Government counterpart (both within the Ministry and in NEA), led to achieving remarkable results in a relatively short time-frame.

The hard and soft skills used in the project and the comprehensive project approach that targeted different stakeholder levels in an inclusive manner: institutions such as the Ministry of Environment, NEA as the main implementing partner, working both at national and local level, technical and political stakeholders in the six target municipalities, and working directly with affected communities on the ground, contributed to a shared understanding and developed a working method that was both innovative for the country and highly conducive to obtaining results.

The rating regarding the achievement of the project outcomes is as follows:

#### **Outcome 1): HS – Highly Satisfactory**

The project has developed a high-quality floodplain zoning policy framework and policy guidance notes through the work of Dr. Margaretta Ayoung who is UNDP's Chief Technical Advisor (CTA) for this project. All key informants emphasised the excellent and comprehensive quality of the work provided, and it is expected that the government will be using the guidance provided in its on-going process of developing climate resilient policies. The document provides a systematic approach that includes guidance for each stakeholder level (including local authorities) and additional options for policy guidance in areas such as flood insurance scheme (developed as part of the project under output 1.5), building resilience and proposed building codes (developed under output 1.3), flood resilient critical infrastructure, carrying out a strategic flood risk assessment, carrying out a site-specific flood risk assessment.

The project has therefore developed both potential policies that can be applied by the government and the guidance note that will enable the government to adopt the policies. There is also a 'road map' document for the implementation of the policy that provides proformas for each stage of implementation and will enable government to monitor progress of the implantation in a step by step manner.

All five outputs contained under outcome 1 have been successfully completed to full stakeholder satisfaction, including the training of NEA and municipality staff.

#### **Outcome 2): S (Satisfactory)**

While the concrete measures and local actions undertaken by the project have been of high quality and leveraged a very high level of satisfaction, with only one exception, the formulation of the outcome is such that it does not allow to provide a HS rating on the work done. This is because the

outcome is targeting an area of 8,400 km<sup>2</sup> of improved flood management practice and is expected to build resilience of 200,000 people in climate change adaptation. The potential is certainly there to achieve this outcome, but it is not possible to consider that at the time of the terminal evaluation there was evidence to support the achievement of these targets. At the same time the **outcome indicator 2.2. does not provide a valid indication regarding the achievement of the outcome, particularly because there was no specific monitoring plan developed to collect and analyse the information.** Nonetheless, the last PPR provides an analysis of the 'lives saved' by the implementation of the FFEWS systems based on standard 'loss of life' calculations for any FFEWS with climate change considerations. And this shows that the FFEWS will save more than 200,000 lives over the next 50 years. Please refer to the updated project results and resource framework that is included as annex and was discussed between the TE and the project management. It shows how project management would have revised the framework if this had been approved by the RTA, and the outcome could have been defined as: 2. **Direct investments and local actions in highly exposed and vulnerable communities improve flood management practice, without mentioning the coverage or number of people whose resilience had been developed in CCA, something that is quite difficult to measure directly and is only feasible to measure after the end of the project or through future projections, as mentioned in the FFEWS "loss of life" calculations which are forward looking.**

As mentioned during the evaluation presentation at the end of the workshop, the activities that produced the outputs are highly satisfactory, but the way the logical framework has been designed does not automatically lead from the outputs to the outcome level. A revision of the logical framework, particularly as regards to the outcome statements and their indicators, would have been needed.

An important finding has been that almost all key informants interviewed specifically mentioned that *this project was highly effective in terms of concrete mitigation measures to reduce vulnerability and improve flood management practice, as opposed to other projects that tended to produce only reports and documents, but no practical results.* The importance of the concrete measures, corresponding to more than half of the project budget, is a salient feature of this project that contributes to outcome 2). Another important aspect was that the *municipalities traditionally worked with a small budget for structural works, so the works undertaken by the project in many cases contributed to increasing the municipality's insufficient capacity to address structural measures.* Finally, it was also indicated by the municipalities that the **traditional approach used by MRDI in structural works focuses more on protecting strategic targets (key roads, building, bridges, etc.) but does not include a social component.** *The project was responsive to the expressed needs and priorities of the communities, through their inclusion and participation in the consultations and definition of the measures to be undertaken, and by encouraging the use of local labour where possible, thereby creating and extremely valuable temporary income source for local residents in economically depressed areas. It therefore had a very positive impact both in terms of the results of the structural measures (no flooding has been reported since the works were completed) but also on the municipalities and communities that benefitted from the project.*

This outcome also encompassed the structural works planned under the project in the six municipalities. **For budgetary reasons, 10 structural works were completed versus an initial target of 15.**

### **Outcome 3): HS – Highly Satisfactory**

The outcome statement regarding capacity development for early warning system has been fully achieved with the introduction of many activities and components that contributed to the achievement of the outcome. The various outputs, including the acquisition of the necessary physical equipment and its installation, the purchase of software material, the establishment of the fulling functioning FFEWS platform, the recurrent training on modelling, are all key elements that contributed to a successful outcome. Again, **minor errors are contained in the logical framework, particularly indicator 3.2 which is incomprehensible** (% of targeted population with more to early warning in the face of climate change – sic) but does not jeopardize the level of achievement of the outcome.

**In terms of impact, the project is more than the sum of its parts.** While each of the different components addresses a critical aspect of the project implementation, **the project itself has played a transformative and catalytic role in the way that the country is approaching flood and flash flood management practices.** The project is visionary and holistic, it measures the benefits of success and potential for enhancing climate change adaptation benefits, shown through a series of step-by-step guidance and research documents produced by vetted subject-matter experts. The project succeeded in making an important change in government in its approach to river basin management. Georgia now understands the need to work with and through the local level (municipalities and local authorities) based on inundation maps produced by the project and working on a spatial and hydro meteorological approach, unlike the traditional approach focusing on the administrative boundaries of municipalities to address floods and flash floods. **The project** also goes further than simply improving climate resilient flood and flash flood management practices. It **provides a road map for a long-term sustainable adaptive management of natural resources in response to climate change which can be extended to encompass other types of hazards** (such as geological hazards) following a similar approach. **The project is clearly providing value for money at the three levels it addressed:**

- 1) **At the conceptual level**, all key informants recognize the expert reports, research, and other published materials to be of the highest technical quality, with state of the art information and good practice guidance, making it very interesting for a country such as Georgia to incorporate these elements in its management practice.
- 2) **At the capacity development level**, the project succeeded in developing the capacity of local municipalities and villages in the activities it completed, on a partnership basis and with genuine regard, respect and incorporation of local level knowledge and expertise. It created a potentially sustainable structure at the local level that could be further developed to ensure increased management and implementation capacity. Concrete project realizations, both for infrastructure (river bank protection) and agroforestry components, were undertaken with innovative approaches that proved inclusive and participatory of the local communities. An essential aspect was that, where possible, local materials and residents were employed in the works done, providing a much-needed, albeit limited, income opportunity. At national level, NEA and the Ministry of Environment obtained tremendous gains as the acquisition and introduction of the equipment for monitoring and forecasting capacities allowed NEA to develop an early warning system. The development and training in modelling was a key

element of success in developing not only theoretical but also operational capacity of the country to forecast properly the flood and flash floods.

- 3) **At the practical level**, the application of the concepts and identified good practices through targeted interventions in high risk areas, identified in collaboration with the primary stakeholders, provided a visible and practical example of what could be achieved in a relatively short time-span. The projects undertaken in the six target municipalities, particularly the infrastructure projects, have come as an enormous relief to the municipalities as their budgets do not allow them to undertake substantial infrastructure works. Another critical aspect was the positive socio-economic dimension for the local communities of the works undertaken: for infrastructure, protection of key points along the river bank through dumping of boulders and other forms of riverbank protection meant that access to the village was ensured while temporary livelihood opportunities were provided for the community residents who participated in the activities. This distinctive feature was not found in other projects undertaken by the government, where the focus is placed on protecting strategic infrastructure, but with an approach that did not consider the socio-economic aspects which this project incorporated.

#### **b) Rating for Project implementation and Adaptive Management: HS – Highly Satisfactory**

**The project management team must be congratulated for its excellent performance.** All key informants interviewed, both at national and at local level, praised not only the way in which the project was implemented and its accomplishment, but also the way the project was managed. Respect, strong communication skills, capacity to generate stakeholder engagement, genuine care and commitment to the objectives, capacity to be flexible and adapt in light of changing conditions, responsiveness, honesty, transparency, effective and efficient financial and administrative handling, are only a few of the extremely positive comments received regarding the project management team. Good practice examples are provided in the body of the report. While the Mid-Term Evaluation (MTE) identified some delays, the remaining project time-frame did not experience any delays, but showed positive capacity to implement the activities within the planned time-frame. The only improvement needed should be about Monitoring and Evaluation, which was insufficiently budgeted (USD 88,000 versus the corporate recommended allocation of 3% from the project budget which would amount to USD 150,000) and therefore led to some gaps that constrained the project's capacity to report on key achievements. However, the project logical framework was approved by the Adaptation Fund so the design of a "light" M&E component was endorsed by the funding organisation, and the Management Response to the MTE declined to follow the recommendation to look at the International Climate Fund (ICF) Key Performance indicators for formulating the higher-level indicators<sup>2</sup> even though outcome indicators are not fulfilling the SMART criteria.

It is also important to highlight the extremely competent technical support provided by the project CTA, the RTA and the excellent work of the various international experts that contributed to the project results and were embedded in the project activities.

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<sup>2</sup> MTE report, Edward Russell and Kate Shkireli, 20 December 2014, executive summary, p. 11, first paragraph

### c) Rating for sustainability: MU (Moderately Unlikely)

According to the AF Results Framework and Baseline Guidance Project Level<sup>3</sup>, sustainability has to be analysed at four different levels: Financial and economic, socio-political, institutional framework and governance and, environmental.

In Georgia, the sustainability is directly depending on a series of pre-conditions, chief of which the level of priority that will be conceded by Government to climate change adaptation measures. It is important to note that the financial structure of NEA is such that it does not receive any funding from the state budget, but from its own revenues: this makes it more vulnerable to changes in institutional management. Recent history shows that changes in government leads to changes in government institutions and the current trend is to curb expenditures (reportedly the government budget expenditures have been cut by 10%) and therefore suppress or downsize all non-essential programmes. There is a threat that NEA might be further affected by institutional changes that will hamper its capacity and ability to continue providing its services.

Another aspect is that the project itself did not design a sustainability strategy: it has shown to the government what could be done, proposed policies and guidance to take action, but it is ultimately the government that will make the decision to adopt and enact the policies. This is a long process that requires high-level advocacy and soft skills to identify champions amongst government, a process complicated by the high turnover in government and the electoral calendar. While the project has created the technical basis for sustainability, the likelihood of sustainability will be linked to the level of funding that might be allocated to maintaining the benefits leveraged by the project.

It is indeed a recurrent challenge common to all projects, as most projects do not contemplate a sustainability strategy that may inform how benefits can continued to be leveraged after the end of the project. It is therefore always a difficult question for projects as they are not designed to become sustainable. Some activities have become part of the ongoing work of the different stakeholders (such as flood modelling maps in NEA), but some will require additional funding that may be difficult to obtain considering the national budget reductions.

The specific Evaluation Rating Table is reproduced hereunder:

Criteria	Rating	Comments
Monitoring and Evaluation	<b>MU</b> <b>Moderately</b> <b>unsatisfactory</b>	Monitoring and evaluation did not benefit from any quality assurance or technical expertise contrary to the actual expertise involved in all other aspects of the projects. As a result, the M&E system could have been developed based on a stronger RBM approach in the design of the results framework and indicators and including a monitoring plan in line with UNDP corporate requirements from the onset of the project. A review of the results framework and of the indicators was suggested by the MTE but not accepted in the management response.

<sup>3</sup> Adaptation Fund, Results Framework and Baseline Guidance, Project Level, p. 20



Overall quality of M&E	MU Moderately unsatisfactory	M&E was not given priority and increased funding and technical support would have been useful for developing an RBM friendly M&E to enable meaningful reporting of results
M&E design at start up	MU	As mentioned above, the initial design of the results framework could have been improved and no monitoring plan was established at the start of the project
M&E plan implementation	MU	A monitoring plan was only produced after the TE recommended it, and it does not fully fulfil the standards as defined in the UNDP PME handbook and other UNDP M&E corporate guidance
<b>Implementing Agency and Executing Agency execution</b>	<b>S and HS Satisfactory and Highly Satisfactory</b>	NEA was the main implementing agency and evidence obtained suggests that capacity development was achieved which contributed to the deliverables produced under the project, namely the production of landslide hazard maps, the design of the structures to implement protection measures in the six target sites, and the establishment and use of the modelling system and FFEWS. UNDP as executing agency was able to fulfil its workplans and responsibilities without any major drawback and to full satisfaction of all project stakeholders.
Overall Quality of Project Implementation/Execution	HS	There is no doubt about the quality of all the activities and outputs undertaken under this project, both by NEA, UNDP and other partners, as evidence by key informant interviews during the TE
Implementing Agency Execution	S	Evidence shows that NEA has definitely increased its capacity through the project and has been delivering good quality products as contemplated in the project document
Executing Agency Execution	HS	UNDP was responsive and flexible to address difficulties and shortfalls and was able to provide a highly professional implementation of the main project components
<b>Project design</b>	<b>HS</b>	The project design and strategy are good and the project is welcome and endorsed by the key partners who recognise its importance. The project clearly addresses national priorities as well as conforming to the global guidelines of the Adaptation Fund. The project design is comprehensive, technically sound, innovative and provides a clear and phased vision on the approach to be followed to achieve results.

<b>Outcomes</b>	<b>O.1 HS O.2 S O.3 HS</b>	<b>Please refer to point a) above for an explanation of the ratings</b>
Overall quality of project outcomes	HS	Please refer to the main body of the report for details regarding the different criteria appraised
Relevance	R	
Effectiveness	HS	
Efficiency	HS	
<b>Sustainability</b>	<b>MU</b>	<b>Please see under sustainability the findings in the body of the report</b>
Overall likelihood of risks to sustainability	ML	There are specific risks to sustainability that cannot be discarded as they are not within the remit of the project to address
Financial resources	U	The GoG has been reducing its budget and it is unclear that funding for CCA will be a priority
Socio-economic	MU	The socio-economic context is not an enabling factor for the project sustainability
Institutional framework and governance	ML	There is strong ownership within NEA and partners of this project, and a willingness to see it scaled up and expanded given the results obtained
Environmental	ML	The active protection provided to the population and the environmental benefits that the project will generate indicate a good potential for sustainability
<b>Impact</b>	<b>S</b>	The project impact is wider than the environmental impact as explained in the body of the report. It has profoundly changed the way Georgia addresses CCA through the Rioni River Basin project and generated excellent dynamics that include state of the art technical inputs in line with EU standards.
Environmental Status Improvement	S	The structural measures have played a key role in protecting the population and preserving lives in the high-risk areas through the active protection measures implemented
Environmental Stress Reduction	S	Project sites where structural and non-structural measures were undertaken are definitely contributing to reduced environmental stress
Progress towards stress/status change	N/A	Not applicable because this needs to be appraised in time and the project has not yet been completed
<b>Overall Project Results</b>	<b>HS</b>	<b>The project has played a catalytic role and needs to be scaled-up at the national level as it has created valuable spin-offs in many directions and allowed the country to understand the benefits of a technically strong and comprehensive approach to river basin management and environmental protection.</b>

### **ii.3. Summary of conclusions, recommendations and, lessons learnt**

The project is an innovative and pioneer design that provides a good approach for climate change adaptive management of the river basins in Georgia. It has been designed with a holistic and comprehensive focus that makes it particularly suited for the needs of the country. It has challenged the traditional paradigm used in Georgia and has brought some state of the art as well as the latest information on flood and flash flood management practices that can be emulated in the country. In many ways, the project has proved to be a revelation with alternative scenarios that suggested a range of options for decision makers to deal effectively with the effects of climate change. Its value goes beyond simply flood and flash flood management, as it can and should be extended to other type of hazards as well. It has resolutely been a sound investment for the country, in terms of acquiring new concepts and updated practices, in developing capacity at national and local level on a range of different aspects, and in providing practical examples of success through concrete interventions that served both to mitigate the effects of climate change and as developing examples of partnership approaches that are inclusive of municipalities and communities.

The project has been ground-breaking in terms of its vision, scope, approach, methodology, implementation, and its generally excellent management capacity, including technical support, expert inputs, procurement, finances, and administration. There is clearly a value in up-scaling this sort of project to cover the entire country based on the successes of the project. It needs however to pay more attention to the budgeting and technical capacity placed in monitoring and evaluation to avoid areas in which a better attention to proper technical inputs from the design phase would have led to improved evidence-based communication and reporting on the project achievements, and informed the initially missing monitoring plan.

There are many lessons and good practices in the project. The first was the capacity of the project to work at different levels: macro/meso/micro, with government and other partners, providing both a conceptual vision of a holistic project approach that included not only high quality technical outputs, but was able to articulate its activities and components through the different layers and down to very practical and pragmatic results at the local level. The project was highly strategic in that it could demonstrate with concrete examples how good practices in line with international and EU standards could be applied. Another lesson was the capacity of the project to mobilise counterparts, including municipalities and villages, during the implementation. In this manner, project knowledge and technical skills cascaded down to the local level, through multiple events including training, workshops, specific meetings, and other activities that systematically targeted the different project stakeholders including the local level stakeholders. Another lesson was the fielding of several recognised international experts during the project interventions down to the municipalities and the villages, something which contributed to creating trust and confidence as local level actors were actively engaged and were not mere observers. One interesting lesson relating to the sustainability is the investment made in agroforestry, as the planting of saplings and seedlings requires some time to obtain a pay-off. It is interesting that in some cases the villages took the challenge to ensure the proper nurturing of the intervention even beyond the life of the project (e.g. Samtredia). The project also rightly used local companies and materials as much as possible, thereby enhancing the socio-economic impact of the project in the target municipalities. The project showed great efforts to engage communities and build ownership through an intensive communication and awareness raising

campaign. It is also important to underline the respect shown by the project towards locally available knowledge and its preservation and incorporation in the project achievements (e.g. dumping of boulders instead of constructing gabion cages).

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#### IV. ACRONYMS & ABBREVIATIONS

AF	Adaptation Fund
CC	Climate Change
CCA	Climate Change Adaptation
CENN	Caucuses Environmental NGO Network
CTA	Chief Technical Advisor
DRM	Disaster Risk Management
EMA	Emergency Management Agency
EU	European Union
EWS	Early Warning System
FEWS	Flood Early Warning System
FRM	Flood Risk Management
FGD	Focus Group Discussion
GEF	Global Environment Facility
GEL	Georgian Lari
HS	Highly Satisfactory
GoG	Government of Georgia
ICF	International Climate Fund
INRM	Integrated Natural Resources Management
KII	Key Informant Interview
M&E	Monitoring and Evaluation
MIA	Ministry of Internal Affairs
MoENRP	Ministry of Environment and Natural Resources Protection of Georgia
MRDI	Ministry of Regional Development and Infrastructure of Georgia.
MTE	Mid-Term Evaluation.
MU	Moderately Unsatisfactory
NEA	National Environment Agency (of Georgia)
PEB	Project Executive Board
RRB	Rioni River Basin
RTA	Regional Technical Adviser.
S	Satisfactory
TE	Terminal Evaluation
TOR	Terms of Reference
UNDP	United Nations Development Programme

## 1. INTRODUCTION

### 1.1 Purpose of the evaluation

The objective of this terminal evaluation is to provide a comprehensive and systematic account of the performance of project results by assessing the project design, process of implementation, achievements against project objectives endorsed by the UNDP and AF (as contained in the project log frame) including any agreed changes in the objectives during implementation and any other results, draw lessons learnt to improve the sustainability of project benefits and UNDP programming.

The TE has three purposes:

- 1) To evaluate results and impact, relevance, effectiveness, and sustainability
- 2) To suggest recommendations for replication of project successes
- 3) To document, provide feedback and disseminate lessons learnt

The scope of the TE is the above-described Project since its start in 2012 until the time of the evaluation.

### 1.2. Scope & Methodology

As requested in the TOR, the evaluation followed the guidance established by the UNDP Evaluation Office, which are compatible with the United Nations Evaluation Group (UNEG) evaluation norms and standards. The TE also adhered to the UNEG ethical guidelines for evaluation. The TE approach was based on the “utilization-focused evaluation” approach that is described by M. Q. Patton in his book “utilization-focused evaluation<sup>4</sup>” that continues to be a good practice reference material for the conduct of evaluations.

The criteria for undertaking the assessment are mentioned in the ToR and are the standard criteria used for project evaluations: relevance, efficiency, effectiveness, impact, and sustainability.

The definition of each of the evaluation criterion is found in the OECD/DAC glossary of key terms in evaluation and results based management prepared in 2002 in the following terms<sup>5</sup> :

“Relevance: The extent to which the objectives of a development intervention are consistent with beneficiaries’ requirements, country needs, global priorities and partners’ and donors’ policies.

Efficiency: A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results

Effectiveness: The extent to which the development intervention’s objectives were achieved, or are expected to be achieved, taking into account their relative importance.

Impact: Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended

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<sup>4</sup> “Utilization-focused Evaluation”, Michael Quinn Patton, 3rd Edition, Sage publications, 1997

<sup>5</sup> OECD/DAC, glossary of key terms in evaluation and results based management, Evaluation and Aid Effectiveness series, 2002



Sustainability: The continuation of benefits from a development intervention after major development assistance has been completed.”

### **Tools and methodology**

The evaluation used a combination of methods, but it was essentially qualitative, with the following methods used to gather/analyse data:

- a) Documentary review of project outputs and reports submitted by the project (as per details in the bibliographical annex);
- b) 22 Key Informant Interviews (KII) with: 6 Government of Georgia officials and PEB members (NEA, MoENRP, MIA MRDI), 6 UNDP (project staff, experts, CTA and RTA), 2 implementing partners (including 3 contractors), 2 other partners, 6 officials from the target municipalities;
- c) Field work in six municipalities including:
  - One focus group discussion in 11 men from laneti village (Samtredia)
  - One individual interview with the representative of Bugeuli village
  - Joint group interview in Oni with municipality and village representatives
  - On-site observation of an actual sample of project interventions

KII were done through semi-structured individual interviews. In total 22 hours of interview time with KII were undertaken, yielding an average interview time of 60 minutes. Additionally, 90 minutes of interview was used to collect data through the FGD for laneti village and for interviewing the representative of Bugeuli village. The interview time spent on feedback from the community in Oni is already included in the KII statistics. Contribution analysis was used to infer the causality between the observed and analysed impact and the factors that led to such an impact.

Triangulation was used to validate the findings. The TE made a short presentation of the evaluation methodology to the Project Executive Board members on the first day of the mission, to identify and manage expectations, and also presented the preliminary findings of the TE on the last days of the field mission on 22<sup>nd</sup> December 2016. The presentation allowed to validate some of the initial findings and thoughts of the TE and counted with the presence of the UNDP CTA.

### **Risks and limitations**

Limited time was given for preparation and for field work. The TOR mentioned no less than 41 questions which cannot be all addressed in depth during the evaluation time-frame. Thus, priority was given to the four major aspects identified, namely 1) the project strategy, 2) The progress towards results and impacts, 3) project implementation and adaptive management, 4) sustainability, replication and scaling-up. The thrust of the evaluation was placed on the three evaluation purposes (as per TOR page 3), namely: 1) evaluation of results, impact, relevance, effectiveness, and sustainability 2) To suggest recommendations for replication of the project successes, 3) to document, provide feedback on and disseminate lessons learnt

The TE Team Leader has worked previously in Georgia but does not speak the language so interpretation was ensured by the national consultant during KII that could not be held in English.

The recent parliamentary elections (October 2016) have contributed to some changes amongst the Government partners, and the holiday period also meant that not all the desired interviews could be held, as some stakeholders who were not directly involved in the project (such as the EU) could not

be interviewed. As a result, the universe of the respondents is limited to the direct project stakeholders, apart from the interview with CENN. Also, senior political figures at the Ministry were not available for interview.

Snow and cold weather conditions affected the access to some of the target municipalities and influenced field work as the infrastructure projects were buried under a heavy coat of snow, making structured observation particularly difficult. Similarly, it was difficult to identify specific learning from the agroforestry projects with the saplings buried in the snow.

### **1.3. Structure of the evaluation report**

The structure of the evaluation report follows the requirement of the TOR for the TE and is as follows:

**i. Opening page:**

- Title of UNDP supported AF financed project
- UNDP and AF project ID#s.
- Evaluation time frame and date of evaluation report
- Region and countries included in the project
- Implementing Partner and other project partners
- Evaluation team members
- Acknowledgement

**ii. Executive Summary**

- Project Summary Table
- Project Description (brief)
- Evaluation Rating Table
- Summary of conclusions, recommendations and lessons

**iii. Acronyms and Abbreviations**

**1. Introduction**

- Purpose of the evaluation
- Scope & Methodology
- Structure of the evaluation report

**2. Project description and development context**

- Project start and duration
- Problems that the project sought to address
- Immediate and development objectives of the project
- Baseline Indicators established
- Main stakeholders
- Expected Results

**3. Findings**

**3.1 Progress toward Results and impact:**

- Project Design

- Progress
- Impact

**3.2** Adaptive Management:

- Work planning
- Finance and co-finance
- Monitoring systems
- Risk management
- Reporting

**3.3** Management Arrangements:

- Overall project management
- Quality of execution of Implementing Partners
- Quality of support provided by UNDP

**4. Sustainability, replication and scaling up**

**5. Conclusions, Recommendations & Lessons**

- Corrective actions for the design, implementation, monitoring and evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives
- Best and worst practices in addressing issues relating to relevance, performance and success
- Lessons learned

**6. Annexes**

- ToR
- Itinerary
- List of persons interviewed
- List of documents reviewed
- Power point presentation of preliminary results
- Co-financing table

## 2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

### 2.1. Project start and duration

The project started in 2012 and was scheduled to end at the end of June 2016. However, it received a no-cost extension until the end of February 2017 to have enough time to undertake the various practical interventions which have all been completed within the extended time-frame.

A complex mountainous topography makes Georgia very prone to hydro-geomorphological processes and climatic hazards. Georgia is in the south Caucasus region, which is vulnerable to natural hazards. Historically, Georgia was exposed to natural disasters, including landslides, floods, flash floods, mudflows, earthquakes, etc. Lately, floods, landslides, droughts, forest fires and coastal erosion along the Black Sea have become more frequent, causing damage to livelihoods and communities.

Around 3,000 settlements (which comprise 80 percent of the total number of settlements in Georgia,) in total with 400 thousand families experienced different degrees of risk of natural hazards during the last 30 years and more than 50 thousand families were resettled. It has been estimated that annual losses caused by natural disasters comprise USD 150-200 million on average (CENN 2007, Natural Disaster Risk Reduction in Georgia). As noted above, the incidence of disasters is increasing and, with the impact of Climate Change, is likely to accelerate.

The landslide hazard is serious in Georgia and 10,000 potential landslide locations have been identified, of which 3,000 are active (Pusch, 2004). Flood events are also very frequent in Georgia. The February 1987 flood in the Tbilisi region alone killed 110 people, affected 36,000 others and caused an economic loss of \$546 million. In 1997, the flood events in the Tbilisi-Gori-Kvemo-Kartli region killed 7 people, affected 500 others and incurred a reported economic loss of \$29.5 million. In June 2005, the flood in the Mtsketa-Tianetsk region killed 1 person, affected 51 others and caused an economic loss of \$2 million (Central Asia and Caucasus Disaster Risk Management Initiative)<sup>6</sup>.

Even though Georgia is highly-prone to natural disasters, as an independent state, it has a short history of disaster risk management. After the collapse of the Soviet Union the country experienced a lack of financial, administrative, human, and political capacity to respond to the needs for disaster risk reduction measures.

The most important steps towards Disaster Risk Management (DRM) were the establishment of two important agencies, which are: Emergency Management Agency (EMA) under the Ministry of Internal Affairs (in 2005) and the National Environmental Agency (NEA) (2008)<sup>7</sup> under the Ministry of Environment and Natural Resources Protection. At a later stage, other institutions and entities became engaged in DRM.

The current arrangements for DRM are complex and involve different agencies. The Prime Minister's Office coordinate the crises event. There is no single agency which is engaged in the whole cycle of DRM. Tasks and responsibilities are spread among the various governmental agencies.

**Emergency Management Agency (EMA)**, which is part of the Ministry of Internal Affairs, is primarily responsible for emergency response during natural and other disasters. Its functions include mitigation and prevention of emergency situations. Together with other entities it is responsible to forecast and monitor emergency situations. EMA develops civil protection and emergency response plans and manages emergency situations both at national and regional level all over the country. EMA is supported by the Expert-Advisory Council (created in 2013, ministerial order #479). The Council is

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<sup>6</sup> [http://www.unisdr.org/files/11641\\_CentralAsiaCaucasusDRManagementInit.pdf](http://www.unisdr.org/files/11641_CentralAsiaCaucasusDRManagementInit.pdf), page 33

<sup>7</sup> The Centre of Monitoring and Prognosis, established in 2006 and re-established later as NEA.

composed of scientists or experts from different Ministries, organizations, academic institutions, research centres and NGOs. The Council provides scientific and expert opinion to EMA on particular natural hazards or any other threats and assists the department to elaborate preventive and mitigation measures.

**The National Environmental Agency (NEA)** is a sub-agency of the Ministry of Environment and Natural Resources Protection, holding the status of a legal entity of public law. The major role of the Agency is to collect and analyse environmental data. Functions related to hazard monitoring, disaster forecasting and prevention also rest within the Agency. NEA is responsible for monitoring of hydro-meteorological and geodynamic processes all over the country. The Agency is required to make forecasts of existing and expected natural hazards and risks and provide early warning notice to the relevant stakeholders.

**Ministry of Regional Development and Infrastructure (MRDI)** is mainly indirectly involved in DRM supporting emergency situation during the recovery process (e.g. fixing communication and transport networks after the disaster, rehabilitation of roads, etc.). A particular function related to river banks and sea coast protection lies within the agency. Monitoring of the vulnerable and risk zones and implementing bank protection measures falls under the competencies of the Coast Protection Unit of the MRDI<sup>8</sup>. The MRDI is supposed to have longer-term strategic FRM/DRM management functions, not only linked to emergency response. However, lack of funding means that it has been largely reactive in the past. With hazard mapping, increased capacity in strategic hazard management, risk models on which to do Cost-benefit analysis of specific intervention, they are now hopefully able to advocate for funds to carry out these strategic functions.

The main laws and strategy documents governing disaster risk management and reduction in Georgia are:

National Disaster Risk Reduction Strategy and Action Plan, formally adopted by the Government in late December 2016; it was developed with the technical assistance of UNDP in 2015, following a comprehensive assessment of the DRR system in Georgia; it was coordinated by the State Security and Crisis Management Council (SSCMC); and is the first ever DRR-related Strategy established which is a very progressive step.

Draft “National Defence Strategy”, 2014

National Environmental Action Plan -2 of Georgia for 2011-2015 (2010),

“National Response Plan for Natural and Man-made Emergency Situations”, Adopted on the basis of the Decree #415, by the President of Georgia (2008);

Law on “Protecting the Population and Territory from Natural and Man-made Emergency Situations” (2007);

Law on “State of Emergency” (1997);

Martial Law of Georgia (1997)

Law on Environmental Protection (1996).

These are outlined to emphasise the complexity of the regulatory environment that the project has to navigate. The project interacts with a range of different ministries and agencies within this complex regulatory system.

Georgia was part of the Hyogo Framework for Action (HFA) from 2005 and is now part of the Sendai Framework For Disaster Risk Reduction since 2015 (up to 2030) which was adopted and used to inform Georgia’s national DRR strategy. Georgia is committed to regularly monitoring of the implementation as well as ensuring regular reporting to the Sendai Secretariat. Georgia has several bilateral

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<sup>8</sup> The Coast Protection Unit was part of the NEA. In 2011, during restructuring of the Ministry of Environment the Coast Protection Unit was transferred from NEA to the MRDI.

agreements with different countries, including Azerbaijan, Armenia, Russian Federation, Kazakhstan, Turkey, etc. These agreements envisage support and cooperation with the above-mentioned countries during man-made and natural hazards.

## **2.2. Problems that the project sought to address**

The underlying causes of vulnerability to climate change in the Rioni Basin can be categorised into 1) physical factors –direct manifestations of climate change, 2) factors caused by anthropogenic intervention – those related to the harmful ways in which humans have and continue to interact with the environment which has exacerbated vulnerability and 3) Institutional factors – related to the legislative/regulatory barriers placed by government and other institutions, as well as limited capacity (human and resources) to manage climate change vulnerability.

It is within this context that the project under review selected the Rioni River Basin as the pilot area for this climate change Adaptation Project and specifically set out to address the following barriers to building climate change resilience:

- Land use decisions are over-fragmented across the various institutions at all levels that result in absence of any coherent land use policy. As a result, there are no regulations for internalizing climate change risks into land use policy nor zoning or land use planning limits and controls to manage flood risks more effectively;
- any regulations imposing restrictions on business and infrastructure development are likely to be viewed by some at the government institutions as potential limitations to economic progress, much needed for country's poverty reduction aims;
- observation capacities are equally low that hampers more vigorous early warning; *alert levels have not been revisited for decades and hazard maps need to be updated with comprehensive forward looking hazard profiling;*
- there is limited knowledge and application of the latest methods of flood management, especially bio-engineering methods that are more robust to all possible hazard evolution scenarios that might be realized in Georgia, as a result of climate change; and
- human capacities are limited at national and especially at local levels and lack decision support tools that help a better preparedness to increasing flood risks.

## **2.3. Immediate and development objectives of the project**

The project's overall objective is **"To improve resilience of highly exposed regions of Georgia to hydro-meteorological threats that are increasing in frequency and intensity as a result of climate change"**.

In order to achieve the overall objective, the project has identified the following **three specific outcomes**:

1. Floodplain development policies in place to minimize exposure of highly vulnerable people of Rioni river basin to climate change induced flood risks;
2. Direct investments and local actions in highly exposed and vulnerable communities improve flood management practice on 8,400 km<sup>2</sup> and build resilience of 200,000 people;
3. Institutional capacity developed for early warning and timely alert communication to vulnerable communities of the Rioni river basin

The outcome statements are supported by several outputs as follows:

Outcome 1 outputs:

- 1.1 Hazard and inundation maps produced for the whole basin
- 1.2 Enhanced land-use regulations introduced (land-use planning, including zoning and development controls, e.g. expansion, economic development categories, etc.) to ensure comprehensive floodplain management and spatial planning
- 1.3 New building codes reviewed and streamlined for the house rehabilitation schemes to flood proof new buildings (e.g. material standards, traditional house raising, etc.)
- 1.4 Targeted training of national and local authorities responsible for climate risk management in advanced methods of forward looking climate risk management planning and flood prevention measures
- 1.5 Community-based flood insurance scheme designed and implemented covering highly exposed villages under 6 municipalities

Outcome 2 outputs:

- 2.1. Direct measures of long term flood prevention and risk mitigation designed with participation of local governments and population in 6 municipalities (Lentekhi, Oni, Ambrolauri, Tskaltubo, Samtredia, Tsageri)
- 2.2. Community-based adaptation measures, such as bank terracing, vegetative buffers, bundles, and tree revetments implemented through the municipal employment guarantee scheme;
- 2.3. Flood plain season productive systems (e.g. short-season annual cropping, cattle rearing plots or seasonal pastures, agroforestry) benefit 200,000 people and improve resilience to flood threat;
- 2.4. Lessons learnt and best practices documented and disseminated to raise awareness of effective climate risk management options for further up-scaling

Outcome 3 outputs:

- 3.1. Long term historical observation data digitised and used in policy formulation and risk management practices
- 3.2. Multi-hazard risk assessment for the Rioni river basin (floods, flash floods, associated mudflows, and landslides, linked with climatic alterations under alternative scenarios)
- 3.3. Series of targeted training delivered for the NEA staff and partner organisations in the advanced method of risk assessment and forecasting;
- 3.4. Essential equipment to increase monitoring and forecasting capabilities in the target basin procured and installed;
- 3.5. Systems established at the national and sub-national level led by the NEA for long and short term flood forecasting of hydrological risks; including dissemination and communication of forecast

The project log frame has identified indicators to measure progress at the outcome and at the output levels, with outcome 1 with one indicator, outcome 2 with two indicators, and outcome 3 with four indicators.

The project aims to develop resilience of highly vulnerable communities and regions to climate related hazards, such as floods, and flash floods. Activities have been prioritised through consultation with

local communities including heads of municipalities, NEA (National Environment Agency at the Ministry of Environment Protection) local staff responsible for management of the hydrometric network and national NEA and Ministry of Regional Development and Infrastructure (MRDI) staff responsible for the assessment of need (NEA) and implementation of flood protection measures in the catchment (MRDI). The project takes an integrated and comprehensive approach by addressing critical gaps in land use policy and regulatory framework, fundamental to climate resilient flood management. The project implements the Georgian Government's priorities for effective and long term measures for flood prevention and management by direct involvement of local municipalities and populations residing in the highly-exposed locations. The project enhances the capacity of national agencies to timely and effectively deliver early warning. A balanced combination of policy, early warning and concrete adaptation actions support Georgia to take steps towards long term resilience of the most vulnerable communities residing in the Rioni River Basin region.

#### **2.4. Baseline indicators**

The baseline indicators established for the project, where and when available, were relatively clear. However, no M&E expert input was leveraged to provide quality assurance on the logical framework, which caused some of the indicators not to comply with the SMART criteria and caused the construction of the outcome statements themselves not to be the most adequate.

#### **2.5. Main Stakeholders**

The project stakeholders included:

- The six participating municipalities within the target pilot area of the Rioni River Basin: Ambrolauri Municipality, Oni Municipality, Lentekhi Municipality, Samtredia Municipality, Tskaltubo Municipality and Tsageri Municipality.
- Ministry of Environment and Natural Resources Protection of Georgia.
- The National Environmental Agency (NEA) that falls under the Ministry of Environment and Natural Resources Protection.
- The Ministry of Regional Development and Infrastructure (MRDI).
- The Emergency Management Agency, Ministry of Internal Affairs of Georgia.
- Natural and Technological Hazard Management Service, Ministry of Environment and Natural Resources Protection of Georgia
- Partners such as Elkana, USAID Project "Integrated Natural Resources Management in Watersheds of Georgia" and other PEB members
- The population catchment area includes the 200,000 people living in the six pilot municipality areas of Ambrolauri, Oni, Lentekhi, Samtredia, Tskaltubo and Tsageri. Other potential beneficiaries include the over 900,000 people living in the Rioni River Basin.

The project builds on a number of earlier development projects, but is not duplicating any of such projects (details on these projects are mentioned in the MTE report).

### **3. FINDINGS**

#### **3.1. Progress towards results and impact**

- **Project Design: Highly Satisfactory (HS)**



The project design and strategy are good and the project is welcome and endorsed by the key partners who recognise its importance. The project clearly addresses national priorities as well as conforming to the global guidelines of the Adaptation Fund. The project design is comprehensive, technically sound, innovative and provides a clear and phased vision on the approach to be followed to achieve results.

Substantial research has gone into the project design, and its scope is quite ambitious considering the project time-frame and amount of funding available. While a number of different options could have been exercised during the selection of activities and outputs to be produced, the project managed to identify a good balance between the conceptual and technical know-how that needed to be generated, the development of the partners' capacity at national and local levels, and the practical activities that directly mitigate the effects of the floods and flash floods and contribute to building the resilience of the target municipalities and their population. The overall project design is of very high quality and for the TE team leader is reminiscent of larger projects funded by the World Bank with substantial technical knowledge built into the design.

The only aspect in which the project design could have used some improvement is in leveraging proper technical oversight on the development of the logical framework, considering that the outcome statements could be improved. Furthermore, some of the outcome indicators (such as 3.2) are not comprehensible while other indicators are not realistic (e.g. indicator 2.2) as no monitoring plan or matrix was designed at the start of the project to collect evidence of progress. This aspect was raised in the MTE and a monitoring plan was developed, but according to discussions with UNDP the RTA decided not to revise the logical framework given that the project was already on track and untriangulated information suggests that the effort level that needed to be put into a revision of the logical framework and the project document was not seen to be justified.

A common oversight of the project design is to identify the degree to which the project is responsible for the outcomes. To reach outcomes, policy decisions should be taken, and enacted, something that can only be done by the Government of Georgia, and not by the project management team or the project executive board. There is an understandable tendency to consider the project as a joint venture with the Government of Georgia, but it should be clear that the project's responsibility stops at developing proper studies, policy guidance, developing capacity, acquiring equipment, training, leveraging ownership from government, so that the necessary policies, laws, rules, and regulations will be in conformity with international good practice to support the project objective. However, it is excessively ambitious to consider, for example, that the flood plain policies "are in place" when what the project can achieve is to develop guidance for these policies and advocate for their adoption and application. As mentioned in the MTE, legislative processes can be quite protracted in Georgia, so the statements used in the logical framework should reflect only what the project is achieving, not that part which depends on the Government's ownership and application of the guidance provided, which it may or may not choose to apply.

- **Progress:**

**The overall rating of project progress towards project outcomes and its objective is High Satisfactory (HS).**

Of the 15 individual outputs in the log frame that contribute to the three identified outcomes, **13 have been implemented to full stakeholder satisfaction** as described in the project document.

From a qualitative perspective, from the 22 key informants interviewed, **the level of satisfaction with the project results is very high**. Using a five-point scale from 1 (minimum) to 5 (maximum), the project was rated **an average of 4.90** from the 22 KII. Individual responses are as follows:

Rating scale 1 to 5 (n=22)	4	4.5	5	Total	Average
Number of responses	1	2	19	22	4.90

Source: KII notes from the TE

Several key informants mentioned the mix of the high quality of technical expertise of the reports and documents provided, including policy guidance documents, the actual concrete adaptation measures implemented, the capacity development of the various project stakeholders, as a distinctive and salient feature that made this project different from other projects dealing with climate change adaptation.

Another important aspect was how the project could work at different levels, from the wider national level to the local level inclusive of communities, and build commitment and ownership through the different phases of the project implementation in an inclusive and collaborative manner.

Two individual outputs that were not fully completed are: 1) the piloting of one community-based flood insurance scheme, as target for the output 1.5 which is identified as “community-based flood insurance scheme designed *and implemented....*”. As mentioned before, the project cannot substitute government ownership and decision-making. The insurance scheme has been designed and is of very good quality, having also leveraged substantial interest within different ministries at the highest level. It was developed for the whole basin and not just the six target municipalities and includes state-of-the art modelling tools (not even found in some more advanced countries) which will enable the Government of Georgia (GoG) to fully manage weather index insurance (WII) scheme for Rioni. It is also highly scalable to the rest of Georgia once similar hazard maps and socio-economic data are included in the model. Nonetheless, several Key Informants recognized the high quality of the work undertaken in developing the insurance scheme but did question its applicability in Georgia, and more particularly in the project target areas, as the scheme requires a minimum threshold of economic activities to be applicable.

The number of measures implemented in the six target communities amounted to **10 instead of the planned 15** (output 2.1., indicator 2.1.2), considering the available budget and time-frame for implementation. In terms of quality and satisfaction, project measures implemented obtained the highest level of satisfaction from the municipalities and the community residents. One exception is the expectations from the agroforestry measures undertaken in Oni, which are further discussed to draw two lessons from the event.

Individual results as reported in the last available PPR were as follows:

Type of Indicator	Indicator	Baseline	Progress since inception	Target for Project End
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<p><b>OUTCOME 1: Floodplain development policy introduced to improve long term resilience flood/flash flood risks</b></p>	<p>Indicator 1.1: Floodplain development policies in place, which minimise Climate change vulnerability implemented by close of the project</p>	<p>Fragmentation and gaps in policies and national regulations for long-term flood/flash floods under climate change</p>	<p><b>Target for the Project End has been achieved:</b> Floodplain zoning policy framework and policy guideline notes were developed, which aims to integrate flood risk management into the land use planning process in Georgia. The document is based on flood hazard maps (Done in Output 1.1) and risk modelling (Done in Output 1.5). The document includes development control rules and land use designation for each flood zone. Risk model which calculates damages and losses has been developed for assessment of strategic FRM options (and is a key decision-support which will help government understand the costs and benefits of FRM interventions in the basin, and change to risk due to other changes in the basin). The risk model has been used as the basis for a flood insurance model which calculates premiums to be paid within each flood insurance zone and the associated payouts for each different magnitude of flood event. An insurance scheme has been developed for the whole basin (which is over and above the original plan to develop schemes for only the 6 target municipalities) and has the potential to be eventually implemented nationally. Employee guarantee scheme developed and launched and has been utilized in the implementation of agro-forestry measures in Rioni.</p>	<p>Accurate hazard and risk maps; Land use and floodplain development policy for Rioni basin; Flood insurance scheme for target municipalities; Employee guarantee scheme in place</p>
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Output 1.1. Hazard and inundation maps produced for whole basin	Indicator 1.1.1: Studies conducted to develop, model and map the hydrometeorological hazards of the whole Rioni basin	Lack of appropriate hazard maps on which to base floodplain policy	<p><b>Target for the Project End has been achieved:</b></p> <p>Completed with good quality maps for hazards (landslides and inundation). Detailed geologist reports and cadastral information produced. Landslide and mudflow maps prepared for six target municipalities (Oni, Ambrolauri, Lentekhi, Tsageri, Tskaltubo, Samtredia). Flood maps have been prepared for whole Rioni and Tskhenistskali rivers with 2, 5, 20, 50, 100, 500, 1000 years flood return periods.</p>	Accurate hazard and risk maps on which to base development policy
Output 1.2 Review and change land use regulations (land use planning, including zonings and development controls, e.g. on protection / buffer zones, settlement expansion; economic development categories etc.) to internalize climate change risks into floodplain management and spatial planning.	Indicator 1.2.1. A comprehensive and robust land use and floodplain development policy framework for Rioni basin	Fragmentation and gaps in policies and national regulations for long-term flood/flash floods under climate change	<p><b>Target for the Project End has been achieved:</b></p> <p>Land use development policy finalized. Technical reports completed, reviewed legislation and the institutional framework, defined gaps and provided recommendations for a comprehensive land use and flood plain development policy framework, which is also finalized.</p>	Floodplain land use and development policy which addresses fragmentation and gaps in place by project completion
Output 1.3 New building codes reviewed and streamlined for the housing rehabilitation schemes to flood proof	Indicator 1.3.1. New building codes including building flood resilience measures		<p><b>Target for the Project End has been achieved:</b></p> <p>Building codes were reviewed and recommendation for flood resilient building codes have been developed and presented to the relevant authorities; the project advocated for considering</p>	

new buildings (e.g. material standards, traditional house raising etc.) considering alternative climate change scenarios			these recommendations in the new construction law that was developed under the leadership of the Ministry of Economy and Sustainable Development and is pending Parliament ratification	
Output 1.4 Targeted training of national and local authorities responsible for climate risk management in advanced methods of forward looking climate risk management planning and flood prevention measures	Indicator 1.4.1. at least 42 NEA staff and 60 municipality staff trained in modern hazard mapping and risk assessment techniques	Low capacity among national and regional staff to undertake hazard mapping and risk assessment to support development of floodplain policy	Training provided in the previous period: 12 NEA staff trained additionally on hydraulic modelling (5 women). 26 NEA staff trained on use of GIS in hazard mapping and risk assessment (12 women). Additional training provided in the current reporting is as follows: Risk Model training of 6 NEA experts (2 women), Hydraulic Model training for 11 NEA staff. Flood forecasting and early warning training will be conducted in July 2016 for NEA's staff as well climate risk management/DRR training will be conducted for local municipalities in August 2016. Now flood forecasting and early warning training for NEA's staff has been conducting.	At least 42NEA staff and 60 municipality staff (at least 50% women) trained in modern hazard mapping and risk assessment techniques
Output 1.5 Community-based flood insurance scheme designed and implemented covering highly exposed villages under 6 municipalities	Indicator 1.5.1. At least 1 pilot community-based flood insurance scheme in place	There is no flood risk insurance in place in Georgia.	<b>Target for the Project End has been achieved:</b> An innovative flood insurance model has also been developed which calculates losses to be insured within each flood insurance zone (based risk model and flood zoning) and the associated payouts that should be made in each event to each flood receptor. The Insurance Model is based on the principle premise is 'pooled risk' based on mutually agreed formula for calculation of premiums based on risk zones and pay out based on gauging station	Local-level flood insurance scheme to steer development away from high risk areas in place by project closure

			trigger levels. Hence the insurance scheme that has been developed is weather index-based. The scheme was extensively discussed and agreed with the senior government officials as well as insurance sector; however, Government should take lead in piloting this scheme in Rioni basin.	
<b>OUTCOME 2: Climate resilient practices of flood management developed and implemented to reduce vulnerability of highly exposed communities</b>	Indicator 2. 1: Number of community based adaptation solutions implemented at the local level upon project closure.	Investment in flood intervention measures limited and annual, falls short of what is required	Number of options for both structural and non-structural measures for improved flood management have been designed and implemented (some structural and nonstructural activities still are ongoing). Totally ten flood defense structures on high-risk sites will be completed by end of the project.	Implementation of adaptation measures that are a mix of traditional engineering and bioengineering solutions
	Indicator 2.2: % of population with improved water management practices resilient to climate change impacts in the targeted regions.		Socio-economic risk model which calculates damages and losses has been used to calculate damages averted for all aspects of the project intervention measures (structural, non-structural). Preliminary results show that e.g. agro-forestry will protect 800 ha of cropland. In addition, the structural measures already implemented have benefited the following communities: Communities in Lentekhi (with 1450 people) and 8 adjacent villages from flooding up to the 1 in 100 year; In Chalistavi (Tsageri municipality) - 408 people, 35 ha. agricultural land and main road; Sajavakho - 950 people, school, 20 ha. agricultural land and railway road; Zarati - 515 people and main road.	

Output 2.1 Direct measures of long term flood prevention and risk mitigation designed with participation of local governments and population in 6 municipalities (Lentekhi, Oni, Ambrolauri, Tskaltubo, Samtredia, Tsageri)	Indicator 2.1.1. Feasibility outline and detailed design studies undertaken to ensure the best climate resilient intervention measures are adopted which will include bioengineering solutions as well as traditional hard engineering options.	Traditional engineering measures employed which do not take account of climate change and fail in subsequent hazard events. Climate resilience not built into current approach to direct flood intervention measures.	Ten structural measures (flood defense structures) have been completed. All structures are located in the six pilot municipalities. As a construction material, boulders were used in almost all sites. Structures have been designed and constructed to the 1 in 100-year Standard of Protection	
	Indicator 2.1.2. 15 schemes implemented in the 6 municipalities		The employment guarantee scheme was designed, based on detailed assessment of employment status of the target municipalities, and has been launched via a workshop with all municipalities. The scheme has been utilised through which local people were employed in the implementation of climate of Agroforestry schemes (about 160 local people were employed) that indeed generated more ownership and enabled generating income. The project has partnered with ELKANA, a Georgian NGO who led these works.	
Output 2.2 Community-based adaptation measures, such as bank terracing, vegetative buffers, bundles and tree revetments implemented building on an existing municipal employment guarantee scheme	Indicator 2.2.1. Municipal employment-guarantee scheme employing local people in the implementation of the adaptation schemes being implemented. Long-term involvement of local population in the maintenance of flood protection infrastructure	Current approaches do not involve local communities in the implementation of measures and do not address the recurring problem of loss of agricultural property to flood damage		Set up and implement employee guarantee scheme (targeting 200 employees in each municipality, at least 50% women)
Output 2.3 Flood plain seasonal productive systems (e.g. short season annual cropping, cattle rearing plots or seasonal pastures, agro-forestry) benefit	Indicator 2.3.1. Agro-forestry, cattle rearing plots and seasonal cropping measures adopted in all 6 municipalities established		Eleven plots were selected for Agro-forestry, (nine in Samtredia, one in Tskaltubo and one in Oni municipalities), with total area about 11 ha. All plots were fenced and planted with different species like Willow, Ash tree, Oak, Acacia, Wild plum and Nut. Totally 24 000 of trees planted. For the time being maintenance works are being conducted on the plots.	

200,000 people and improve resilience to flood threat				
Output 2.4 Lessons learned and best practices documented and disseminated to raise awareness of effective climate risk management options for further up-scaling	Indicator 2.4.1. Process for gathering and documenting lessons and distilling these into 'best practice' examples understood and agreed to by key stakeholders and being used		The project design included the development of technical guidance documents in order to codify all of the technical aspects of the project, to make them repeatable and up-scalable to other catchments. Guidance documents have been written for all aspects of the technical work undertaken on the project so far. Hence best practice has been codified and represents lessons learned.	
<b>OUTCOME 3: Early warning system in place to improve preparedness and adaptive capacity</b>	Indicator 3.1. Flood forecasting and early warning systems introduced to benefit over 200,000 people at risk in the Rioni basin from flood, flash flood and landslide risk in the basin.	Monitoring network in the Rioni basin was reduced from 22 to 4 meteorological stations since the early 1990s. The 4 remaining meteorological stations covering all of Rioni basin is inadequate for effective early warning.	<b>Target for the Project End has been achieved:</b> 35 monitoring stations/posts have been purchased and installed in different places of the Rioni river basin. All these stations/posts are included in the monitoring network, which is operated by the National Environmental Agency.	Long term historical observation data digitised and used in policy formulation and risk management practices
	Indicator 3.2. Establishment/rehabilitation of monitoring stations to increase spatial coverage			



	Indicator 3.3: % of targeted population with better access to early warning in the face of climate change	Currently limited warnings to communities	<b>Target for the Project End has been achieved:</b> Introducing the modern Flood Forecasting Early Warning System (FFEWS) within NEA completed. Now the system allows to disseminate warning more precisely and as early as possible. About 90% of target population have better access to flood/flashflood early warning in Rioni river basin. The FFEWS directly benefits 283,162 people in the Rioni basin currently at risk from flooding up to the 1 in 1,000 year event and the 38,857 properties (29.9% of all properties) located in the floodplain. In addition, the net present value of a statistical life saved by the implementation of the FFEWS is \$5.5 Million USD (based on the assumption of a 20-year life of the implemented FFEWS and an average life loss in Rioni of 6 in 21 years and using standard assumptions of value of a statistical life).	
	Indicator 3.4. Number of national and local staff with flood forecasting, early warning and flood risk assessment capabilities	There is currently limited capability among national NEA staff for undertaking flood risk assessment and forecasting and limited experience of	During implementation flood forecasting and early warning system for Rioni river basin 14 staff from the National Environmental Agency, two staff from Emergency Management Agency and six staff from target municipalities were engaged in this process. They now are capable, especially staff from NEA, to manage the newly created system.	
Output 3.1 Long-term historical observation data digitized and used in policy formulation and risk	Indicator 3.1.1. Database of historical observation data for Rioni digitised	EW systems implementation and operation	<b>Target for the Project End has been achieved:</b> 30-year historical data in meteorology, hydrology and geology was digitized and has been used for the flood modeling. Data was digitized from 58 historical gauging stations.	

management practices				
Output 3.2 Multi hazard risk assessment for the Rioni river basin (floods, flash floods, associated mudflows and landslides, linked with climatic alterations under alternative scenarios)	Indicator 3.2.1. Rioni flood forecasting model developed, which will couple outputs from downscaled meso-scale meteorological systems to HEC-HMS hydrological models. Linked forecasting met-hydrological-hydraulic model.		<b>Target for the Project End has been achieved:</b> A flood forecasting platform, based on Deltares-FEWS, is being developed and implemented. Flood warnings are provided for the Rioni Basin. All the different components of the FFEWS models are linked and merged to precipitation sources, including the assessment of quality from the forecasting and the satellite sources.	Provision of access to up-to-date, definitive hazards and forecast information via single GIS-based data management and dissemination system
Output 3.3 Series of targeted training delivered for the NEA staff and partner organizations in the advanced methods of risk assessment and forecasting	Indicator 3.3.1. At least 10 NEA staff trained in risk assessment and forecasting and EWS. Municipality emergency staff trained in emergency response. Strengthened capacity of national and local staff in monitoring, flood forecasting, early warning and emergency response		14 staff from National Environmental Agency and 6 staff from target municipalities trained in risk assessment and forecasting and EWS.	At least 10 NEA staff with gender balanced composition trained in risk assessment and forecasting and EWS
Output 3.4 Essential equipment to increase monitoring and forecasting capabilities in the target basin procured and installed	Indicator 3.4.1. Purchase and install 5 Met stations, 20 Met posts, and 10 Hydrological posts. Observation network of all hydrological and meteorological variables to provide an appropriate level of spatial resolution of these variables for early warning	Monitoring network in the Rioni basin was reduced from 22 to 4 meteorological stations since the early 1990s. The 4 remaining meteorological stations covering all of Rioni basin is inadequate	<b>Target has been achieved:</b> 5 Met stations, 20 Met posts, and 10 Hydrological posts have been purchased and installed on selected places. They are connected to the system.	Purchase and install 5 Met stations, 20 Met posts, and 10 Hydrological posts

		for effective early warning.		
Component 3.5: Systems established at the national and sub-national level led by the NEA for long and short term flood forecasting of hydrological risks; including dissemination and communication of forecasts	Indicator 3.5.1. A fully integrated flood early warning system (Deltares-FEWS) which links forecasting models to telemetered data as input and forecasting reporting and warning systems as output.	Various out-of-date and inadequate hazard maps are used for emergency planning and response by different agencies	<b>Target for the Project End has been achieved:</b> The FFEWS model and platform in Deltares-FEWS has been developed which is linked to precipitation information from the stations, combined with precipitation information from satellite and forecasting modelling sources. Within this platform, several modelling packages are linked. Mike 11 software used within the Deltares-FFEWS platform which is linking different meteorological data forecasts (COSMO 7km local rainfall modelling, WRF rainfall modelling used in Hec-HSM rainfall-runoff model, plus observed rainfall from satellite and from automatic rainfall gauges, to provide an integrated flood forecasting system which provides up to 72 hours lead time. The precipitation information is being used to derive discharge values through a hydrological model, and then, those flows are used in a hydraulic model which predicts river flows and levels throughout the event. The final output from the forecasting platform is water levels, discharges and flood outlines from the hydraulic model.	Provision of access to up-to-date, definitive hazards and forecast information via single GIS-based data management and dissemination system
	Indicator 3.5.2. An early warning communication network using different communication links such as telephone trees, SMS and e-mail networks	Currently limited warnings to communities	<b>Target for the Project End has been achieved:</b> The Early Warning system has been designed and linked to several different telecommunications methods to the forecasting model to provide timely and appropriate warnings for different parts of the basin. The status of the	Development of emergency plans

			implementation is as previously planned. An Institutional arrangement and plan for FFEWS has been elaborated and presented to government and other stakeholders. The institutional plan for FFEWS was developed based on a review of current institutional set up (using one-on-one meetings, questionnaires and interviews), and is cognizant of other national initiatives that are taking place in parallel such as the establishment of the Crisis Management Centre and the ongoing works of Emergency Management Agency.	
	Indicator 3.5.3. GIS-based website for dissemination of hazard maps and associated information, such as hydrometeorological telemetric and Deltares-FEWS data to central and local government stakeholders.		<a href="http://rionimaps.nea.gov.ge/">http://rionimaps.nea.gov.ge/</a>	90% of people in Rioni basin to have access to early warning messages/signals by completion of project
	Indicator 3.5.4. A public-facing website presenting key layers of information, with the potential to disseminate early warning information to the public.		<a href="http://rionimaps.nea.gov.ge/">http://rionimaps.nea.gov.ge/</a>	
	Indicator 3.5.5. Early warning awareness and training workshops for community, NGOs, government and media representatives.		Several early warning trainings are conducted for NEA staff and other stakeholders. It is planned to conduct one more training in July 2016 and September 2016 for local communities.	

The impressive project progress is, beyond the eminent and evident technical knowledge that the CTA, international experts and the project team possessed, only achievable when the technical expertise is coupled with a sound communication/partnership approach, which was clearly the case in this project, and sound and efficient management, that was also a key feature of the project. No matter how good the technical expertise and technical knowledge and the quality of the technical reports, if the soft skills to engage stakeholders in a participatory manner and sound project management are not part of the project implementation, such a progress cannot be achieved.

- **Relevance**

The project is Highly Relevant to the needs of the country, of the municipalities, and of the communities that live along the RRB.

In the current institutional context in Georgia, a water law is now in the final draft of regulatory impact assessment phase, which includes river flows. Furthermore, EU integration requires to shift from the principle of administrative boundaries (followed up to the present in Georgia) to that of River Basin Management – an integral part of the project design and strategy which has therefore been a trigger and a catalyst elevating management principles up to EU standards. In all municipalities visited, the measures undertaken by the project were deemed to be critical and in some cases even vital, particularly for some of the villages. For municipalities, the budget is often a crucial element that does not enable them to take the necessary actions to mitigate flood risks. One example was given in which the budget allocation enables the municipality to build from 150 to 180 lineal meters of river bank protection per year, versus a project intervention that covered 250 lineal meters. This can give an idea of the importance of the project realisations at the local level from the perspective of the municipality.

- **Efficiency**

The project shows an excellent value for money ratio. It has a high level of accountability, and has been ensuring systematic audits that support its transparent and efficient management. The concerns raised in the MTE about not having local contractors participate in the bidding did not materialize and the interventions were undertaken without any problem or delay, with one exception in which the contractor had to be replaced, and the work could proceed as planned.

A group interview with two contractors (one local, one from the region) showed that while the contracting procedures for UNDP may be complicated, the project management took time to hold information sessions and extended various invitations to potential bidders so that the procedures would be understood and would not introduce a selection bias. The contractors interviewed confirmed that the procedures were not more complicated than in the public sector, and that their contractual obligations were fulfilled without problems or difficulties with UNDP.

As an example of good practice, it should be mentioned that a reallocation of the management cost was made to realize concrete implementation measures, which again shows the level of responsiveness, flexibility, and commitment from the project management team.

- **Effectiveness**

The project was highly effective at the different levels it performed: as shown above in the ratings table from key information interviews, the overall level of satisfaction with project results is very high from all different stakeholders interviewed: NEA, EMA, MRDI, Municipalities and communities, in addition to contractors and other stakeholders. In addition, the project was effective in producing high quality technical report and materials on a range of connected issues linked to the project objective, including very useful and usable policy guidance document. It was catalytic in developing capacity from national down to local level, in part through the acquisition of specific equipment and materials, in the acquisition of a hydraulic model which the country did not possess before the project, and in including municipalities and community residents in the capacity development activities. As mentioned above, the concrete adaptation measures in ten sites obtained the highest possible

satisfaction rating of 5 out of 5 (including Oni, for river bank protection), except for agroforestry measures in Oni which received a below-average rating of 2.14, (mathematical average is 3.0).

Another dimension in which the project proved effective was the site selection for the concrete measures, which allowed to cover critically vulnerable areas. All sites where structural measures were selected were part of the priorities planned at local level but not undertaken due to insufficient funding.

The project definitely improved NEA's forecasting capacity for a fully effective Early Warning System (EWS). This is a new situation and very important strategically as past experience shows that the country has not been able to work on any technically effective early warning scheme before this project. Response to floods and flash floods induced by climate change were always of a reactive nature after the event, using mitigation measures and disaster response scenarios (including for the flood in Tbilisi in 2014). Interviews indicate that there has not been any experience of evacuation of the population at risk in the past. With the development of the FFEWS, NEA is now able to monitor and forecast hydrometeorological threats in advance, which will be strengthening their preventive capacity and provide increased protection to the high-risk communities. One key informant indicated that the acquisition of radars (not foreseen in this project) would also be a key factor to improve the forecasting capacity, and might be purchased through other projects or possibly through public funds if available. It was also mentioned by EMA that the information from NEA needed to be more adapted to their specific needs so further collaboration and coordination between NEA and EMA should continue beyond the end of the project.

To achieve this result, a labour-intensive process was followed. Initially it was necessary to digitise all the historical data on record, placing it into a model that could be used for producing flood maps. The flood maps and inundation plain maps are strategically important because they allow both the national level authorities and the municipalities to have a clear topographical delimitation of risks. It is therefore used for land use management services which link into the climate change adaptation measures.

The technical documents and policy guidance are key products that will allow the GoG to take ownership of the climate change adaptation process in Georgia for hydrometeorological hazards and provide a roadmap for implementation in line with EU standards, something that is particularly important as it falls within the GoG current priorities.

Innovative approaches in bank buffers, agroforestry interventions, also provided the opportunity for the project to engage with municipalities and communities beyond the period of project execution, in order to provide care and maintenance of the various agroforestry measures that were initiated but are yet to come to completion (e.g. years required for saplings to turn into productive trees, tending the fences around the marked plots over time, ensure watering of the plots, etc.). Ten structural flood protection measures were undertaken, using sound technical criteria and yielding an immediate benefit and protection for the municipalities and the population in high risk areas. In addition, the ability of the project team to communicate and convince the municipalities and the villages on the need to tend the agroforestry measures yielding benefits over the medium to long term is also a change of mindset, that is conducive to a higher level of awareness and knowledge about climate change adaptation measures, and conducive to developing the resilience of the population to climate change over time.

The structural measure undertaken for flood protection (mainly but not exclusively boulder dumping on the river banks as opposed to the traditional gabion-cage that seems to be less effective against floods here in Georgia, as reported by NEA and MRDI) were found to be critical and corresponded to identified priorities in all the sites where it was undertaken. The works were undertaken using private contractors, and in various cases local contractors were involved (and in some cases sub-contracted). The construction was technically sound and vetted by NEA and MRDI, providing a two-year guarantee and established on the basis of a 100-year return flood. A meeting with contractors indicated that the tendering procedures were clear and not more complicated than public contracts, with the exception of the language barrier (as all tender documentation had to be provided in English for oversight and accountability purposes). Thus, local companies benefitted in a few cases from the contracts, and where possible local population was involved as temporary labour, providing a very important additional income in a region with very low levels of employment and economic development. The flood protection measures undertaken received the highest ratings from all stakeholders interviewed, and the project was able to serve several purposes through the realisation of concrete climate change adaptation measures (both flood protection and agroforestry measures), chief of which:

- 1) Develop local capacity both municipalities and in communities, that can be used beyond the project period;
- 2) Show the strategic interest of investing in medium to long term measures (agroforestry) which will be yielding concrete benefits and financial assets to the communities;
- 3) Include municipalities and communities as key stakeholders from the design phase to the implementation phase and beyond, respecting and applying local knowledge;
- 4) Lessen the risk of flood through the concrete measures taken and protecting a growing number of resident population;
- 5) Provide temporary income through employment schemes linked to the adaptation measures undertaken;
- 6) Show concrete results in the application of the technical guidance and good practice examples;
- 7) Develop an inclusive partnership from the national level to the community level, something which did not exist before this project

The project management team, together with the support from the committed CTA and RTA, and the excellent international expertise involved, was mentioned on several occasions as being a key driver of the project success. The issue is further developed under the adaptive management section.

In Komandeli/Oni the project was able to generate some lessons from a good case and a problematic case situation. The good practice is that initially the measure focused on the construction of a concrete cement wall, which was initiated based on the technical design informed by NEA. However, during the construction of the concrete wall it became apparent that in case of flooding the foundation would not uphold the wall and that a different technical solution was required. The project was able in a short time to adjust, respond and use the technically feasible solution of dumping boulders to protect the river bank to this site, which protected the adjacent road against floods. *The positive aspect was therefore the project's flexible and response capacity that allowed in a short time to switch the design of the measure to a different solution (boulder dumping) that was responsive to the local needs.* The negative is that the agroforestry measures could not address the geological threats of land-slides, thus

creating expectations amongst the community, which could have been addressed through better communication.

All interventions made by the project of a structural nature have been very effective in protecting populations and the design, technical construction and implementation of the structures are expected to demonstrate its effectiveness during the coming months as flooding will increase in line with the melting snow from the mountains.

The various agroforestry activities undertaken were also properly designed, but need more time to show their effectiveness in the majority of the cases. One particularly important aspect that was noted and directly contributed to the effectiveness of the agroforestry measures was the fencing of the plots on which measures were implemented. Communities indicated that the fencing was an invaluable contribution from the project to protect the sites from wild animals, trespassing, and limited hazards affecting the sites. While more time is needed to gauge the effectiveness of the agroforestry measures, they are on track to being effective over time, also because there is ownership at local level to tend these assets.

In terms of the capacity development within NEA, the introduction of modelling has been an unprecedented accomplishment. NEA sees this as a critical achievement, which was only possible through the different efforts, documents, acquisition and establishment of the software, recurrent training on the modelling techniques that was provided by one of the project expert, Juan Fernandez, who was responsible for all aspects of the development of the hydraulic model and the FFEWS. Again, the technical capacity of this expert was highly appraised and recognised by all stakeholders and his commitment and dedication to the project activities were a clear factor that contributed to the remarkable results achieved. Key stakeholders all recognised the excellent work of the different experts that contributed to the project implementation and that of the CTA, whose combined collective efforts were key in developing technical capacity for project implementation.

- **Impact**

As mentioned in the executive summary, the project impact is more than the sum of its parts and components. The impact has been felt at different levels: first, at the institutional level, the way in which climate change adaptation is managed from the hydro-meteorological perspective has been changing and aligning to more recent and modern technical approaches in line with EU and international standards. The introduction of a hydrological model is a key result, that directly enables the government to forecast floods and is of direct use to both local and national levels. Not only does it contribute to the development of an Early Warning System, but it also has generated multi-hazard maps that are used by municipalities (confirmed during interviews in three of the six municipalities visited) to deliver construction permits and regulate land-use. Two key informants also indicated that only through the intensive and sustained digitisation of all data available in NEA was the production of the maps possible, something which took a long time and was sufficiently important to have another project with Nordic funding support the digitisation of additional information in NEA.

At the policy level, the research and technical documents produced have been positively appraised by the key informants interviewed (see details under Risk Management section). There is no doubt about the quality and technical soundness of the recommendations and guidance notes. There is only one doubt, however, that best practices that are grounded in countries with very different physical, socio-



economic, historical, and political contexts, may be equally applicable to the national context of Georgia, and there is certainly a desire from stakeholders interviewed to have good practice examples from countries more alike to Georgia, from former CIS. However, as previously mentioned, this may not be feasible as there seems to be very limited information available on CCA practices in line with EU standards in the region.

At the local level, the initial impact is clearly a reduction of the vulnerability for the communities and target municipalities, as regards to the work undertaken in river bank protection. There is also another interesting emerging impact, in the sense that for the agroforestry measures, which require a certain lead-time before bringing pay-back, could obtain the commitment and interest of various communities so that the longer-term benefit of the measures was commensurate with the level of care and monitoring that should be exerted by the municipality and/or the communities. While the project did ensure that municipalities would commit in writing to tending the maintenance needs of the project interventions, interviews suggest their budget may not always allow such a commitment to take place. Therefore, it will be particularly interesting to see whether the positive examples mentioned during the interviews with villagers give fruit and the benefits continue over time after the end of the project.

Developing the capacity of institutions and municipalities is another clear indication that the project has created an initially positive impact, to varying degrees depending on each municipality and its own context. Nonetheless the working dynamics of the project, forging partnerships with institutions at national and local level, municipalities, and villages, has created a strong sense amongst both municipalities and villagers that the Government seems to care about their plight and is being more responsive to their needs.

The socio-economic dimension of the project, using as much as possible local contractors, materials, and local labour, has had a very valuable effect on the local population, particularly because the villagers could take advantage of the livelihood opportunities that were offered to implement the measure. In the current context of very high unemployment, this proved a wise, useful, and constructive approach to implementing the various measures.

Perhaps just as importantly, the holistic and comprehensive strategy of the project has shown that river basin management can be done differently with substantial results, in a cost-efficient and constructive manner that brings the different levels of Government and its institutions to work together on a common objective. Considering that decentralisation has not readily happened in Georgia, the inclusiveness of the different levels of governance in the project as partners has been one of the factors that led to the success of the project.

No project is perfect and there is still room for improvement. Some aspects of this project could not be fully exploited, such as the employment generation scheme which was produced too late to be systematically applied in the interventions. The scope and extent to which it could generate concrete results and trigger many spin-off makes it an extremely valuable model, parts of which are already being emulated in other projects or interventions that are using this project's good practice approach (including in NEA and in UNDP). This includes the implementation scheme of the agroforestry component used by Elkana (30,000 trees planted in 10 ha. in this project, later replicated in an on-going GIZ project), indicating that the good practices are not limited to the concrete adaptation measures.

### **3.2. Adaptive Management**

- **Work Planning:**

The TE focused on the period following the MTE, during which the project work plans have been generally well articulated and this element appears to have been soundly managed. Some minor corrections were taken in a timely fashion, particularly regarding one contractor who could not deliver and had to be replaced by another contractor, within the projected time-frame for the implementation of the measure.

- **Finance and Co-financing:**

Project “Developing Climate Resilient Flood and Flash Flood Management Practices to Protect Vulnerable Communities of Georgia” went through NIM Audits in 2013, 2014, 2015 and 2016 Years. Audit was undertaken by UNDP Georgia CO Contractor, Georgian Audit & Consulting Company and was conducted in accordance with International Standards on auditing (ISAs) and UNDP financial rules and procedures for NIM projects.

Following was assessed during NIM Audits in the years 2013, 2014, 2015 and 2016 Years:

- Accounting Policies;
- Project Progress (including financial reports (CDRs), progress reports, request for direct payments, and funding authorization and certificate of expenditures (FACE) forms of implementing partner National Environmental Agency (NEA));
- Internal Control (including general controls, human resources, finance, procurement, asset management, cash management, general administration and information system);

Conducted NIM Audits (per auditor’s reports) revealed that there were no discrepancies and Project was managed and operated in accordance to UNDP rules and regulations. As for finding and recommendations, there were no findings and or recommendations identified in the years 2013, 2015 and 2016. The only finding identified through Audit exercise was in 2014 Year and was regarding Letter of Agreement (LoA) with NEA (implementing partner). Namely, timesheets were not implemented by NEA when proceeding with payments for consultants and Audit recommended to use timesheets when conducting payments to individuals. Mentioned finding was considered and was followed up in following years as recommended.

The Project finances have been managed well. The project finances are clear and transparent. The results of the various audits confirm this. The project is showing excellent value-for-money. The co-financing of 3.2% is modest for the project. This is the only co-financing and is easy to track because it is all dedicated to project management. Noteworthy, the reallocation from the project management budget to concrete implementation of measures. Despite the relatively small amount compared to the overall project budget, it shows a clear interest from project management to maximise the effects of its interventions.

#### **Co-financing table**

Sources of Co-financing <sup>9</sup>	Name of Co-financer	Type of Co-financing <sup>10</sup>	Amount Confirmed at CEO endorsement / approval	Actual Amount Materialized at Midterm	Actual Amount Materialized at Closing
Other	UNDP	Other	\$160,000	\$89,863.68	\$159,951.58
		TOTAL	\$160,000	\$89,863.68	\$159,951.58

*Note: The co-financing of \$160,000 from UNDP TRAC funds constitutes 3.2% of total project funding.*

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<sup>9</sup> Sources of Co-financing may include: Bilateral Aid Agency(ies), Foundation, GEF Agency, Local Government, National Government, Civil Society Organization, Other Multi-lateral Agency(ies), Private Sector, Other

<sup>10</sup> Type of Co-financing may include: Grant, Soft Loan, Hard Loan, Guarantee, In-Kind, Other

**Table 1: Project costs by outcome/atlas activity by year (from CDRs)**

Outcome/Atlas Activity	FUND	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	TOTAL
1: Floodplain development policy introduced to improve long-term resilience flood/flash flood risks	AF	\$8,542.61	\$355,139.56	\$221,327.81	\$78,253.86	\$20,697.37	\$0.00	<b>\$683,961.21</b>
2: Climate resilient practices of flood management developed and implemented to reduce vulnerability of high exposed communities	AF		\$16,586.05	\$575,892.97	\$1,332,923.69	\$980,649.69	\$40,873.52	<b>\$2,946,925.92</b>
3: Early warning system in place to improve preparedness and adaptive capacity	AF	\$12,173.98	\$669,028.16	\$190,858.68	\$88,463.84	\$25,626.96	\$0.00	<b>\$986,151.62</b>
4: Project/Programme Execution	AF	\$19,250.10	\$20,086.18	\$68,930.06	\$57,276.83	\$91,681.04	\$24,519.11	<b>\$281,743.32</b>
	UNDP	\$35,647.95	\$27,653.13	\$26,562.60	\$29,939.87	\$36,709.34	\$3,438.69	<b>\$159,951.58</b>
	Total AF Fund	\$39,966.69	\$1,060,839.95	\$1,057,009.52	\$1,556,918.22	\$1,118,655.06	\$65,392.63	<b>\$4,898,782.07</b>
	Total UNDP Fund	\$35,647.95	\$27,653.13	\$26,562.60	\$29,939.87	\$36,709.34	\$3,438.69	<b>\$159,951.58</b>
	<b>GRAND TOTAL</b>	<b>\$75,614.64</b>	<b>\$1,088,493.08</b>	<b>\$1,083,572.12</b>	<b>\$1,586,858.09</b>	<b>\$1,155,364.40</b>	<b>\$68,831.32</b>	<b>\$5,058,733.65</b>

**Table 2: Comparison of expenditures by outcomes/Atlas activities vs outcome/activity budget**

Outcome/Atlas Activity	FUND	BUDGETED (per Project document)					EXPENDITURE						
		Year 2012	Year 2013	Year 2014	Year 2015	TOTAL	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	TOTAL
1: Floodplain development policy introduced to improve long-term resilience flood/flash flood risks	AF	\$455,000.00	\$153,675.00	\$61,325.00		<b>\$670,000.00</b>	\$8,542.61	\$355,139.56	\$221,327.81	\$78,253.86	\$20,697.37	\$0.00	<b>\$683,961.21</b>

2: Climate resilient practices of flood management developed and implemented to reduce vulnerability of high exposed communities	AF		\$573,999.00	\$1,148,001.00	\$1,178,000	<b>\$2,900,000.00</b>		\$16,586.05	\$575,892.97	\$1,332,923.69	\$980,649.69	\$40,873.52	<b>\$2,946,925.92</b>
3: Early warning system in place to improve preparedness and adaptive capacity	AF	\$402,500.00	\$397,500.00	\$100,000.00	\$100,000.00	<b>\$1,000,000.00</b>	\$12,173.98	\$669,028.16	\$190,858.68	\$88,463.84	\$25,626.96	\$0.00	<b>\$986,151.62</b>
4:Project/Programme Execution	AF	\$82,500.00	\$82,500.00	\$82,500.00	\$82,500.00	<b>\$330,000.00</b>	\$19,250.10	\$20,086.18	\$68,930.06	\$57,276.83	\$91,681.04	\$24,519.11	<b>\$281,743.32</b>
	UNDP	\$60,000.00	\$25,000.00	\$25,000.00	\$50,000.00	<b>\$160,000.00</b>	\$35,647.95	\$27,653.13	\$26,562.60	\$29,939.87	\$36,709.34	\$3,438.69	<b>\$159,951.58</b>
Total AF Fund		\$940,000.00	\$1,207,674.00	\$1,391,826.00	\$1,360,500.00	<b>\$4,900,000.00</b>	\$39,966.69	\$1,060,839.95	\$1,057,009.52	\$1,556,918.22	\$1,118,655.06	\$65,392.63	<b>\$4,898,782.07</b>
Total UNDP Fund		\$60,000.00	\$25,000.00	\$25,000.00	\$50,000.00	<b>\$160,000.00</b>	\$35,647.95	\$27,653.13	\$26,562.60	\$29,939.87	\$36,709.34	\$3,438.69	<b>\$159,951.58</b>
<b>GRAND TOTAL</b>		<b>\$1,000,000.00</b>	<b>\$1,232,674.00</b>	<b>\$1,416,826.00</b>	<b>\$1,410,500.00</b>	<b>\$5,060,000.00</b>	<b>\$75,614.64</b>	<b>\$1,088,493.08</b>	<b>\$1,083,572.12</b>	<b>\$1,586,858.09</b>	<b>\$1,155,364.40</b>	<b>\$68,831.32</b>	<b>\$5,058,733.65</b>

- **Monitoring Systems**

The project M&E system did not benefit as much from up to date technical inputs and quality assurance as did other technical components of the project. While the monitoring system was broadly in line with standard UNDP procedures and AF requirements and was carried out by the Project team, verified by the Ministry of Environment Protection, NEA and MRDI and the UNDP Country Office in Georgia. The CTA and RTA play an important role in the quality control and provide critical and regular input, particularly on the technical reports and papers produced.

However, in the view of the TE, there was insufficient resources, technical capacity and attention brought into the M&E component of the project. The project acquired a Monitoring Plan after it was suggested by the MTE, and the initial design of the logframe and its indicators at the onset of the project did not receive an external quality assurance, thereby already endorsing a logframe that could have been better formulated without altering the expected results, through more careful and better targeted outcome statements and outcome indicators that followed SMART criteria. While the monitoring system including a range of other requirements as per the AF guidelines, including the PPR, PEB meetings, etc., there should have been more resources and skills devoted to developing an RBM compliant monitoring plan to capture better the significant project achievements, some of which are “hidden” behind rather simple output statements and indicators, thereby somewhat diminishing the actual impact of the project.

This means that the project has actually laid out a visionary and innovative manner to manage climate change adaptation projects in Georgia and has created a new pathway towards a comprehensive, holistic, effective and efficient project implementation for climate change adaptation projects, but it is difficult to understand it on the basis of the current reporting. This does not come out through reading the technical reports, the PPR, or the other information that the project has developed, because the value of an RBM compliant monitoring system was not fully understood by the project team, nor was the importance of the data collection methods and reporting methods for outcomes, which therefore lacks strong data and evidence to present its actual achievements.

*The monitoring focuses on lower level results and technical inputs and achievements, but fails to capture the important qualitative changes in ownership, attitude, commitment and other soft skills amongst the key project stakeholders, that were also critical contributions to the big picture results.* The change brought about in Georgia is not cosmetic, it is profound and likely to shape the way Georgia will deal with climate change adaptation projects in the future, particularly in river basin management. However, the project would have been better able to communicate results with a monitoring plan that looked at the higher level results of all the interventions, rather than focusing on the specific project outputs from a mostly technical angle.

- **Risk Management:**

While the MTE report indicated some concerns regarding contracting procedures, the TE found that these were not founded and that the planned measures were implemented as planned within the project time-frame. This specific risk was therefore, with hindsight, not founded.

Other aspects of risk management, particularly pertaining to the level of ownership and commitment from Government, the high turn-over of key staff and champions within Government, is a risk that is not specific to the context in Georgia and is found in projects worldwide. Where the project could

have better managed the risk was to identify specific responsibilities of the different partners when designing the project and the log frame, and particularly the difference between what the project could achieve by itself (e.g. the floodplain zoning policy framework and policy guidance notes, the weather based index insurance scheme), versus what the Government would have to take responsibility for (e.g. adopting the floodplain zoning policy, implementing the insurance scheme) as certain actions can only be completed after the Government has taken a decision on the matter, and in the cases of legislative changes, it may take substantial time.

Therefore, while the actual quality of the technical reports produced is very high, the likelihood of their application varies with the reports.

The project produced many technical reports. The TE asked key informants about the level of use and quality of a sample of the main reports produced. The table below is a summary of their responses:

<b>Title of the report</b>	<b>Knowledge of the report</b>	<b>Applicability</b>	<b>Quality</b>
Floodplain zoning policy and guidance	Yes by most KII	Yes, actually being used for water law	Very high
Socio-economic assessment of flood risk	<i>Few have seen it, but they know it is produced</i>	Not enough feedback on the report	Very high from TE perspective
Weather based Insurance Scheme	Yes by most KII	Mixed responses as some see it difficult to implement in Georgia	Very high
Guidance on Agroforestry methods	<i>No feedback on the report</i>	No feedback on the report	Very high from TE perspective
Flood resilient building code evaluation	Yes by some KII	Yes, depends on the ministry to apply it	Very high
Institutional capacity assessment report	<i>No feedback on this report</i>	No feedback on the report	High from the TE perspective
Projected costs and benefits of the employee guarantee scheme/overview of employment guarantee scheme	<i>No feedback on this report</i>	No feedback on this report	High from the TE perspective
Best practices in Dam Safety Programmes/Dam evaluation report	Yes by some KII	Depends on Ministry of Energy, not MoENRP	Very high
Hydraulic modelling/FFEWS	Yes by most KII	Yes, it is being used	Very high

Source: TE interview notes

It is important to note that several key informants, while recognising the high quality of the technical reports and their state-of-the-art contents, expressed some doubts about the level of applicability in the Georgian context, given the fact that the reference countries used are often the most developed countries, which do not have a similar socio-economic, political, and cultural context as is found in Georgia. Therefore, while recognising its very high technical value, some informants expressed their desire that good practice examples be taken from countries more comparable to the Georgian

context, particularly countries from former CIS. UNDP's response to this perception is that most CIS countries are not practicing CCA, FRM and DRM in any strategic manner, so it cannot provide examples of good practice. Georgia is the first through this project, to do so in a comprehensive manner.

Furthermore, most reports, while examining international best practice, have painstakingly developed Georgia-specific applications of these best practices and have only used Georgian data to develop outputs. All of the modelling work for example, has used Georgian data and applied best modelling approaches and software in line with EUFD requirements. Risk modelling used socio-economic data of Georgia (collected at length and with great difficulty) and applied EUFD risk methods. In the absence of data, for example, depth-damage curves, it used UK depth-damage curves and adjusted them to Georgia reality. This was validated by Georgian experts.

Building codes, when reviewed were found to be applying several different European standards depending on the nationality of the contractors or none at all when local contractors did the work. The standard that was eventually suggested was that of a European country.

It is important to note that the project tried to implement approaches, methods and standards that would enhance Georgia's capacity to transition into the EU and the current EU approaches and requirements. This may be a more forward thinking and sustainable approach than trying to implement methods from other CIS countries that are not currently implementing good practice and are unlikely to be implementing EU compliant practice.

One aspect that was not entirely clear for the TE was which technical reports the project expected the Government to be adopt and which reports were produced as a good practice example, but without necessarily expecting the Government to adopt all the suggested measures. The adoption of all the recommendations from the technical reports would entail a profound change in the way Government deals with climate change adaptation and require a longer time-frame than the project life to be implemented, in addition to requiring inter-ministerial coordination. As such, the project may have been somewhat overly ambitious, and an improved risk management strategy would entail tracking of the initial assumptions to take corrective measures when these assumptions do not materialize. For example, in training of key staff and given the high turn-over, it may be necessary to plan and budget an extra 30% or more over the required target to ensure the continuity of the institutional knowledge despite staff changes (% to be determined based on available data regarding staff changes). Similarly, it may be useful to design project time-frames to adjust to the electoral calendar, to avoid changes in government and potential priority changes because of elections.<sup>11</sup> At the higher level, risk management could thus have been improved. At the meso and micro level, risk management was effectively addressed and no major issues were identified by the TE.

- **Reporting:**

The reporting followed the requirements of the UNDP and the AF, and all reports were produced in the format required. However, as mentioned under the Monitoring Systems, an improved M&E system with an RBM monitoring plan would have allowed to better report on the bigger pictures of the positive changes and improvements that the project has brought about (partnerships,

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<sup>11</sup> This view is not shared by UNDP who believes it is not feasible to do so. The TE sees no reason why a project document cannot match the time-frame of an electoral cycle, which is often four or five years.



communication, government ownership, visibility, exposure, and other non-technical factors) instead of focusing primarily on the technical aspects, which are critical, but not sufficient, to achieve success.

### **3.3. Management Arrangements**

- **Overall project management**

Overall project management was found to be excellent by all key informants interviewed as well as by the TE. Except for the gaps found in M&E, all other aspects of project management were found to be of the highest quality. The importance of placing the right staff in the right place is also a key element of the high appraisal of the project management. Both the project manager and the assistant are complementary and form a very dynamic, committed, and capable team that could effectively and efficiently manage a difficult and complex project such as this one. Personal qualities are no doubt another clear factor of success, as KII indicated the project manager to be honest, engaging, communicative, hard-working, committed, transparent, open to criticism, listening and responding to requests, and none of the KII reported anything but praise regarding the quality of project management.

The project assistant showed the same commitment and proved flexible in responsive in solving initial problems and difficulties, particularly when contracting was initiated for the 10 measures, but also very efficient in ensuring all the procurement and support extended to the project partners.

The project management team benefitted from the support of a technically very competent and committed CTA that provided critical inputs at the various stages of the project, as well as from a group of high quality technical experts that brought in crucial know-how, support and international good practices examples at key junctures during project implementation. In addition, further support and contributions were received from the UNDP RTA. The entire team showed to be very technically competent, professional and committed to the project.

- **Partnerships arrangement**

Project has been successful in creating strong and effective partnerships both at national and local levels. Partnership arrangements have been a cornerstone of the project. It managed to deliver effective coordination and communication between different central governmental agencies and strengthened its communication with national and local governments, which is very exceptional case when talking about intergovernmental and intragovernmental communication. Ministry of Environment and Natural Resources Protection, NEA, Emergency Management Agency, Ministry of Regional Development and Infrastructure and local municipal governments have been actively engaged in both soft and hard measures during the course of the project.

Project was very successful in using local organizations coupling them with local communities to implement agroforestry-activities and bank protection works reflecting local knowledge and expertise. One of the most successful collaborations were grown between locals and NGO Elkana and/or local construction companies, when local communities were actively engaged in daily works and generated economic benefits from that.

- **Quality of execution of Implementing Partners**

NEA was the main project partner, but UNDP also worked with the MIA through the EMA, with the MRDI, and with municipalities and communities on the ground in the six project target communities. NEA signed a letter of agreement with UNDP which covered different deliverables:

- 1) Geological hazard assessment – field work and development of landslide hazard maps. The TE indeed saw the maps produced as a result of the assessment undertaken which provides very important information given that the whole project area is subject to landslide hazards. The maps were also seen in two of the municipalities visited as they were exposed to the public and are being used to grant construction permits on the basis of the risk level shown on the maps.
- 2) Structure design – NEA engineers were extensively involved in the design of structures that were used to implement the measures in the six target communities, and some of the NEA staff were also met during the field work. The design and quality standards used for the project structural measures was indeed performed by NEA staff and engineers.
- 3) Modelling – NEA staff were trained in modelling and were involved in the development of the modelling and FFEWS systems. An interview with NEA and a review of the modelling system showed that training had been given on the use of the modelling and FFEWS, and that NEA could produce the necessary bulleting for FFEWS as a result.

Interviews with NEA technical staff and management showed commitment and ownership of the project, which was described as “very important for the country”. The supply and installation of the hydrological materials and Met stations, the digitisation of all historical observation data, and the training provided by the international hydrological and modelling expert, are key elements in the process of capacity development of NEA in risk assessment, monitoring, forecasting and EWS.

MRDI is the other implementing partner with responsibility for review of structural measures design and construction, and interviews with MRDI showed they were quite satisfied with the quality of the structural works performed from the selection of project sites visited. The contractor was consulting them during the design phase, and to avoid additional work regular contacts were maintained at every stage.

The quality of the different measures undertaken by the project was found to be very high by the municipalities and the communities, so the impact created by the measures was also found to be critical, in some cases directly ensuring personal security and the recuperation of the little farming land available (with a majority of residents being subsistence-farmers) given the protection provided against floods and flash floods.

The rest of the work, and particularly the structural measures, were done through contracting. As much as possible the project attempted to use local contractors and use local materials. The concrete measures that were implemented using contractors were all well done. For the agroforestry measures, Elkana is an NGO that planted 30,000 trees over 10 hectares, using local labour and ensuring gender-transformative approach (ensuring women participation, something that could not be done in infrastructure projects given the nature of the work required), through very positive schemes that have been documented some of the technical reports produced. The approach was of such interest, looking at leveraging a long-term approach to benefits for the communities, that it is being reportedly reproduced in another project funded by GIZ.

- **Quality of support provided by UNDP**

All key informants indicated that the quality of UNDP support was very high and expressed their satisfaction with the results achieved by the project as mentioned under point 3.1. Progress, where the combined average rating is 4.90 out of 5 on a five-point scale, which is extremely high and very impressive considering the complexity, diversity, and scope of the project.

#### **4. Sustainability, replication and scaling up**

- **Sustainability**

The project at local level showed good signs of sustainability, such as:

- ✓ River bank protection measures have a 2-year guarantee and have been designed with a 100-year flood return
- ✓ Agroforestry has not such guarantee, but depends on ownership and monitoring of the municipality and/or villages over time. The project has sent a letter and reached an agreement with municipalities to ensure the post-project monitoring and maintenance. However, there is doubt considering the municipalities' budgets as to their capacity to ensure recurrent funding for these costs. Therefore, the villages and direct beneficiaries themselves may be able to ensure a certain degree of supervision and maintenance together with the municipal authorities.
- ✓ Human resource capacity development (both at municipal and community levels) in order to ensure the sustainability of the intended project outputs (in particular, the undertaking of some communities such as in Lentekhi to care and tender the agroforestry measures and nurture the saplings until they come of age).
- ✓ Good initial response in preserving the material and equipment installed, with no damage/theft reported so far
- ✓ No reported flooding in areas covered by the project
- ✓ Environmental sustainability of the project, with the active protection it is providing to the population through the river bank structural measures, and the active environmental benefits it is leveraging at the socio-economic level through the recuperation and protection of productive land and assets that will be generating an important economic return for the communities.

At the policy level, the sustainability will depend on the level of appropriation by the Government; it appears clearly that the floodplain policy guidance is already being used and may be adopted by the Government, while others require further commitment and appropriation by Government, particularly those requiring the coordination of several ministries. The project has done its advocacy, but the GoG is the ultimate responsible for enacting policies.

When looking at institutional sustainability, there are concerns over the funding base of the NEA, which is not financed from the State budget and is therefore likely to suffer from loss of revenues in a difficult situation. The option of ensuring funding to NEA through the State budget would avoid creating a risk for the sustainability of the institution. At the local level,

all six target municipalities requested a continued collaboration with UNDP/NEA, particularly because they consider that further capacity development is required, and because there remain uncovered needs that could be addressed through the support of a UNDP/NEA project. Funding is inexorably linked to the level of institutional sustainability.

- Generally speaking, sustainability of project benefits depend on the Government's appropriation of the project (e.g. including the project as a regular programme within the State budget), or on the willingness of other donors to fund a similar intervention. The project has advocated for Government appropriation, but the level of priority given to climate change adaptation in Georgia may not have been among the highest priorities. It may be that this project has contributed to raising awareness and better understanding of the theoretical, technical, and practical measures that can be taken to address climate change in Georgia and serve as a good practice example. Nonetheless, sustainability is defined by the OECD/DAC glossary of key terms in evaluation and results based management as "The continuation of benefits from a development intervention after major development assistance has been completed. The probability of continued long-term benefits". While some activities will certainly continue, such as the use of the hydraulic modelling and the production of maps, the use of the maps for land-use planning and construction, some other activities will require additional funding which may or may not be available for the concerned institutions. Both at the municipal level and for NEA, funding is an issue and the project does not contain a sustainability strategy that addresses how benefits should continue after the end of the project. This is in fact a common concern for all projects, since they are not designed to be sustainable but are necessarily time-bound with a beginning and an end. This is the main reason why the TE considers overall sustainability to be moderately unlikely, unless a higher level of political priority is given to Climate Change Adaptation measures.

- **Country ownership**

Countries ownership is driven by strong need at local level and priorities set at the national level. On the one hand local communities and local governments feel a strong buy-in for the project results stemming from the increased incidents of natural disasters (most frequent floods, landslides) linked to recent climate change patterns. On the other hand there is a strong political trigger at the national level, set at the national strategic documents and driven by the EU-Georgia Association Agreement that covers range of obligations related to climate change and disaster risk management.

- **Mainstreaming**

Project was aligned with the global (AF) priorities and UNDAF 2011-2015, fully responding to its 3rd thematic area of Disaster Risk Reduction-aimed at building up Georgia's resilience to disasters through prevention and minimizing damage and loss in case of emergencies. Which is in turn is fully in-line with the GoG's national development priorities of the "United Georgia

without Poverty” programme, the National Millennium Development Goals (MDGs) and other key documents.

Targets and objectives set under the project contribute at different levels to all 3 outcomes set under UNDAF (2011-2015).

OUTCOME 1 – Inclusive development and poverty alleviation promoted through international, national and local economic policies, including in the area of trade and investment

OUTCOME 2 – Vulnerable populations enjoy greater access to decent work<sup>22</sup> opportunities and working conditions.

OUTCOME 3 – Vulnerable groups enjoy improved access to quality health, education, legal aid, justice and other essential social services

- **Replication and scaling-up**

The results of the projects indicate clearly a need for replication and scaling-up. In fact, the approach used in the RRB can very well be extended to the other river basins in Georgia, so that the entire country would be covered. All stakeholders interviewed expressed their desire to see the project scale-up, based on the existing uncovered needs. The TE believes that national upscaling is justified from a needs perspective. However, it should be mindful of the following elements as it is up-scaled to cover the entire country:

- 1) Address the entire river basin, including the lower basin.
- 2) The project should either be placed within the Prime Minister’s Office State Security and Crisis Management Council (SSCMC) to facilitate inter-ministerial coordination and Government buy-in and elevating the profile of the project, or at least ensure that the SSCMC is the chair or member of the Project Board.
- 3) The Early Warning System is in place, but it is not operational down to the ground level as community based EWS was not part of the project design. For the TE the next project should be able to include community based EWS in order to contribute to increased resilience of the local communities.
- 4) Invest in a sound M&E system with adequate funding (3% of the project budget) and quality assurance on M&E products (log frame, monitoring plan, etc.).
- 5) Consider using a Community Based Organisation (CBO) approach for monitoring of project from communities, in line with previous experience leveraged from USAID parent projects.
- 6) Maintain all the good practices identified in this project, and in particular ensure the combination of implementing specific structural and non-structural risk reduction measures along with the EWS.

## **5. Conclusions, recommendations & lessons**

### **• Conclusions**

This project is unique, visionary, innovative, ground-breaking, and ambitious. It has created a precedent in river basin management in Georgia and has laid the foundations for a more robust, professional, effective, and efficient management of climate change adaptation measures for hydro-meteorological risks in Georgia. It responded to the needs at national and local level, and contributed to developing capacities to enable the country to adapt to climate change and develop its resilience in the face of climate change. It has come at the right time to lead a novel model in river basin management. The project is plagued with good practices that need to be maintained and up-scaled.

The project design and implementation have been of very high quality. It is a valid model for further replication, and has pro-actively contributed to the project objective of improving resilience of highly exposed regions of Georgia to hydro-meteorological threats that are increasing in frequency and intensity because of climate change. Job well done, with only minor setbacks that do not jeopardise the positive achievements of the project based on good design and strategy, strong technical skills, comprehensive understanding of the context, holistic and inclusive approach, and excellent management.

### **• Recommendations**

1. The project should be replicated and scaled up to cover the entire country, ensuring coverage the entire river basins (upper and lower parts).
2. The good practices identified and the inclusive and partnership approach used for implementation should be maintained.
3. Ensure the quality and capacity of the project management team as they are a critical factor of success.
4. Focus more the technical reports on priority actions to be taken, to avoid overwhelming the institutions with too many changes and innovations that they have limited absorption capacity to integrate.
5. EWS should be developed and implemented all the way down to the communities and villages so that proper preventive action is undertaken in a timely fashion. A logical next step would be to ensure that a Community Based EWS is put in place, something which was not part of the project but should certainly be covered in any project expansion.
6. FFEWS is a very valuable mechanism that now enables NEA to improve its monitoring and forecasting capacity. Nonetheless, at present EMA has indicated it needed more refined information from NEA to service its needs, so further consultation and collaboration between NEA and EMA is warranted.
7. It may be possible to integrate the villages and communities more directly in some of the activities through organizing Community Based Organisations that would both profit and learn from livelihood opportunities linked to the adaptation measures undertaken at local level by the project and their monitoring, as demonstrative evidence of success.
8. The project should either be placed in the Prime Minister's Office (SSCMC) to facilitate inter-ministerial coordination and government ownership considering the fractured institutional set-up in Georgia, or ensure that SSCMC is chairing or a member of the project board.

9. Allocate 3% of the project budget as recommended and invest more seriously into M&E training and RBM quality assurance in project design and setting up of the M&E system including the monitoring plan, and budgeting for evaluations and the preparation of the TOR for the evaluation.

- **Lessons**

This innovative project has led to several lessons which can be summarized as follows:

1. Capacity of the project to work at different levels: macro/meso/micro, with government and other partners, providing both a conceptual vision of a holistic project approach that included not only high quality technical outputs, but could articulate its activities and components through the different layers and down to very practical and pragmatic results at the local level.
2. The project brought a very strategic approach to climate change adaptation measures for the Rioni River basin, and introduced a different way of understanding the relationship between the different hazards, while at the same time providing a step by step guideline on how government could actually implement the policy recommendations in the future.
3. The project has been focusing its efforts in ensuring that good practices are in line with the EU standards and provided specific examples, as Georgia is moving towards adoption of EU standards in a number of areas.
4. Another lesson was the capacity of the project to mobilise counterparts, including municipalities and villages, during and after the project implementation. In this manner, project knowledge and technical skills cascaded down to the local level, through multiple events including training, workshops, specific meetings, and other activities that systematically targeted the different project stakeholders including the local level stakeholders.
5. Another lesson was the way in which international expertise was used to embed good practice throughout the project. In addition, the fielding of several recognised international experts to discuss the project interventions with the municipalities and the villages contributed to creating trust and confidence as local level actors were actively engaged and were not mere observers.
6. One interesting lesson relating to the sustainability is the investment made in agroforestry, as the planting of seedlings requires some time to obtain a pay-off. It is interesting that in some cases the villages took the challenge to ensure the proper nurturing of the intervention even beyond the life of the project (e.g. Samtredia).
7. The project also rightly used local companies and materials as much as possible, thereby enhancing the socio-economic impact of the project in the target municipalities through the livelihoods schemes that used local labour.
8. The project showed great efforts to engage communities and build ownership through an intensive communication and awareness raising campaign. Communities now feel listened to by the Central Government and no longer abandoned.
9. It is also important to underline the respect shown by the project towards locally available knowledge and its preservation and incorporation in the project activities (e.g. dumping of boulders instead of constructing gabion cages).
10. Placing the Project Management Unit within the NEA offices was a critical decision that contributed to good contacts, collaboration and communication.
11. Communication is a key component to socialize the project, build understanding, ownership and participation from the different stakeholders. A communication strategy was developed at mid-

point with relevant materials that contributed to disseminating the results of the project. But the communication strategy and activities should be established from the onset of a project.

12. M&E should not be the last priority in project management. More resources and technical expertise need to be brought in from the project design phase, in order to ensure that a monitoring plan in line with the corporate requirements is established and used for reporting on results. Similarly, the budget and time frame for undertaking the evaluations should be in line with the corporate guidelines.