



**ADAPTATION FUND**

**REQUEST FOR PROJECT/PROGRAMME FUNDING  
FROM ADAPTATION FUND**

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to

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# PROJECT/PROGRAMME PROPOSAL

## PART I: PROJECT/PROGRAMME INFORMATION

PROJECT/PROGRAMME CATEGORY:	<b>REGULAR</b>
COUNTRY/IES:	<b>GEORGIA</b>
TITLE OF PROJECT/PROGRAMME:	<b>DEVELOPING CLIMATE RESILIENT FLOOD AND FLASH FLOOD MANAGEMENT PRACTICES TO PROTECT VULNERABLE COMMUNITIES OF GEORGIA (PIMS 4583, ATLAS IDs – GEO10, PROPOSAL ID: 00060698; PROJECT ID: 00076540)</b>
TYPE OF IMPLEMENTING ENTITY:	<b>MULTILATERAL IMPLEMENTING ENTITY (MIE)</b>
IMPLEMENTING ENTITY:	<b>UNDP</b>
EXECUTING ENTITY/IES:	<b>MINISTRY OF ENVIRONMENT, NATIONAL ENVIRONMENT AGENCY</b>
AMOUNT OF FINANCING REQUESTED:	<b>5,316,500 (in U.S Dollars Equivalent)</b>

## PROJECT / PROGRAMME BACKGROUND AND CONTEXT:

*Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.*

1. Georgia now ranks as a lower middle-income country, but many Georgians remain affected by high levels of poverty and unemployment, despite the comprehensive reforms. Poverty is particularly entrenched in rural areas, where incidence of extreme poverty is almost twice that of in urban areas. Moreover, while rural areas account for only about 9% of GDP, about half of the total population and work force are situated there. The economy has contracted since mid-2008 and is only recently showing some signs of recovery. At the same time, unemployment rates went up to 16.5% and FDI and remittances, crucial source of income for many households, dropped dramatically. Unemployment is higher now than in 2004 and poverty remains a pressing concern. The World Bank 2008 data show 23.6% of the population living below the poverty line, and 9.3% - in extreme poverty.<sup>1</sup> Global economic crisis further exacerbated social and economic impact. As such, Growth projections have been revised downward to -4.0% in 2009, with further downside risks.

2. Georgia is a transcontinental country, along the dividing lines of Asia and Europe and in the southern Caucasus, situated between the Black Sea to the west and the Caucasus mountains to the north. Georgia is a small country, with an area of 69,700 km<sup>2</sup> and a population of 4.4 million. 80% of the territory of Georgia is mountainous, with highest and lowest elevations of 5,201 metres (Mount Shkhara) and below the mean sea level (Black Sea, Kolkheta lowlands). 54% of its territory is located at an altitude of 1,000 m above sea level. A complex mountainous topography makes the country more prone to the hydro-geomorphological processes and climatic hazards. As such, Georgia is vulnerable to natural hazards including floods, flash floods, earthquakes, droughts, landslides, avalanches, and mud flows. Catastrophic

<sup>1</sup> Georgia Poverty Assessment, World Bank, April 2009.

events that have annual probability of occurrence of 50% threaten an economic loss for Georgia that exceeds 20% of the country's GDP<sup>2</sup>. Floods, including flash floods are the catastrophic events of such category of high probability.

3. For example, the February 1987 flood in the Tbilisi region alone affected 36,000 others and caused an economic loss of \$546 million. The same year, River Rioni in western Georgia exceeded its earlier historical maximum water discharge because its peak flow was as high as 4.850 m<sup>3</sup>/s. The size of the inundated area on the Kolkheti Lowland reached 200 km<sup>2</sup>. The losses were severe; 150 people died. Material damages reached nearly \$700 million. The flood destroyed *inter alia* 3.150 houses and 2.150 objects of local infrastructure, 16 km railway lines, 1.300 km roads and 1.100 km power transfer lines.

4. In 1997, the flood events in the Tbilisi-Gori-Kvemo-Kartli region incurred a reported economic loss of \$29.5 million. In June 2005, the flood in the Mtskheta-Mtianeti region caused an economic loss of over \$2 million (ISDR, “Central Asia and Caucasus, Disaster Risk Initiative – Risk Assessment for Central Asia and Caucasus”, 2007). During 1995-2009 the total cost of damage from floods and flash floods amounted to over \$1 billion. Annual risk of economic losses caused by potential hydro meteorological disasters reaches \$4 billion.

5. While Georgia emerges as the most vulnerable in the broader region of Eastern Europe and Central Asia for the period of 1980–2000, measured by the mortality rate among those exposed to floods, since 2004 considerable improvements in institutional landscape to manage flood risks and support timely recovery have occurred. However, much remains to be done and levels of vulnerability and exposure are still high.

**Table 1: Floods for the period of 1900-2010 sorted by numbers of total affected people and economic damage costs<sup>3</sup>**

Date Of flood occurrence	Number of affected people	Damage (000 US\$)
15-April-1995	300	-
1-July-1995	-	2,200
1-January-1997	-	19,500
26-April-1997	300	10,000
23-May-1997	200	-
14-July-2004	-	2,156
23 April, 2005	2,500	-
15-April-2006	600	-

6. The urgent need for increasing flood security is also illustrated by the fact that the majority of the members of Georgian society that are vulnerable to floods are women, children and the poor, especially Internally Displaced People (IDPs) constituting the most socially disadvantaged group of society large portion of which inhabits in western regions of the country and constitute the most socially disadvantaged group of society. The table 1 illustrates that number of affected people in the past decade is not on decrease. And this will continue to exacerbate in the face of climate change.

7. Historical long time series data analysis in the frames of the Second National Communication established the trend of temperature and precipitation increase in the Western Georgia with the range values of 0.2-0.4 and 8-13% for respective parameters. In this regard, Rioni river basin has been

<sup>2</sup> World Bank (2009) “Adapting to Climate Change in Europe and Central Asia”

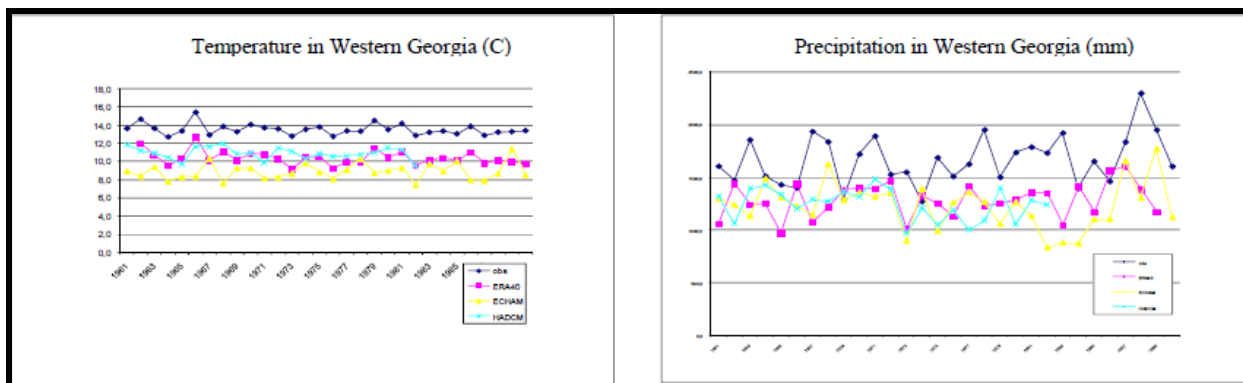
<sup>3</sup> Source: EM-DAT, The international Disaster Database, The Centre for Research on the Epidemiology of Disasters – CRED <http://www.emdat.be/result-country-profile>

identified as the most vulnerable basin susceptible to various disastrous weather events, significantly enhanced by global warming. As a result of the increased frequency and intensity of these phenomena (floods, landslides and mud torrents), land erosion has intensified and greatly damaged agriculture, forests, roads and communications. For example, more than 10,000 ha of agricultural lands fell out of use in the past decade as a result of direct impact of hydro-meteorological disasters. For the country where an average land plot size per person is a mere 0.14ha this is a significant loss.

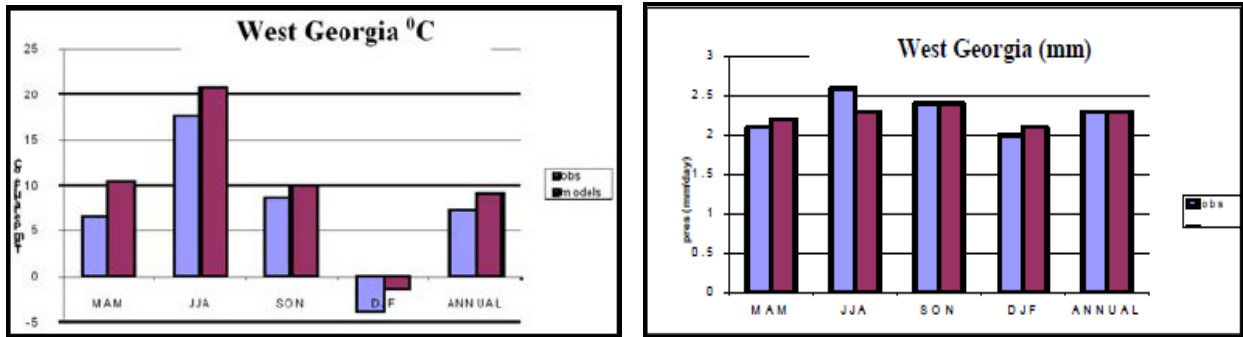
8. Analysis of observation data on floods for the period of 1967–1989 has demonstrated that in the second half of the analysed baseline period the recurrence of floods grew by more than two-fold, and the maximum discharge has increased by 9%. At the same time, the duration of floods has decreased by 25%, which could explain the rise in intensity and severity of floods.

9. Since 1980, the number of landslides has increased by 43%, reaching a total of 117 at present. This especially steep rise in the number of landslides was provoked by the abundant snowfall in the winter in past decades. The increase in heavy precipitation for the last two decades in Kvemo Svaneti (W. Georgia) has also caused an almost two-fold growth in the frequency of mud streams. Intensity and duration of precipitation events combined with early and more accelerated snow melt, as a result of temperature alleviations, are likely to increase due to climate change. This will result in an increased frequency of major floods in many parts of the country, especially in the Rioni basin, the Western region of the country. This anticipated change is clearly expressed in the historical trend as well as long term projections illustrated by the SNC model outputs below.

**Figure 1: temperature and precipitation baseline data calculated by PRECIS model for Western Georgia**



**Figure 2: Calculated and observed values of temperature and precipitation**



10. Western Georgia and the coastal zone just have a 4% decrease in annual precipitation, but the seasonal winter precipitation (snow) will increase by 14%. This increased inter-seasonal variability of precipitation will have a 5-10% increase in river run-off during the spring season in the River Rioni and its tributary Tskhenistskali and thus a strong negative effect on the flood frequency and the occurrence of landslides and mudflows. According to the predicted changes in the Rioni River upper reaches run-off to 2100, its increase by 26% is anticipated by 2050. Therefore, the current trends and future projections are strongly pointing to the Rioni River Basin of Western Georgia for immediate adaptation action to minimize the intensified flood and flash flood related risks.

**Underlying causes of vulnerability in the Rioni River Basin:**

11. Based on observation data analysis and long term projections, Western Georgia and Rioni River basin is a priority region with urgent adaptation needs for more robust flood and flash-flood management that considers long term climate change impacts on the local hydrological regime. Rioni River and its main tributaries flow across four main administrative regions of the Western Georgia (Kvemo Svaneti, Racha-Lechkhumi, Imereti and Samegrelo). The drainage area is significant, about 14.000 km<sup>2</sup>. Complex mountainous topography with the inclination of slopes that in many parts exceed 10-12 degrees, erosion, landslides and mudflows occur frequently. Enhanced economic activities in floodplains further increase the hazard exposure and risk of flooding. Particularly in highland areas, melting of snow in conjunction with intensive rainfall causes more flood and flash flood events, often accompanied by mudflows and even land slides. After heavy snowfall in winter, a sudden rise in temperature and rainfall in the winter/spring period causes a hastening of confluence of the rain, melting snow, and consequently a flood. From the hydrological point of view, on the other hand, factors that have a decisive influence on the occurrence of flash floods - apart from the intensity and duration of the rainfall - are the topography, soil conditions, and coverage of the terrain. Disadvantageous topographical conditions such as high-exposure (steeply sloping) highland terrains, narrow valleys or ravines hasten the runoff and increase the likelihood of flash flood occurrence. At the same time, expansion of settlements and farming plots, encroaching the floodplain areas and even river banks increase the exposure to hazards. Climate change will exacerbate key underlying causes of floods and flash floods in the basin.

12. In response to this mounting climate change induced risk, Georgia needs to ensure that its land use policy is robust to a range of possible climate change futures, with particular focus on flood plain development controls, incentives and regulations aimed at incorporating holistic risks on development. Support needs to target the most vulnerable groups of society, as well as local and national government institutions to undertake direct adaptation measures; those that minimizes the exposure of people, economic assets and ensures that potential damage to development likely to be affected by flooding is limited to acceptable levels. Georgia also needs to strengthen the early warning system for these events

that are likely to exacerbate both in frequency and intensity as a result of climate change. However, towards achieving these normative conditions there are several barriers to be addressed:

- 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 viewed by many at the government institutions as unnecessary 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;
- 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.

13. The proposed project is designed to address the above barriers and achieve climate resilience of highly exposed localities and populations to the increasing flood hazard risks.

## ■ PROJECT / PROGRAMME OBJECTIVES:

*List the main objectives of the project.*

14. The project **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. The project will help the governments and the population of the target region of Rioni Basin to develop adaptive capacity and embark on climate resilient economic development. The project is comprised of three main components:

1. Floodplain development policy introduced to improve long term resilience to flood / flash flood risks;
2. Climate resilient practices of flood management developed and implemented to reduce vulnerability of highly exposed communities;
3. Early warning system in place to improve preparedness and adaptive capacity of population.

## ■ PROJECT / PROGRAMME COMPONENTS AND FINANCING:

*Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.*

*For the case of a programme, individual components are likely to refer to specific sub-sets of stakeholders, regions and/or sectors that can be addressed through a set of well defined interventions / projects.*

<b>PROJECT COMPONENTS</b>	<b>EXPECTED CONCRETE OUTPUTS</b>	<b>EXPECTED OUTCOMES</b>	<b>AMOUNT (US\$)</b>
1. Floodplain development policy introduced to improve long term resilience to flood / flash flood risks	<p>1.1. Hazard and inundation maps produced;</p> <p>1.2. Land use regulations designed and introduced (land use planning, including zonings and development controls, e.g. on protection / buffer zones, settlement expansion; economic development categories etc)</p> <p>1.3. New building codes designed and introduced for the housing rehabilitation schemes to flood proof new buildings (e.g. material standards, traditional house raising etc);</p> <p>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;</p> <p>1.5. Community-based flood insurance scheme designed and implemented covering highly exposed villages under 6 municipalities.</p>	Floodplain development policies in place to minimise exposure of highly vulnerable people of Rioni river basin to climate change induced flood risks.	670,000
2. Climate resilient practices of flood management developed and implemented to reduce vulnerability of highly exposed communities	<p>2.1. Bio-engineering methods of long term flood risk mitigation designed with participation of local governments and population in 6 municipalities (Lentekhi, Oni, Ambrolauri, Tskaltubo, Samtredia, Bagdati);</p> <p>2.2. Community-based adaptation measures, such as bank terracing, vegetative buffers, bundles and tree revetments implemented through employment guarantee scheme;</p> <p>2.3. Flood plain seasonal productive systems (e.g. short season annual cropping, cattle rearing plots or seasonal pastures, agro-forestry) benefit 200,000 people and improve resilience to flood threat;</p> <p>2.4. Lessons learned and best practices documented and disseminated to raise awareness of effective climate risk management options for further up-scaling;</p>	Direct investments and local actions in highly exposed and vulnerable communities improve flood management practice on 8,400km <sup>2</sup> and build resilience of 200,000 people	2,900,000

3. Early warning system in place to improve preparedness and adaptive capacity of population	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 land slides, linked with climatic alterations under alternative scenarios); 3.3. Series of targeted training delivered for the NEA staff and partner organisations in the advanced methods 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; and dissemination and communication of forecasts.	Institutional Capacity developed for early warning and timely alert communication to vulnerable communities of the Rioni river basin	1,000,000
4. Project/Programme Execution cost			330,000
5. Total Project/Programme Cost			4,900,000
6. Project Cycle Management Fee charged by the Implementing Entity (if applicable)			416,500 <sup>d</sup>
<b>Amount of Financing Requested</b>			<b>5,316,500</b>

## ■ PROJECTED CALENDAR:

*Indicate the dates of the following milestones for the proposed project/programme*

MILESTONES	EXPECTED DATES
Start of Project/Programme Implementation	May, 2011
Mid-term Review (if planned)	May, 2013
Project/Programme Closing	May, 2015
Terminal Evaluation	September, 2015

## ■ PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate

<sup>4</sup> On the request of the Government of Georgia the project will be implemented by UNDP using the MIE modality. UNDP is able to provide the following implementation services through its country office, regional and headquarters networks: project identification, formulation, and appraisal; determination of execution modality and local capacity assessment of the national executing entity; briefing and de-briefing of project staff; oversight and monitoring of AF funds, including participation in project reviews; receipt, allocation and reporting to the AF Board of financial resources; thematic and technical capacity building and backstopping; support with knowledge transfer; policy advisory services; technical and quality assurance; and troubleshooting assistance to the national project staff. Further details on the types of specialized technical support services which may be provided are articulated in the table provided to the AFB Secretariat on 14 May 2010 (as annexed).



resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

15. The project aims to develop resilience of highly vulnerable communities and regions to climate related hazards, such as floods, flash floods and associated disasters. 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 will implement 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 will enhance the capacity of all appropriate national agencies to timely and effectively deliver early warning. A balanced combination of policy, early warning and concrete adaptation actions will support Georgia to take steps towards long term resilience of the most vulnerable communities residing in the Rioni river basin region.

### **Component 1: Floodplain development policy introduced to improve long term resilience to climate change induced flood / flash flood risks**

16. There have been rounds of modifications in spatial planning and land use policies in Georgia. Functions have been distributed across various Ministries and compartmentalized practice of land use decision-making has resulted. The Ministry of Justice is dealing with the cadastre and land registry; Ministry of Economic Development takes decisions on land management and property rights; Ministry of Agriculture is charged to oversee soil protection and enforce sustainable land management practice; and the Ministry of Environment - responsible for overall land protection policies. This overly fragmented institutional landscape leaves many regulatory gaps, institutional overlaps, and inconsistencies in land related policy decisions. Currently Water law sets water body protection zones that prohibit a number of economic activities, mainly chemical and other heavy industrial activities. Regulations on urban development and construction permits enforce construction quality and safety standards but fully overlook the risks associated with climate hazards. There is a recently enacted law on Protection of Population and Territories against Natural and Manmade Emergency Situations. However, sub-laws and regulations are still underdeveloped to ensure adequate cross-sectoral enforcements. Decisions on zoning are largely delegated at the sub-national / municipal level, but the capacities for such policy formulation are largely limited. The project will build on the existing legislative and regulatory framework and will fully mainstream the climate risk management aspects, especially in relation to most widely spread hydro-meteorological hazards. More specifically, the project will help formulate a comprehensive floodplain development policy, based on peculiarities of the Rioni river basin. The development of land in flood plains has historically taken place in many areas mainly due to a natural tendency for settlers to utilize land that is near bodies of water, not with consideration of emerging risks. The current regulatory weaknesses described above and absence of any floodplain zoning policies also contributed to this progressively increasing exposure and vulnerability. As a result, the potential for flooding is often recognized only after the occurrence of climate hazard. An underlying principle within the Flood Prone Land Policy is that every effort must be made to have minimal adverse environmental impact to the natural flooding cycles of the floodplain through the construction of flood modification measures. Effective consideration of future development involves a strategic assessment of flood risk to future development areas to guide local municipalities in wisely and rationally controlling development to reduce the risk exposure of new development to an acceptable level. Flood buffers will be established by the project with the following zoning categories: a climate change flood zone; a designated floodway fringe; a flood plain; a designated floodway; and lastly, the body of water itself.

17. Land use planning limits and control mechanisms will be established as essential elements in managing flood risk and the most effective way of ensuring future flood risk is managed appropriately. Local topography and flood behaviour will be considered in developing requirements and controls. At the

same time, regulatory incentives to avoid inappropriate land use practices in the floodplain areas will be set up. For example, fees for construction permit that are much higher in the hazard risk zone relative to those outside of the floodplain area can send a powerful signal to local developers and give directions to construction businesses and property owners towards less risk prone locations. Indeed, land use within flood plains may involve trade offs between flood risk and development. Therefore, such policy decisions should strike a good balance between the floodplain protection for its flood management function and productive use that do not disturb such function. Essentially, the strategic approach of the project is to design the flood management policy that maximizes the net-benefits from flood plains, rather than aims solely at minimizing flood damage that might potentially enter into conflict with development oriented land-use. For example, use of flood plains for short season crops, pastures, cattle rearing or agro-forestry are among viable productive use options in the context of Georgia. These decisions however, will be made based on hazard and inundation maps that identify critical hot spots and enable adequate zoning in order to maintain the natural capability of waterways to convey flood flows.

18. Flood proofing of buildings will be another important floodplain policy regulation for the Rioni basin settlements. Building codes / standards will be designed based on traditional methods. For example, incentives for voluntary house raising (houses with elevated floor levels often seen in old traditional houses in Samegrelo and other regions of the Rioni basin) or double brick construction standards for public schools and hospitals that can withstand inundation and may only require a hose and scrub down when the flood subsides will be introduced.

19. The project will also design and implement climate risk transfer instruments as flood insurance. In fact, the World Bank has recently appraised feasibility of Georgia's participation in Southeastern Europe and Caucasus Catastrophic Risks Insurance Facility (SEEC CRIF). However, this global multi-country pooling scheme may leave some of the most vulnerable and poor households outside of the insurance benefits. Therefore the proposed project, will operate in a small scale niche that unlikely be occupied by this regional, top-down risk insurance project that will work at supra-national level. Community managed water gouging stations will be established to monitor the pre-agreed threshold to trigger the payouts in case of flood incident. The scheme will be designed with participation of local communities in flood prone areas. The insurance product will be developed through the engagement of private sector, mainly micro-finance institutions and municipalities that might need to cover the part of recapitalization in case of considerable losses. The product will be designed in a way that stimulates the adaptation behaviour towards the flood risks. For example, the insurance won't be sold to the owners of farming plots or property that are located in high risk prone areas, thus prompting reversal of existing trends towards the expansion into the floodplain lands. The scheme will improve the financial literacy and raise the awareness of flood risks in the Rioni river basin. The scheme will target 300 people for the flood index insurance with the expectation that this will catalyze demand for further scaling up.

## **Component 2: Climate resilient practices of flood management developed and implemented to reduce vulnerability of highly exposed communities**

20. During past 40 years 60% of total internal displacements due to hydro-meteorological disasters and 80% of total deaths are accounted in the western Georgia, where the Rioni river basin is situated, and occupies almost 20% of the country. Over 15% of total land area of the Rioni river basin falls under the high climate hazard risk category; 16% - intensely damaged areas; and 43% - in need of preventive measures. During 1981-2000 the cost of flood and flash-flood related land rehabilitation and anti-erosion works reached over \$1 billion. Currently the cost has doubled, largely due to intensified processes as a result of climate change. National Environmental Agency, the main responsible institution for hazard risk assessment, monitoring and prevention allocates between \$1 – 10 million per year for river revetments and other river bank protection structural works designed to minimize the flood and flash-flood risks. However, these mitigation measures will become largely insufficient for coping with increasing

magnitude and intensity of floods in the face of climate change. These structures already prove inadequate to resist progressively increasing discharge volumes. Georgia therefore needs to depart from conventional engineering treatments (e.g. revetments) and new erosion control techniques, such as bio-engineering need to be applied, this will particularly be effective given the dominant terrain (complex mountainous topography) and limited land areas for structural measures of adequately large capacities. Smartly combined measures are designed. The combination of hard structures and bio-engineering would also lead to sediment deposition behind the structures, thus recovering some of the receded bank. Based on hazard and inundation maps produced under the component 1 and following some of the key floodplain policy measures, the project under this component will invest in direct adaptation action and implement concrete long term climate resilient flood management activities. The project will work in selected high hazard risk municipalities of Lentekhi, Oni, Ambrolauri, Samtredia Tskaltubo and Bagdati<sup>5</sup>. These “hot spot” locations represent upper, mid and lower reaches of the River Rioni enabling adequate coverage of relatively typical topographic and socio-economic conditions in the main segments of the target water body. This geographic configuration around hot spots will allow for future upscaling of the adaptation measures and practices that will prove to be successful within the scope of the project. Over 800,000 people reside in the target region with total rate of unemployment reaching 33%, double of national average. High rural poverty rates determine social vulnerability that in combination with high exposure to climate hazards and low adaptive capacity points towards urgency of adaptation in this region.

21. The means of flood protection can be divided, between in structural and non- structural measures, the latter would seem to be the key deserving particular attention in effectively limiting the damage caused by flash floods. This does not mean that structural measures are of no assistance, but the typical procedures, like the building of reservoirs and embankments, can not always be adopted in areas susceptible to flash floods. Small scale structural measures, such as bank retaining concrete walls, can, on the other hand, play an essential role in delaying the flow of water, allowing it to be locally retained, or diverting it from places where it could pose a threat to people or properties. Operations to limit the shifting of debris, or to stabilize hillsides in areas at risk of landslides are important. This problem associated with structural measures is often observed in Georgia. However, knowledge of more advanced and climate “smart” flood / flash flood management is limited and traditional engineering solutions of Soviet legacy prevail. The project will therefore offer a combined solution by introducing non-structural, bio-engineering options that help increase natural infiltration and discharge transmission. For example, the project will mobilize local communities to implement such flood risk adaptation measures as trenching, terracing, re-plantation, deep root bush and shrub zones, nut tree or tea plantations (traditional of the region). Additionally, at least five, local bioengineering treatments can be used in the target region. These can consist of live, but dormant cuttings of willow arranged in various configurations, such as vertical bundles with a tree revetment as protection. The other treatments may consist of brush mattresses, live willow clumps / bundles with roots attached and buried landward of a tree revetment that can serve as toe protection between dikes and stone barbs. And so called brush layering, that can be installed using dormant cuttings of willow along the inside face of a peaked stone dike.

22. The project will work directly with the local municipalities, listed above, to help design an employment guarantee scheme that will provide seasonal employment opportunities related to climate induced risk management for the local populations. One of the key approaches to adaptive capacity development at local community level is to build household assets that can provide some contingency finance for mitigating climate-related risks. The seasonal employment on public works for cash transfers can protect local communities from multiple shocks, including those induced by climate change. Under this component the project will partner with the Ministry of Regional Development that coordinates

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<sup>5</sup> During the project feasibility and design stage the composition of these municipalities might change, one or two municipalities might get replaced depending on the local commitments and other essential conditions that will influence the final decision on the selection.

development efforts by the regional authorities and deploys funds from the Municipal Development Fund and Priority Regional Programme Fund. Prioritization setting is practiced through a bottom up approach. The project will utilize this critical channel of decision making to influence and catalyze long term fund allocation to flood / flash flood management measures that will successfully implemented in the framework of the project. This approach that combines local employment through adaptation works and bottom up fund earmarking in the dedicated regional development funds will support the long term sustainability of the proposed adaptation scheme.

### **Component 3. Early warning system in place to improve preparedness and adaptive capacity of population**

23. As noted above, the frequency of extreme water flow is increasing in Georgia. The alerts on extremely high water levels from the primary measurement gauges in Georgia were exceeded more than 100 times, while the flood levels - more than 50 times during 1986-2006 (this is almost twice as frequent and volatile than during the 1960-1980s). This ultimately means that when the water stage reaches or exceeds the alert value, the hydrometric observations should be communicated more frequently than under the normal circumstances of natural climate variability. There is a potential for extremely high water flows and seasonal anomalies in the immediate future. Early warnings and forecasts are key measures within a suite of steps required to reduce the social and economic impact of climate hazards, including floods. In response, the government has put early warning high on the national agenda. This is indeed a strategic activity at a time when climate change is likely to produce more extreme climate events. As an important step towards improved observation and forecasting capacity, the National Environment Agency has just recently finalized a comprehensive assessment on the development of flood early warning system in Georgia<sup>6</sup>. The proposed project is a direct response to some of the critical priorities underlined by the assessment. The focus of this component is placed on floods, even if the project adopts a more integrated approach to all interrelated hydrometeorological hazards that will intensify with climate change. The approach under this component is based on a physical reality: floods can be forecasted in real time, while, for many other related hazards (flash floods, mudflows, landslides) the risk can be assessed but the occurrence time remains unknown). Improving flood early warning system however will offer a solid ground for future integrated warning systems as further advancements in forecasting emerge. Good practice of early warning consists of four key elements: (i) risk knowledge, (i) monitoring and warning services, (iii) dissemination and communication, and (iv) response capabilities. Under all these critical capabilities there is number of institutions performing some elements of these functions with certain degree of overlap. For example, National Security Council provides overall coordination of crisis management. The National Environment Agency under the Ministry of Environment has the direct role in the three critical elements of a) risk assessment; b) monitoring and forecasting; and c) dissemination and communication. Ministry of Regional Development and Infrastructure has emerged as an important player in this regard. According to the recent amendment<sup>7</sup> to the Law of Georgia on Protection of Population and Territories against Natural and Manmade Emergency Situations, MRDI became responsible for any disaster risk reduction and prevention activities at regional and local levels. This places this Ministry strategically important in the context of supporting long term adaptation solutions at the sub-national level. Emergency Management Department under the Ministry of Interior has the strong role and capacity in emergency response and crisis management situations. However, its role in long term climate adaptation policies and measures is not envisaged.

24. Therefore, stemming from the current distribution of institutional roles and functions with regards to early warning, the main target institution for capacity development purposes will be the National

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<sup>6</sup> Ministry of Environment of Georgia (2010) "Assessment Report on the Development of Flood Early Warning System in Georgia"

<sup>7</sup> Amendment N1566 of 31.07.2009

Environmental Agency under the Ministry of Environment. The project will cover three main critical aspects of strengthening the institutional mandate of the NEA: (i) Risk Knowledge: The project will enhance knowledge and skill sets of technical officers in latest methods of hazard risk assessments. The project will enable the NEA to develop gross flood hazard and risk maps for prioritizing and informing the emergency rescue operators on potential hazards and risks ( scale: 1:50,000); flood risk maps for priority flood plain of Rioni Basin (downstream reach, downstream Kutaisi). This region was chosen based on the high hazard levels and risks for large number of people as well as value and importance of assets under risk in case of high flows (scale: 1:20,000 and 1:10,000) will also be developed. The project will digitize, save and systematize/structure historical hydrometeorological observations, measurements and other data and link them to GIS systems that are essential for prospective planning and are currently missing in the Early Warning System. (ii) Monitoring and Forecasting: AF resources will be used to procure and install essential monitoring equipment such as 3 automatic hydro-meteorological stations, one at the upper reaches and two at the lower reaches; 2 portable dopler flow/stream measures; 20 telemetric precipitation gauges; and 10 telemetric water gauges. The project will also help in river bed and flood plain surveys and profile mapping. NEA staff engaged in monitoring will be trained in operations and development of stations O/M plan and protocols. For the long term forecasting, the project will downscale the grid of the regional weather forecasts from 14\*14 km to 7\*7 km; as for the short-term forecasting Rioni flood forecasting model will be developed, specifically by coupling the outputs from meso-scale meteorological systems to HMS hydrological model; and establishment of on-line interface between the hydrological telemetric stations and Deltares-FEWS. (iii) Dissemination and communication: the project will work with NEA to set up GIS-based integrated hydrometeorological and related database at the NEA.

25. Thus, the project will help fill up the critical capacity gaps identified through the above mentioned comprehensive needs assessment. The capacity development approach covers the combination of the skill set and knowledge enhancement through targeted training; physical monitoring capacity and advanced forecasting and communication methods. This component will further enhance the EWS in the Rioni river basin.

**B. Describe how the project / programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities.**

26. Georgia is one of the most vulnerable countries of Eastern Europe to the projected impacts of climate change. Climate change will bring more frequent occurrence of hydro-meteorological hazards such as floods, flash floods and associated catastrophic events of mudflows and landslides. Despite considerable investments into the response and preventive measures the country is failing to cope with the mounting pressures from climate hazards that increase in frequency and intensity as a result of climate change. The project introduces a combined method of structural and non-structural defence that has proven the most effective in many countries of the developed world. Smart flood management options that allow for greater water infiltration and transmission and takes advantage of flood cycles by using the floodplain lands for more resilient productive systems (agro-forestry, short season cropping farms, pastures etc) will deliver considerable socio-economic and environmental benefits to the people residing in the Rioni River basin. In terms of direct beneficiaries of adaptation measures 203,000 people of key hot spot municipalities of Lentekhi, Ambrolauri, Oni, Tskaltubo, Samtredia and Bagdati will benefit. Among them majority are women, elderly and children. Local population will be directly engaged in labour intensive bio-engineering measures of re-plantation, construction of vegetative revetments, trenching, terracing and other traditional and innovative measures. Their engagement will be arranged through the municipal employment guarantee scheme that will grant seasonal adaptation works for the most exposed groups of the population. Building codes that will flood proof public houses such as schools and hospitals in the highly hazard prone municipalities, as well as a recovery of traditional house raising for private buildings will improve safety and long term resilience of the vulnerable communities.

**C. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme.**

27. The project is cost-effective in as much as it implements flood / flash flood management measures that are more resilient to long term impacts of climate change on hydrological dynamic and increased frequency and intensity of climate hazards. The country that loses on average 5-10% of GDP as a result of floods of magnitude similar to those of 1997 and spends approximately \$1-10 million annually on river embankments, dams and other flood defence structures requires a more long term vision to effectively prevent and adapt to climate hazard risks that are to be exacerbated based on regional and national climate change scenarios. The project has closely examined the current, business-as-usual scenario of flood / flash flood risk management that progresses in cost and regresses in effectiveness due to aggravated forces of climatic hazards. As such, intensive early snowmelt together with increasing amounts of rainfall; more frequent heavy rainstorms during summer and autumn; large territorial frontal rains during the autumn; and intensive rainfall during the winter season in the coastal zone of Rioni delta are key conditions that get intensified as a result of climate change. Therefore, effectiveness of business-as-usual measures is already questionable now, under the current climate variability, let alone the future climate change scenarios described above. Doing “more of the same” has been considered among the options. However, the cost of structural measures will be extremely high and barely affordable for the country like Georgia facing intensified catastrophic events. Given the complexity of the topography such measures may not always be effective. With more forceful floods and flash floods in the upper reaches of Rioni the flow velocity can be so high that can often destroy the defence structures and pick up the solid matter that has even stronger destructive powers. IPCC report [Intergovernmental Panel on Climate Change, 2007] stressed the increase of climate-related hazards (e.g. floods) across Europe and high relationship with geographical localization. Therefore, the project takes more localised approach in designing flood plain development policy and offers a suite of structural and non-structural measures the best suited to the local circumstances and the long term hydrological alterations due to climate change. Based on initial calculations of payback rate per unit of investment in types of measures offered by the project (vegetative revetments, economic benefits generated from flood plain productive systems, improvements in floodplain services of water transmission and infiltration etc) can amount to at least 1:10 ration compared to current modes of flood management by artificial embankments and structural protection measures. More detailed assessment of cost-effectiveness of the offered adaptation alternative will be presented by the submission of the full size regular project.

**D. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.**

28. The project is a direct response to the priorities that have emerged from the Second National Communication. The SNC under its V&A assessment has looked into the Rioni river and its delta for the combined effects intensified floods and coastal land submersion due to sea level rise. The project is designed to respond to the flood and flash flood risks in the most vulnerable river basin – Rioni, in the areas the most stricken by poverty and inhabited by many internally displaced people (IDPs) that are among the most vulnerable social groups of the Georgian society. The project, by pursuing objective of improving resilience of highly exposed regions of Georgia to hydro-meteorological threats, induced by climate change, directly contributes to some of the strategic policies that have been developed lately. For example, Georgia has recently prepared the second National Environment Action Plan (NEAP) for the period of 2010-2020. It has a dedicated section on natural and anthropogenic disasters that includes the aims related to mitigation and reduction of impacts posed by floods and flash floods in the main river

basins. The project objective also fully resonates with the Regional Development Strategy for 2010-2017 that places climate hazard risk management squarely into the core of regional development objective. It specifically underscores importance of hazard mapping that is to underpin local development plans and signifies importance of early warning system for greater safety of local population and improved conditions for development through avoidance of economic losses and damage to community assets and infrastructure.

**E. Describe how the project / programme meets relevant national technical standards, where applicable.**

29. The project offers the solution that does not require any special permits or environmental impact assessment (EIA). The project will align with and contribute to the implementation of the law on Protection of Population and Territories against Natural and Manmade Emergency Situations; Water law and soil protection law. Moreover, the Georgian legislation currently lacks any legal standards or regulations on zoning in the floodplain areas or high hazard prone regions. The project will therefore help develop the legislative framework, a set of regulations and incentives that will help steer inappropriate development away from the areas with a high potential for damage and ensure that potential damage to developments likely to be affected by projected intensity of floods is limited to acceptable levels by means of standards, legal incentives and regulations (e.g. land use regulations, zoning, establishment of buffers in the floodplain areas, climate-resilient productive systems, building codes for flood proofing etc).

30. All UNDP supported donor funded projects are required to follow the mandatory requirements outlined in the UNDP Programme and Operational Policies and Procedures (UNDP POPP). This includes the requirement that all UNDP development solutions must always reflect local circumstances and aspirations and draw upon national actors and capabilities. In addition, all UNDP supported donor funded projects are appraised before approval. During appraisal, appropriate UNDP representatives and stakeholders ensure that the project has been designed with a clear focus on agreed results. The appraisal is conducted through the formal meeting of the Project Appraisal Committee (PAC) established by the UNDP Resident Representative. The PAC representatives are independent in that they should not have participated in the formulation of the project and should have no vested interest in the approval of the project. Appraisal is based on a detailed quality programming checklist which ensures, amongst other issues, that necessary safeguards have been addressed and incorporated into the project design.

**F. Describe if there is duplication of project / programme with other funding sources, if any.**

31. Given the high priority assigned to hydro-meteorological threats in Georgia there are number of on-going initiatives that the project will partner and coordinate its activities with. The most important initiatives are described below:

Local NGO, Caucasus Environmental NGO Network - CENN runs number of related projects financed by various bilateral donors.

USAID funded “Climate Change Adaptation and Disaster Mitigation (CCADM)” project with total budget of 100.000 and implementation period through 2012 covers the regions of Eastern, Southern and Western Georgia. The overall goal of the project is to develop flexible and resilient societies and economies in rural areas of Georgia capable of coping with the impacts of current climate variability and future climate change. Specific objective of the Project is to reduce the susceptibility of local communities in the pilot rural areas of Georgia (Samtskhe-Javakheti, Adjara and Kakheti regions) to

negative climate impacts through post-conflict environmental rehabilitation, natural disaster risk reduction (DRR) and climate change adaptation (CCA).

EC Delegation funds the project on “strengthening local capacity and developing structured dialogue and partnerships for mitigating natural disasters and reducing poverty in Georgia” it will run through 2011 to accomplish the following aims: (i) Strengthen local capacity to empower affected communities and local authorities to prevent and reduce the natural disasters risks and promote sustainable rural development in the targeted regions of Georgia; (ii) Develop issue based coalition and partnerships to stimulate structural dialogue between the local communities, local authorities and central government concerned with the natural disaster risk reduction (DRR) and management; (iii) Prioritize the natural disaster risk reduction (DRR) and management in the State agenda as key factors for eradication of poverty and lobbying for allocation of funds to competent central (Ministry of Environment, Ministry of Agriculture) and local authorities to address natural disasters.

The MATRA programme through the Dutch bilateral aid funds the institutional capacity development project – “Institutional Building for Natural Disaster Risk Reduction (DRR) in Georgia” The Project objective is institutional capacity building in DRR via introduction of modern spatial approaches and technologies and risk communication strategy in spatial planning in Georgia. The project will also run through 2011. CENN also implements number of small scale community mobilization and DRR awareness raising projects in high hazard prone regions.

The USAID is about to launch a \$6 million programme on integrated watershed management targeting three water bodies: Rioni, Alazani and Iori. Initial consultations with USAID local office in Georgia confirmed the needs of close cooperation both at the project design and implementation. USAID initiative is still under preparation and according to the consultations held will focus on watershed management on several micro catchments areas and will work by using the methods of community mobilisation and empowerment in water management decisions.

**G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.**

32. A dedicated knowledge management output will be delivered under the component 2 that tests and implements concrete adaptation measures in relation to flood/flash flood risk management in the face of climate change. This will include three distinct categories of activities: (i) identify and recover traditional non-structural flood mitigation and management measures in Georgia; (ii) identify and transfer good practices from the international experience that can be customised under the conditions of the targeted geographic areas; and (iii) capture, codify and disseminate lessons learned and best practices generated by the project. These three categories of knowledge management actions will help generate the valuable lessons and consolidate the knowledge that can be widely exchanged through the Adaptation Learning Mechanism (ALM) and other networks.

**H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation.**

33. The potential stakeholders and partners of the project have been identified and consulted during the proposed concept development. More detailed stakeholder analysis will be conducted during the feasibility stage of regular project design.

34. Ministry of Environment, National Environment Agency and its key departments of hydrometeorology and Geology; Ministry of Regional Development; Ministry of Economy; local



municipalities of Lentekhi, Ambrolauri, Oni, Tskaltubo, Samtredia and Bagdati; and regional authorities. NGOs CENN, Regional Environment Centre and local community-based organisations in the targeted regions will be involved. Local micro finance institutions and private construction companies will be brought into the project development and implementation process.

## **I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.**

### **1. Floodplain development policy introduced to improve long term resilience to flood / flash flood risks**

#### *Baseline (without AF resources)*

35. Without the AF support Georgia will continue to treat floods, flash floods and associated disasters (mudflows and land slides) only after the occurrence of these events, mainly focusing on recovery. Despite the latest moves towards the prevention, the dynamic of hydrometeorological threats due to projected climate change are not duly considered or reflected in sectorial policies or national legislation. As a result, there are considerable regulatory gaps in land use policies that are essential for any meaningful, long term flood / flash flood risk management in the face of climate change. Technical capacities will remain limited to correlate land use and spatial planning methods with flood risk prevention and management.

#### *Additional (with AF resources)*

36. The project will help develop floodplain development policy and fill all land use regulatory gaps in this regard. Based on thorough trade-off analysis, the project will design a set of zoning regulations and legal incentives that will steer the development away from the climate risks and considerably reduce exposure and vulnerability to the flood and flash flood risks. Such productive use of land that generates economic benefit from the flood cycles and improves discharge transmission or water infiltration will be established. Flood proofing of housing schemes and integration of climate risk management into the construction permits will contribute to long term resilience. Flood insurance scheme at local level will raise awareness of exacerbating flood risks and help communities transfer at least part of the residual risks after the above noted adaptation measures have been fully enforced.

### **2. Climate resilient practices of flood management developed and implemented to reduce vulnerability of highly exposed communities**

#### *Baseline (without AF resources)*

37. The government has an annual budget allocation for flood and flash flood prevention measures through targeted embankments and river bank revetments. These structural measures that often prove inadequate or ineffective due to exacerbated flood events will continue to encroach the state budget and maintenance works will remain underfunded as these structures will be in constant need of revamping due to amplified impacts of climate change on flood cycles. Despite number of local initiatives currently underway, the flood risk management is largely limited to traditional Disaster Risk Reduction activities without due consideration of long term impacts of climate change on hydrological regimes of the main rivers.

#### *Additional (with AF resources)*

38. The project will design and implement adaptation measures that are more resilient to long term climate change risks. It will engage local communities in the direct action through the local employment scheme that will provide for labour intensive, seasonal works of terracing, trenching, re-planting of vegetative buffers, plant / tree revetments and other bio-engineering measures that will improve the stability of certain protection infrastructure (e.g. dikes) and improve resilience of the settlements and local

economic assets. These measures will be designed based on traditional knowledge, local topographic and other bio-physical conditions and with a full awareness and knowledge of the international best practice.

### **3. Early warning system in place to improve preparedness and adaptive capacity of population**

#### *Baseline (without AF resources)*

39. The early warning has gained lots of attention recently and is placed very high up on the national agenda. The government allocated an unprecedented amount of \$600,000 in 2010 to purchase and install number of automatic meteorological stations and meteorological gauges. 7 meteorological gauges and 7 meteorological posts have been installed with support of the Finish government. Some other donors have also contributed in strengthening the observation and forecasting capacity of the National Environment Agency. Despite these advancements, the recent capacity needs assessment for Early Warning System in Georgia highlighted considerable capacity gaps both in terms of risk assessment methods, observation, forecasting and communication. The recently installed observation capacities have improved the system but because of complex topography and micro-climatic conditions in Georgia, density of the observation networks needs to be much greater. Without the AF support, the advanced methods of risk assessment, forecasting and dissemination of early warnings will remain outdated following the old soviet standards.

#### *Additional (with AF resources)*

40. The project will cover the cost of targeted training for the NEA staff; improve the risk assessment, forecasting and early warning communication methods at this key institution and build up its observation capacity for the Rioni river basin that will eventually improve the climate monitoring and observation system for wider region of the Western Georgia that is particularly susceptible to flood and flash flood risks (see the annex 3).

## **PART III: IMPLEMENTATION ARRANGEMENTS**

### **A. Describe the arrangements for project / programme implementation.**

41. The Ministry of Environmental Protection and Natural Resources is the government institution responsible for the implementation of the project and will act as the Executing Agency (EA)<sup>8</sup>. The Ministry of Regional Development will be an implementing partner of the components 1 and 2. Upon the request of the Government of Georgia, UNDP is the Multilateral Implementing Entity (MIE) for the project. The project is nationally implemented (NIM), in line with the Standard Basic Assistance Agreement (SBAA, 1993) and the UNDAF 2011-2015 between the UN and the Government of Georgia.

42. As a Multilateral Implementing Entity, UNDP is responsible for providing a number of key general management and specialized technical support services. These services are provided through UNDP's global network of country, regional and headquarters offices and units and include assistance in: project formulation and appraisal; determination of execution modality and local capacity assessment; briefing and de-briefing of project staff and consultants; general oversight and monitoring, including participation in project reviews; receipt, allocation and reporting to the donor of financial resources; thematic and technical backstopping; provision of systems, IT infrastructure, branding, and knowledge transfer; research and development; participation in policy negotiations; policy advisory services; programme identification and development; identifying, accessing, combining and sequencing financing; troubleshooting; identification and consolidation of learning; and training and capacity building.

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<sup>8</sup> In accordance with UNDP programme guidelines, under nationally implemented projects individual project “executing entity” is replaced by “implemented partner”, while the “executive agency” is that who has a responsibility over coordination of overall UNDP Country Programme

43. As outlined in UNDP's application to the Adaptation Fund Board for accreditation as a Multilateral Implementing Entity, UNDP employs a number of project execution modalities determined on country demand, the specificities of an intervention, and a country context. Under the national implementation modality proposed to be used for this project, UNDP selects a government entity as the Implementing Partner based on relevant capacity assessments performed by UNDP. The Implementing Partner is the institutional entity entrusted with and fully accountable to UNDP for successfully managing and delivering project outputs. It is responsible to UNDP for activities including: the preparation and implementation of project work plans and annual audit plans; preparation and operation of project budgets and budget revisions; disbursement and administration of funds; recruitment of national and international consultants and project personnel; financial and progress reporting; and monitoring and evaluation. As stated above, however, UNDP retains ultimate accountability for the effective implementation of the project.

44. The MoE, through its National Environmental Agency, will assume responsibility for the project implementation, and the timely and verifiable attainment of project objectives and outcomes. It will provide support to the project management unit, and inputs for, the implementation of all project activities. The MoE will nominate a high level official who will serve as the National Project Director (NPD) for the project implementation. For the purpose of directing the project, the Project Board will be established, represented by senior supplier, senior user/beneficiary and executive roles and chaired by the NPD. The project executive role will be assumed by the MoE through NPD. The NPD will not be paid from the project funds, but will represent a Government in kind contribution to the Project. The senior supplier will be represented by major donors and agencies committing resources and setting requirements for the project. The senior user/beneficiary role will be assumed by representatives of those organizations/groups who directly benefit from the project, e.g. local municipalities, communities, etc.

45. The Ministry of Regional Development will act as implementing partner, mainly under the components 1 and 2. The MRD is the main institution responsible for regional development strategies and local budgetary investments through the Municipal Development Fund and Regional Priority Programmes. National Execution enables the project to exercise greater national ownership. UNDP will provide technical backstopping, quality assurance and compliance with fiduciary standards in its capacity of MIE. Detailed organization of the project will further elaborated during the regular project design phase.

**B. Describe the measures for financial and project / programme risk management.**

Risk	Risk Rate	Action
Resistance of government institutions to introduce floodplain development policy that sets number of land use limiting regulations and floodplain zoning rules.	Medium	Bottom-up approach to the policy development with active engagement of local population and authorities will enable the project to follow the principles of subsidiarity and participation underlined in the Regional Development Strategy and help local authorities make decentralised climate compatible development decisions. Engagement of the Regional Development Ministry will help

		the flood plain policy to emerge in full consistency with the development priorities that will be supported to embark on climate resilient pathway.
Due to staff turnover at the target Ministries the trained staff may leave for the other job opportunities undermining installed technical capacity	Low	Special training conditions and / or training for trainers will be arranged to leave the trained staff at the target Ministries.

C. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.

<b>Type of M&amp;E activity</b>	<b>Responsible Parties</b>	<b>Budget US\$*</b> <i>(does not include staff time)</i>	<b>Time frame</b>
Inception workshop	Project Manager NEA UNDP-CO	\$500	Within first two months of project start up
Inception Report	Project team UNDP-CO	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	Project Manager	None	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	Project Manager		Annually prior yearly reports and to the definition of annual work plans
Monthly reports	Project team	None	At the end of each month
Annual reports	Project team UNDP-CO	\$500	At the end of each year
Meetings of the Project Coordination Committee	Project Manager UNDP-CO	None	After the inception workshop and thereafter at least once a year
Technical reports	Project team External consultants	None	To be determined by Project team & UNDP CO
Mid-term external evaluation	Project team UNDP-CO External consultants	\$20,000	At the mid-point of project implementation.
Final external evaluation	Project team UNDP-CO External consultants	\$20,000	At the end of project implementation
Final Report	Project team UNDP-CO	None	At least one month before the end of the project
Publication of lessons learned	Project team	\$17,500 (average \$4,375 per year)	Yearly
Audit	UNDP-CO Project team	\$28,000 (average \$7,000 per year)	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	UNDP-CO	\$2,000	Yearly
<b>TOTAL INDICATIVE COST</b>		<b>\$88,500</b>	

D. Include a results framework for the project proposal, including milestones, targets and indicators.

Will be presented at the submission of the regular project proposal.

## **PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY**

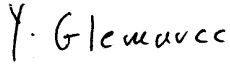
### **A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT<sup>9</sup>**

*Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

Giorgi Zedgenidze, Deputy Minister of Environment Protection and Natural Resources	Date: October 19, 2010
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### **B. IMPLEMENTING ENTITY CERTIFICATION**

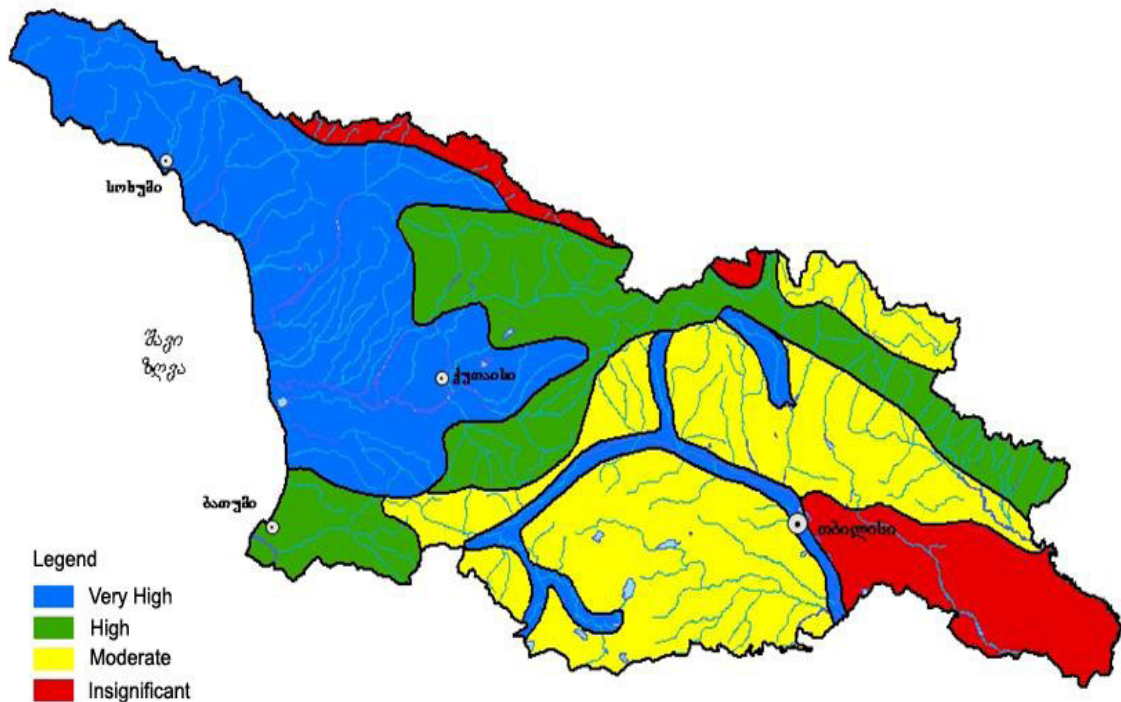
*Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, understands that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
 Yannick Glemarec Director Environmental Finance UNDP Implementing Entity Coordinator	
Date: October 22, 2010	Tel. and email:
Project Contact Person: Adriana Dinu	
Tel. And Email: +421 259337 332; adriana.dinu@undp.org	

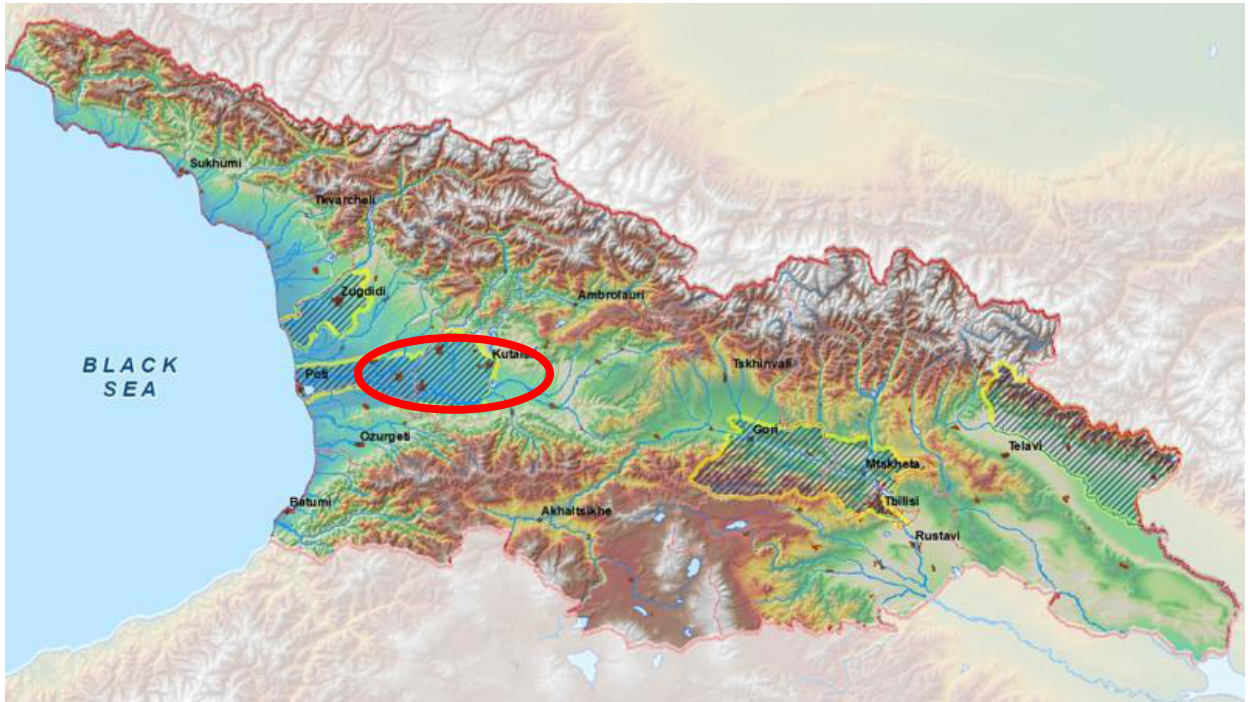
<sup>6</sup>. Each Party shall designate and communicate to the Secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Annex 1: Map of flood and flash flooding risks in Georgia

# Zoning of Georgia per Flash Flood Risks on Rivers



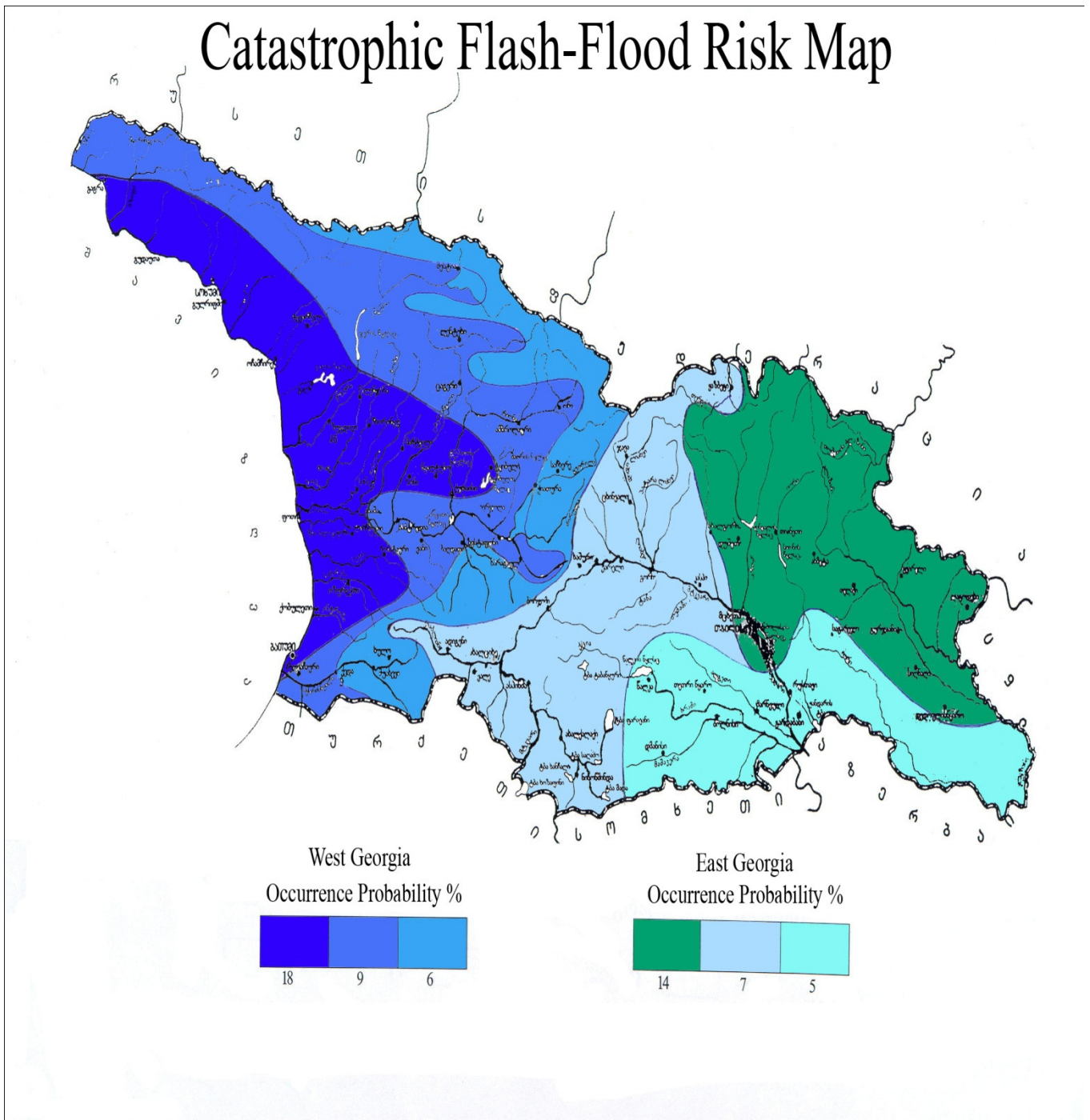
**Annex 2: Priority sub-catchments for floods and flash flood hazards in Georgia;  
Marked project area in the Rioni River basin (upper, mid and low reaches)**





### Annex 3: Catastrophic Flash-Flood Risk Map

Indicates high hazard occurrence probabilities in the Western Georgia



### Annex 3: UNDP Environmental Finance – Specialized Technical Services

Stage	Specialized Technical Services Provided
<b>Identification, Sourcing and Screening of Ideas</b>	Provide information on substantive issues and specialized funding opportunities (SOFs)
	Verify soundness and potential eligibility of identified idea
<b>Feasibility Assessment / Due Diligence Review</b>	Technical support: provide up-front guidance; sourcing of technical expertise; verification of technical reports and project conceptualization; guidance on SOF expectations and requirements
	Provide detailed screening against technical, financial, social and risk criteria and provide statement of likely eligibility against identified SOF
	Assist in identifying technical partners; Validate partner technical abilities.
	Obtain clearances – SOF
<b>Development &amp; Preparation</b>	Technical support, backstopping and troubleshooting
	Technical support: sourcing of technical expertise; verification of technical reports and project conceptualization; guidance on SOF expectations and requirements
	Verify technical soundness, quality of preparation, and match with SOF expectations
	Negotiate and obtain clearances by SOF
	Respond to information requests, arrange revisions etc.
	Verify technical soundness, quality of preparation, and match with SOF expectations
<b>Implementation</b>	Technical and SOF Oversight and support
	Technical support in preparing TOR and verifying expertise for technical positions. Verification of technical validity / match with SOF expectations of inception report. Participate in Inception Workshop
	Technical information and support as needed
	Technical support, participation as necessary
	Advisory services as required
	Allocation of ASLs
	Technical support and troubleshooting, Support missions as necessary.
	Project visits – at least one technical support visit per year.
	Technical support, validation, quality assurance
	Return of unspent funds
<b>Evaluation and Reporting</b>	Technical support, progress monitoring, validation, quality assurance
	Technical support, participation as necessary
	Technical support in preparing TOR and verifying expertise for technical positions. Verification of technical validity / match with SOF expectations of inception report. Participate in briefing / debriefing

<b>Stage</b>	<b>Specialized Technical Services Provided</b>
	Technical analysis, compilation of lessons, validation of results
	Dissemination of technical findings

**Service standards:**

1. initial response to communication within 2 working days
2. full response to communication (with the exception of a response requiring travel) within 10 working days