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## Reducing Risks and Vulnerabilities from Glacial Lake Outburst Floods in Northern Pakistan

UNDP PIMS: 4454

Atlas Project ID: 61318

AF Agency: United Nations Development Programme

Executing Agency: Ministry of Climate Change, Government of Pakistan

Focal Area: Climate Change Adaptation



### Report of the Terminal Evaluation Mission

November, 2015

Dr. Arun Rijal (Independent International Consultant)

Dr. Jawad Ali (Independent National Consultant)

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**Project Period 2011-2015**

**Evaluation Team**

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**Terminal Evaluation Report**

**November, 2015**

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The views expressed in this report are intended to offer an overview of, and some of the lessons learned from this Project as it comes to its conclusion. We have tried to balance our thoughts and to offer fair perspectives of what was observed and learned from people far more knowledgeable about the Project and its context than we will ever be.

And finally, one of the delights of this sort of work remains that of visiting new and extremely welcoming country and going home again having made new friends, seen new things, and witnessed with great admiration the dedication and enthusiasm that so many people bring to their work in managing GLOF and other Disaster Risks. We would like to thank them and wish them every success in their continuing endeavours.

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30<sup>th</sup> November 2015

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## Acronyms and Terms

AF	Adaptation Fund
APN	Asia Pacific Network for Global Change Research
APR	Annual Project Report
AWS	Automatic Weather Station
BD	Biodiversity
CBE	Community based Enterprise
CBO	Community-based Organisation
CBDMC	Community Based Disaster Management Committee
CBDR	Community Based Disaster Risk Committee
CBDRMC	Community Based Disaster Risk Management Committee
CCD	Climate Change Division
CDPM	Centre for Disaster Preparedness and Management
CO	Country Office
CPAP	Country Program Action Plan
DCO	District Coordination Officer
DDMA	District Disaster Management Authority
DDO	Dubani Development Organisation
DERC	District Emergency Response Cell
DIPECHO	Disaster Preparedness Programme
DRM	Disaster Risk Management
DRMC	Disaster Risk Management Committee
EAD	Economic Affairs Division
EPA	Environment Protection Agency
ERRA	Earthquake Relief and Rehabilitation Authority
EWS	Early Warning System
EVk2-CNR	An Italian organisation working in mountain Areas
FFC	Federal Flood Commission
GB	Gilgit Baltistan
GBDMA	Gilgit-Baltistan Disaster Management Authority
GCISC	Global Change Impact Study Centre
GLOF	Glacial Lake Outburst Flood
GoP	Government of Pakistan
GPR	Ground Penetrating Radar
HFA	Hyogo Framework for Action
HKH	Hind Kush Himalaya
HVRA	Hazard Vulnerability Risk Assessment
ICIMOD	International Centre for Integrated Mountain Development
IEC	Information Education and Communication
IGIS	Institute of Geographical Information System
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for the Conservation of Nature
KAP	Knowledge Attitude and Practices
KIU	Karakorum International University
LFA	Log-frame analysis
MCC	Ministry of Climate Change
MDG	Millennium Development Goal
M&E	Monitoring and Evaluation
MoA	Ministry of Agriculture
MoU	Memorandum of Understanding

MSE	Micro and Small Enterprises
MTR	Mid-term Review
NARC	National Agriculture Research Council
NDMA	National Disaster Management Act
NDMA	National Disaster Management Authority
NEAP	National Environment Action Plan
NGO	Non-Government Organisation
NIM	National Implementation Modality
NOC	No Objection Certificate
NPD	National Project Director
NTFP	Non-Timber Forest Product
PARC	Pakistan Agricultural Research Council
PB	Project Board
PCRWR	Pakistan Council of Research on Water Resources
PIR	Project Implementation Report
PMD	Pakistan Meteorological Department
PMO	Project Management Office
PMU	Project Management Unit
ProDoc	Project Document
PRSP	Poverty Reduction Strategy Paper
PSC	Project Steering Committee
ROtI	Review of Outcome to Impact
RRF	Result and Resources Framework
SC	Steering Committee
SLMP	Sustainable Land Management Project
SMART	Specific, Measurable, Achievable, Relevant, Time-bound
SOP	Standard Operation Procedure
TE	Terminal Evaluation
TEC	Terminal Evaluation Consultant
TERC	Tehsil Emergency Response Cell
TFCC	Task Force on Climate Change
TMI	The Mountain Institute
ToR	Terms of Reference
UNDAF	UN Development Assistance Framework
CPAP	Country Programme Action Plan
UNDP	United Nations Development Programme
UNDP HQ	UNDP Headquarter
UNEP	United Nation's Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
US\$	United States Dollar
VHWG	Village Hazard Watch Group
WWF	Worldwide Fund for Nature

Currency of Pakistan is the Pakistani Rupees. At the time of the final evaluation, US\$ 1 = PRs.104.39

## ii. Executive Summary

This Terminal Evaluation (TE) has been conducted as part of the Monitoring and Evaluation plan of the UNDP/AF Project: “Reducing Risks and Vulnerabilities from Glacier Lake Outburst Floods in Northern Pakistan”, and will be referred to as the “Project” in the scope of this report. The TE mission to Pakistan was conducted from 9<sup>th</sup> November to 23<sup>rd</sup> November 2015. Extensive consultations with the project partners were also conducted prior and following the mission to ensure a good understanding of the project’s results; leading to the submission of the TE report on the date of this report.

### Project Summary Table

As per requirements for TE, the Project Summary Table is provided below:

<b>Project Summary Table</b>				
<b>Project Title:</b>	Reducing Risks and Vulnerabilities from Glacier Lake Outburst Floods in Northern Pakistan			
<b>Atlas Award ID:</b>	<b>00061318</b>		<b>at endorsement (US\$)</b>	<b>at completion (US\$)</b>
UNDP Project ID:	PIMS 4454	Adaptation Fund:	3,600,000	3,600,000
Country:	Pakistan	Government of Pakistan in Kind:	3,500,000	3,500,000
Region:	South Asia	UNDP in Kind:	500,000	500,000
Focal Area:	Climate Change Adaptation	Total co-financing:	4,000,000	4,000,000
Executing Agency:	Ministry of Environment, Government of Pakistan (in the beginning)/ Latter it was by Climate Change Division	<b>Total Project Cost:</b>	<b>1,130,000+(in kind US\$800,000)</b>	<b>1,130,000 +kind contribution</b>
Other Partners involved:	<ul style="list-style-type: none"> <li>• Pakistan Metrological Department</li> <li>• District Management</li> <li>• Disaster Management Authorities</li> <li>• Local Communities</li> </ul>	ProDoc Signature (date project began):		May 2011
		(Operational) Closing Date:	Proposed: May 2015	Actual: November 2015



## Brief Description of Project

Northern Pakistan (Himalayan Karakorum Hindu Kush mountain ranges) possesses the largest glaciers in the world outside Polar Regions. This region plays important role in the global atmospheric circulation, water resources, ecosystem function, biodiversity, and the hydrological cycle as it is source of large river systems. Large portion of the snow and Ice masses of this region of Pakistan is concentrated in the watersheds of the Indus basin which is receding at a rate of 40-60 meters per decade due to rapidly increasing atmospheric temperature. Melting Ice from these glaciers is increasing the volume of water in the glacier lakes. Moreover, studies also indicates that the warming trend in the HKH region has been greater than the global average which accelerates melting of glaciers and increasing threat of sudden burst of the lake with discharge of huge volume of water and debris. According to ICIMOD, 5218 glaciers (15040sq km) and 2420 lakes are identified and mapped in Pakistan. Of these, 52 lakes have been classified as potentially hazardous and likely to cause GLOFs over the next few years to decades.

In an average GLOF events occur in the Himalayan region every 3-10 years with varying degrees of socio-economic impacts. Between 1950 to 1999, property of about Rs380.181 million and death toll of 5832 lives and 84,475 villages affected by GLOF. A total of 35 destructive GLOF have been recorded from these regions in the past 200 years and at least 11 surges of exceptional scale have been recorded from the upper Indus Basin. People living in this region affected by a number of climate-related hazards like floods, avalanches and landslides which cause huge human and material loss. Communities settling in GLOF-prone mountain valleys are highly vulnerable and vulnerabilities is compounded by poverty, increasing pressure on natural resources, high-risk settlement patterns, and the need for greater education and public awareness on knowledge to reduce risk from GLOF threats.

Updated and comprehensive knowledge of glaciers and glacial lakes are of utmost importance to understand and manage the risk of GLOFs but Pakistan faces a critical gap in knowledge of hydrological forecasting, risk mapping and disaster prevention planning. The information currently available is limited and scattered. Moreover, current status of the identified glacial lakes is changing, number of potentially hazardous lakes and their location/origin is shifting, and new lakes are developing rapidly. Available disaster management policies and risk reduction and preparedness plans in Pakistan address recurrent natural hazards in the county but not equipped to deal with the new dimension of GLOF threats. Limited information on the expected distribution and the impacts of GLOFs and deficit in existing early warning systems do not have capacity to manage effectively the risks posed by rising water levels in glacial lakes including issuing early warning of GLOFs.

The objective of the project is to reduce climate change-induced risks of Glacial Lake Outburst Floods (GLOFs) in Gilgit-Baltistan and Chitral and enable national, provincial, district authorities and communities to prioritize and implement climate change adaptation measures. The project seeks to achieve four outcomes:

- Outcome 1: Strengthened Institutional capacities to implement policies, plans and investments that prevent human and material losses from GLOF events in vulnerable areas of Northern Pakistan.
- Outcome 2: Improved access of disaster management planners and policy makers to knowledge, information and research on GLOF risks.
- Outcome 3: Reduced human and material losses in vulnerable communities in the Northern areas of Pakistan through GLOF early warnings and other adaptation measures, and
- Outcome 4: Project experiences documented and replicated.

The Project Document was approved jointly by Government of Pakistan and Adaptation Fund and UNDP in May 2011 for the duration of four years. The Project is implemented (Executed) by the Government of

Pakistan's Climate Change Division under the Cabinet Secretariat of Prime Minister through Project Management Unit (PMU) with support from UNDP Country Office (UNDP CO) in close coordination with various other institutions and local communities. UNDP as implementing agency was responsible for the completion of all activities including procurement, recruitment, monitoring, and financial disbursement. The Project has been executed in accordance with the standard rules and procedures of the UNDP NIM Execution Modality. The Project budget is US\$ 7,600,000 of which US\$ 3,600,000 is the AF Grant and US\$500,000 is provided by the UNDP CO. The remaining financing is provided by the Government of Pakistan (in kind contribution of US\$ 3,500,000).

## Rating Table

As per UNDP and AF's requirements for TE, the Terminal Evaluation Rating Table is provided below:

1. Monitoring and Evaluation	rating	2. IA & EA Execution	Rating
M&E design at entry	Highly Satisfactory	Quality of UNDP Implementation	Satisfactory
M&E Plan Implementation	Highly Satisfactory	quality of Execution - Executing Agency	Highly Satisfactory
Overall quality of M&E	<b>Highly Satisfactory</b>	Overall quality of Implementation / Execution	<b>Highly Satisfactory</b>
3. Assessment of Outcomes	rating	4. Sustainability	Rating
Relevance	Relevant	Financial resources:	Likely
Effectiveness	Highly Satisfactory	Socio-political:	Likely
Efficiency	Highly Satisfactory	Institutional framework and governance:	Likely
Overall Project Outcome Rating	<b>Highly Satisfactory</b>	environmental :	Likely
		Overall likelihood of sustainability:	<b>Likely</b>

**Note:** Justification of rating is given in Annex XIV.

## KEY SUCCESSES

The project contributed to address the GLOF related problems through three main approaches: improvement in policies, awareness generation and infrastructure structure development. Policy development approach included revision of National Disaster Management plan and National Disaster Management act to incorporate GLOF issues. Similarly, National and provincial level DRM plans and Disaster Risk Reduction plan developed incorporating GLOF. Likewise, policy recommendation was made for Chitral and Gilgit. To encourage evidence based planning exercise, project developed knowledge base and arranged access to them for the local and national government officials. Glacial lake inventory was conducted to update information and also the Hazard and vulnerability maps were developed and updated. To enrich knowledge base, project conducted studies on various subjects related to disaster like traditional knowledge, disaster profile of project sites, comparative study of glacial lake risk management in different countries, study of best practices and indigenous knowledge, impact of GLOF on biodiversity and ecosystem etc. Project also developed standard operation procedure, DRR and DRM manual to manage disaster and these will be very useful for the future management of risk in such areas. To benefit large number of audience, project developed websites and conducted awareness program on radio and TV and also did networking with like-minded institutions within the country and at regional and global level. Besides, various seminars, workshops, trainings, site visits and exchange visits for awareness generation and sharing of lessons learned. To encourage local communities and also other like-minded institutions to work in controlling landslide and also address greenhouse gas problems, Project developed bio-engineering and plantation demo plots. Similarly capacity of line agencies was strengthened by providing equipment.

Infrastructure development activities accomplished to address GLOF issues includes establishment of weather stations, rain gauges, sensors and observatories, SOPs Early Warning System, construction of Check dams, flood protection walls, bridges, slope stabilization and bio-engineering, path clearing of rivers and streams, plantation, Mock drills and development of access routes.

To make outcome of interventions sustainable, project formed CBDRMC, DERC, TERC, CBDRC and community based hazard watch groups developed. The Community members were involved in development of structures and early warning system which will help for its continuity in the future. Wall constructions and other physical structure including establishment of weather stations and early warning system developed skills among the local community and that helped them to find job in other surrounding areas providing financial benefits and this is an added benefit of the project to the local communities. Similarly, to make outcome of this project financially sustainable, an endowment fund is established.

The project closely collaborated with the Climate Change Division of the Ministry of Environment (later became Ministry of Climate Change) and other implementing partners. Furthermore, the project through capacity enhancement, establishment of knowledge base contributed in mainstreaming GLOF, Disaster Management and Climate Change in development planning exercise by local government. Through the project activities, local communities, local community based institutions and government have begun to understand the link between development activities and potential impact of them in climate change which trigger GLOF risks. As such, a positive change in thinking and planning practices is resulted.

#### **KEY PROBLEM AREAS**

A major part of the snow and ice mass of the HKH region in Pakistan is concentrated in the watersheds of the Indus basin. As a result of rapidly changing climatic conditions, the glaciers in Pakistan are receding at a rate of almost 40 – 60 meters per decade. The melting ice from these glaciers is increasing the volume of water in the glacial lakes. According to the IPCC'S fourth assessment report, eleven of the last twelve years (1995 – 2006) rank among the 12 warmest years of in the history of global surface record since 1850. This rapid change in the world's temperatures is related with a faster rate of glacier melt.

Various studies suggest that the warming trend in the HKH region has been greater than the global average (ICIMOD, 2007). The most severe threat of this effect is related to the rapid melting of glaciers. As these glaciers retreat, glacial lakes start to form and rapidly fill up behind natural moraine or ice dams at the bottom or on top of these glaciers. The ice or sediment bodies that contain the lakes can breach suddenly, leading to a discharge of huge volumes of water and debris. These are termed Glacier Lake Outburst Floods (GLOFs) and have the potential to release millions of cubic meters of water and debris, with peak flows as high as 15,000 cubic meters per second.

During a GLOF, the V-shaped canyons of a normally small mountain stream can suddenly develop into an extremely turbulent and fast-moving torrent, some 50 meters deep. On a floodplain, inundation becomes somewhat slower, spreading as much as 10 kilometers wide. Both scenarios present horrific threats to lives, livelihoods, infrastructure and economic assets, for the exposed population. Mountain communities living in the proximity of glacier lakes and glacier fed rivers are particularly at risk, as they live in remote and marginalized areas and depend heavily on fragile eco-systems for their livelihoods.

According to a study conducted by ICIMOD (2007), 5218 glaciers (15040 sq km) and 2420 lakes were identified and mapped in Pakistan. Among the identified lakes, 52 lakes have been classified as potentially hazardous, and likely to cause GLOFs over the next few years to decades.

## **Main conclusions, recommendations and lessons learned**

### **Conclusion**

The GLOF Project has been well designed, and well- managed and implemented throughout. Despite difficulties in the beginning of the project, the team has managed to deliver a series of interventions that have significantly reduced the threats of GLOF by generating awareness from local level to the national level, mainstreaming GLOF mitigation in development planning through creation of knowledge base and access to it and developing adaptation measures like early warning system and construction of physical structures for preventing damage from GLOF. The Project has been underpinned by good science and a technical approach of the highest calibre throughout. It has enhanced capacity to incorporate climate change and GLOF vulnerability issues into the development planning process of the local government in the pilot areas; and improved the environment friendly situation by generating a local communities and government concern on the GLOF risk.

Project is able to accomplish all activities to meet the targeted results. To address the GLOF related problems, project attempted through three main approaches: improvement in policies, awareness generation and infrastructure development. Policy development approach included revision of National Disaster Management plan and National Disaster Management act to incorporate GLOF issues. Similarly, National and provincial level DRM plans and Disaster Risk Reduction plan developed incorporating GLOF. Likewise, policy recommendation was made for Chitral and Gilgit. To encourage evidence based planning exercise, project developed knowledge base and arranged access to them for the local and national government officials. Glacial lake inventory was conducted to update information and also the Hazard and vulnerability maps were developed and updated in the knowledge base. To reach large number of audience, the websites were developed, awareness program conducted in radio and TV and also networking with like- minded institutions within the country and at regional and global level.

To make outcome of interventions sustainable, project formed CBDRMC, DERC, TERC, CBDRC and community based hazard watch groups. The Community members were involved in development of structures and early warning system which will help for its continuity in the future. Project tested mixed approach of traditional and scientific knowledge to manage GLOF risks. Since this approach showed very positive impact, the lessons learned from this should be replicated in other northern vulnerable areas of Pakistan.

### **Recommendation**

- Future project development exercise should properly analyse every activities and their work load and also consider geographical difficulties while deciding number of field office and human resources.
- Project site selection should be based on detail study of issues and historical data related to the subject of the project.
- Future implementation should have provision of working with Provincial/District Government (like in Gilgit in this project) as that will establish ownership of local government and will have positive impact for sustainability of the outputs and outcomes.
- Livelihood aspect should also be integrated in the project in such a way that it encourage environment friendly practices.
- Ministry of Climate Change should sign exit agreement with the community management committees to bind them for continuation of the project outputs management.
- Amount of endowment fund established at the community level should be increased so that the interest from this will be enough to bear all management costs of maintaining outputs of this project.

- UNDP and Ministry of Climate Change should work together to identify and mobilize some fund from other projects to maintain PMU for continuing monitoring of outputs of this project till GLOF II is approved.
- Approach of implementing program involving local communities and enhancing indigenous EWS with scientific knowledge and equipment should be continued in the future projects also.

### **Lessons Learned**

- Community organisations lack scientific knowledge and are weak equipped for glacier areas so support to enhance their understanding about the scientific knowledge and strengthen their capacity will help to encourage them to continue in adapting risk of climate change or GLOF and there by generate their cooperation for reducing damage from GLOF.
- Establishment of Endowment at community level assures financial sustainability.
- Working directly through existing government structures brings dividends
- Designing a project linking various institutions from grassroots level institutions, government agencies, local authorities and communities generates huge benefits for sustainability, and through the synergies developed provides the intervention with much greater effectiveness than that which can be achieved by stand-alone projects.
- Community participation in the project design, formulation of implementation modality, implementation and monitoring is very important. This will help to implement project effectively and also make activities sustainable.
- Constant contacts with communities are vital to community-based GLOF risk management projects. Implementation by the Institution with long experience and capacity makes program technically sound.
- Upgrading traditional Early Warning system by equipping with modern science based techniques will be effective and sustainable.
- Establishment of community based Hazard watch group and hazard management committee is very important for effectiveness and sustainability of the outcomes.

More on Recommendations and Lessons Learned are given on pages 46-49.

# 1. Introduction

## 1.1 Purpose of the Evaluation

As per UNDP's guidance for initiating and implementing terminal project evaluations of UNDP supported projects that have received grant financing from the AF, this Terminal Evaluation (TE) has the following complementary purposes:

- To promote accountability and transparency, and to assess and disclose the extent of project accomplishments.
- To synthesize lessons that can help to improve the selection, design and implementation of future UNDP activities.
- To provide feedback on issues that are recurrent across the UNDP portfolio and need attention and on improvements regarding previously identified issues.
- To contribute to the overall assessment of results in achieving AF strategic objectives aimed at global environmental benefits.
- To gauge the extent of project convergence with other UN and UNDP priorities, including harmonization with other UN Development Assistance Framework (UNDAF) and UNDP Country Programme Action Plan (CPAP) outcomes and outputs.

The guidance is designed to enhance compliance with both UNDP and AF evaluation policies and procedural requirements, which are consistent and mutually reinforcing, and use common standards. The guidance also responds to AF requirements to ensure that Terminal Evaluations of AF-financed projects should include ratings of project's relevance, effectiveness, efficiency, monitoring and evaluation implementation as well as sustainability of results (outputs and outcomes).

By adopting "UNDP's guidance for Conducting Terminal Evaluations of UNDP-Supported AF-Financed Projects", this Terminal Evaluation responds to both UNDP and AF requirements for Terminal Evaluations.

## 1.1 Scope & Methodology

This Terminal Evaluation (TE), carried out by independent consultants, was initiated by UNDP Pakistan as the AF Implementation Agency for the "Reducing Risks and Vulnerabilities from Glacial Lake Outburst Floods in Northern Pakistan" Project to measure the effectiveness and efficiency of Project activities in relation to the stated objectives, and to collate lessons learned.

The TE was conducted over a period of 30 days between 1<sup>st</sup> October and 30<sup>th</sup> November 2015 by an International and National consultants. The approach was determined by the terms of reference ([Annex I](#)) which were closely followed, via the itinerary detailed in [Annex II](#). Full details of the objectives of the TE can be found in the TOR, but the evaluation has concentrated on assessing the concept and design of the Project; its implementation in terms of quality and timeliness of inputs, financial planning, and monitoring and evaluation; the efficiency and effectiveness of activities carried out and the objectives and outcomes achieved, as well as the likely sustainability of its results, and the involvement of stakeholders. The draft report was revised after receipt of comments and finalised on 15<sup>th</sup> December 2015. The text has been revised to correct factual inaccuracies in the draft or to include additional information, while other comments have been reproduced in full and unedited as footnotes to the appropriate text to ensure a fair hearing to all parties.

The evaluation was conducted through the following participatory approach to provide it with sufficient evidence upon which to base conclusions:

- extensive face-to-face interviews with the project management and technical support staff. Throughout the evaluation, particular attention was paid to explaining carefully the importance of listening to stakeholders' views and in reassuring staff and stakeholders that the purpose of the evaluation was not to judge performance in order to apportion credit or blame but to measure the

relative success of implementation and to determine lessons learned for the wider AF context. Wherever possible, information collected was cross-checked between various sources to ascertain its veracity, but in some cases time limited this. A full list of people interviewed is given in [Annex III](#).

- face-to-face interviews with local stakeholders, particularly the community members, CBOs, local governments authorities, NGOs, and project field staffs;
- face-to-face interviews with Secretary and joint Secretary of Ministry of Climate Change, Director General of Pakistan Meteorological Department, Assistant Country Director and program Officer from UNDP CO, Consultants of various studies of the project, National Project Manager, Monitoring and Documentation Officer and Finance Assistant;
- a thorough review of project documents and other relevant texts, including the Project Document, revised log-frame, and monitoring reports, such as progress and financial reports prepared for UNDP and annual Project Implementation Reviews (PIR), minutes of Project Steering committee meetings, technical reports and other activity reports, relevant correspondence, and other project-related material produced by the project staff or partners; and
- field visits to Chitral and Gilgit areas of the project.

Wherever possible the TE Consultant has tried to evaluate issues according to the criteria listed in the *UNDP Monitoring and Evaluation Policy*, namely:

- **Relevance** – the extent to which the activity is suited to local and national development priorities and organisational policies, including changes over time, as well as the extent to which the project is in line with the AF Operational Programmes or the strategic priorities under which the project was funded.
- **Effectiveness** – the extent to which an objective has been achieved or how likely it is to be achieved.
- **Efficiency** – the extent to which results have been delivered with the least costly resources possible.
- **Results** – the positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In AF terms, results include direct project outputs, short-to medium term outcomes, and longer-term impact including global environmental benefits, replication effects and other, local effects.
- **Sustainability** – the likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

In general, the baseline indicators are very straight forward, as for most indicators information is absent, is lacking, is not available, is not existent or very limited. This is consistent with the rationale of the project that there is a considerable knowledge gap, which the project intends to fill, or at least tries to contribute to the build-up of a science-based knowledge system. The objective of the project is to reduce climate change-induced risks of Glacial Lake Outburst Floods (GLOFs) in Gilgit-Baltistan and Chitral and enable national, provincial, district authorities and communities to prioritize and implement climate change adaptation measures. The project seeks to achieve four outcomes:

The original logframe in the Project Document was revised significantly in 2011 and amended in the inception report. This new logframe, comprising four Components and nine Outputs, and 18 indicators, has been used throughout as the basis for this evaluation (see [Annex VI](#)), and the TE has evaluated the Project's performance against these according to the current evaluation criteria provided to it by the AF. This is reproduced in Annex XIV for clarity. Project results were measured against achievement indicators guided by evaluation questions (tracking tools, Annex XII).

In addition, other scales have been used to cover sustainability (Annex XIV-ii), monitoring and evaluation, and to assess impacts. The Review of Outcomes to Impacts (ROtI) method also requires ratings to be made for outcomes achieved by the project and the progress made towards the 'intermediate states' at the time of the evaluation. The rating scale is given in Annex XIV- iii while Annex XIV-iv shows how the two letter ratings for "achievement of outcomes" and "progress towards intermediate states" translate into ratings for the

“overall likelihood of impact achievement” on a six-point scale. A rating is given a ‘+’ notation if there is evidence of impacts accruing within the life of the project which moves the double letter rating up one space in the six-point scale.

The results of the evaluation were conveyed UNDP and other stakeholders ([Annex IV](#)). **Lessons learned** have been placed in boxes and further explained in page 46-49.

## **1.2 Constraints**

International Consultant could not receive NOC to visit Gilgit so only National Consultant visited Gilgit. Similarly, due to time constraint it was not possible for consultants to visit both sites of Chitral so went to only Bindo Gol valley. Due to heavy snowfall on the upper parts, Consultants could not visit glacial lake area to observe equipment set to monitor glacial lakes. Consultants had plans to meet DC of Chitral and Gilgit but due to relief work they were very busy so only had meeting with the Assistant Commissioner of Booni Tehsil. Similarly, limited time stopped from detail analysis of financial performance of the project.

## **1.3 Structure of the Evaluation Report**

The TE report is structured in line with UNDP’s guidance and covers the following Sections:

- Project description and development context (this includes project design, its rationale and development context, the problems that project sought to address, the objectives, establishment of baseline, key stakeholders and expected results)
- Findings (Results of implementation and comparison with the targets as set)
  - Project Design / Formulation
  - Project Implementation
  - Project Results
- Conclusions, Recommendations & Lessons
- Annexes.



## 2 Project Description and Development Context

### 2.1 Project Start and Duration

The Project Document was signed in 15 June 2011 for the duration of four years. However, few project activities were undertaken in the first year. Project activities were officially launched in November 2011 with the recruitment of a new project manager. The project will end in December 2015. The Mid-term Evaluation was conducted in May 2014. Final evaluation was conducted in November-December 2015. After a thorough analysis of GLOF threats, two project sites viz. Chitral and Gilgit were selected to implement the project activities.

The key timelines which are planned or expected for project implementation are shown in Table below.

#### Key timelines planned or expected for project implementation.

Key project's milestones	Date
Submission of Concept to AF	26 April 2010
Approval of the Concept by the AF Board	15 June 2010
Development of a Full Project Proposal	June-October 2010
Submission to AF of a Full Project Proposal	October 2010
Project Document Signature date	May 2011
Project activities launched	November 2011
Mid-term Review Date	May 2014
Terminal Evaluation Date	October-December 2015
Original Planned Closing Date	30 April 2015
Actual Closing Date	30 November 2015

### 2.2 Problems that the Project sought to Address

According to ICIMOD, 5218 glaciers (15040sq km) and 2420 lakes are identified and mapped in Pakistan. Of these, 52 lakes have been classified as potentially hazardous and likely to cause GLOFs over the next few years to decades.

In an average GLOF events occur in the Himalayan region every 3-10 years with varying degrees of socio-economic impacts. Between 1950 to 1999, property of about Rs380.181 million and death toll of 5832 lives and 84,475 villages affected by GLOF. A total of 35 destructive GLOF have been recorded from these regions in the past 200 years and at least 11 surges of exceptional scale have been recorded from the upper Indus Basin. People living in this region affected by a number of climate-related hazards like floods, avalanches and landslides which cause huge human and material loss. Communities settling in GLOF-prone mountain valleys are highly vulnerable and vulnerabilities is compounded by poverty, increasing pressure on natural resources, high-risk settlement patterns, and the need for greater education and public awareness on knowledge to reduce risk from GLOF threats.

Updated and comprehensive knowledge of glaciers and glacial lakes are of utmost importance to understand and manage the risk of GLOFs but Pakistan faces a critical gap in knowledge of hydrological forecasting, risk mapping and disaster prevention planning. The information currently available is limited and scattered. Moreover, current status of the identified glacial lakes is changing, number of potentially hazardous lakes and their location/origin is shifting, and new lakes are developing rapidly. Available disaster management policies and risk reduction and preparedness plans in Pakistan address recurrent natural hazards in the county but not equipped to deal with the new

dimension of GLOF threats. Limited information on the expected distribution and the impacts of GLOFs and deficit in existing early warning systems do not have capacity to manage effectively the risks posed by rising water levels in glacial lakes including issuing early warning of GLOFs.

To address the problem, the project was designed to work at both a macro level (national scale) and a micro level (Villages of Chitral and Gilgit). On the national level, it aims to develop and strengthen the enabling environment through the identification of legal constraints and the required intervention points at the regulatory level. Similarly, at the micro level it aimed to work at village level to generate awareness among local communities and grassroots level organisations and strengthen their knowledge and adaptive capacity, establish early warning system,

### **Immediate and Development Objectives of the Project**

The GLOF project intends to address the vulnerability of mountain communities exposed to catastrophic glacial lake outburst floods (GLOFs) and snow-melt induced flash floods in Northern-Pakistan. Projected climate change is expected to exacerbate these natural hazards as a trend in rising temperatures and increased precipitation is expected to raise the likelihood of occurrence of catastrophic GLOF events linked to outbreak floods of potentially hazardous lakes. Mountain communities, living close to the glacial lakes, as source area of the hazard and along the exposed rived beds, are extremely vulnerable and therefore at risk. In the past 200 years at least 35 destructive outburst floods have been recorded (ProDoc, 2011) and a study (ICIMOD, 2007) identified 52 potentially hazardous lakes in Northern Pakistan.

Pakistan faces a critical gap in baseline scientific knowledge of glaciers and glacial lakes, although the country harbours the largest volume of glaciers outside of the poles, indicated as the “third pole”. This combined with a lack of glacio-hydrological flood forecasting, insufficient risk assessment and a lack of disaster risk management preparedness, results in a setting where the country is ill-prepared to assess, identify, and manage potentially catastrophic GLOF events. No explicit early warning systems are in place to alert downstream vulnerable communities and these communities are in need of better levels of awareness of the inherent risk of glacial lakes.

### **2.3 Baseline Indicators Established**

To measure the achievement of the project baseline indicators were established and are as follows:

**Goal:** To enhance adaptive capacity to prevent climate change-induced GLOF disasters in Pakistan.

**Objective:** To reduce climate change-induced risks of GLOF in Gilgit and Chitral by enabling national, provincial, district authorities and local communities for prioritising and implementing climate change adaptation measures.

The overall (or immediate) objective of the project is:

- To reduce climate change-induced risks of Glacial Lake Outburst Floods (GLOFs) in Gilgit-Baltistan and Chitral.

The development objectives of the project are:

- To develop the human and technical capacity of public institutions to understand and address immediate GLOF risks for vulnerable communities in Northern Pakistan; and

- To enable vulnerable local communities in Northern Pakistan to better understand and respond to GLOF risks and thereby adapt to growing climate change pressures.

*Component 1:* Outcome 1: Strengthened Institutional capacities to implement policies, plans and investments that prevent human and material losses from GLOF events in vulnerable areas of Northern Pakistan.

- No. of targeted institutions with increased capacity to minimize exposure to GLOF risks
- Number of policies introduced to address GLOF risks or adjusted to incorporate GLOF risks

*Component 2:* Improved access of disaster management planners and policy makers to knowledge, Information and research on GLOF risks

- Number of specialized institutions actively connected in the exchange of relevant technical Information that can inform GLOF vulnerability analysis and risk reduction planning
- Number of GLOF hazard and vulnerability maps for GLOF-prone mountain valleys

*Component 3:* Reduced human and material losses in vulnerable communities in the Northern areas of Pakistan through GLOF early warnings and other adaptation measures.

- Percentage of targeted population aware of GLOF impacts and appropriate responses to the threat
- Number of households in Bagrot and Drongagh valley reached by a GLOF early warning system
- Percentage of households receiving and responding to warnings in time to avoid human losses.
- No. of physical assets strengthened or constructed to withstand or mitigate the effects of GLOF events

*Component 4:* Project experiences documented and replicated.

- Number of technical documents capturing project knowledge
- Number of organizations actively involved in knowledge transfer within and across district borders
- Number of policy makers and disaster management practitioners within and outside of Pakistan who are aware of the project and willing to adopt lessons learned

## **2.4 Main Stakeholders**

In project development process involved many stakeholders including non-environmental agencies that are involved in GLOF-prone areas. Consultations were held with the then Ministry of Environment, GCISC and other relevant government departments in order to discuss the project concept and the site selection. The communities from Gilgit-Baltistan and Chitral were also involved in the stakeholders' consultations and community representatives participated in the discussions. As per project document following stakeholders planned to include in implementation process:

*Ministry of Environment:* Ministry of Environment has taken the lead in designing and implementing the National Environment Action Plan. This Ministry also played a lead role in the implementation of this project. The Ministry of Environment is also hosting the Designated National Authority.

*Pakistan Meteorological Department:* The Pakistan Meteorological Department will work closely with the project team and provide guidance and support in the establishment of an Early Warning System (EWS).

*Global Change Impact Study Centre (GCISC):* GCISC will provide overall policy guidance and technical assistance on the impacts of climate change in Northern Pakistan, with specific reference to GLOF risk assessment.

*Pakistan Council of Research on Water Resources (PCRWR):* PCRWR will provide technical assistance and information about the glacial lakes in the project areas.

*Earthquake Relief and Rehabilitation Authority (ERRA) :* ERRA will help in incorporating GLOF risk reduction measures in national disaster management framework and plans.

*Federal Flood Commission:* The Federal Flood Commission (FFC) is responsible for establishment of a countrywide, integrated flood response management system. The project implementation team will work closely with the FFC to integrate GLOF risk considerations into national policies and strategies.

*Institute of Geographical Information Systems (IGIS):* The Institute of Geographical Information Systems will help in generating maps of the project areas and help in acquiring the satellite imageries of the project sites.

*ICIMOD:* ICIMOD will work closely with the project management team on knowledge management matters. It will facilitate regional exchange of project experiences and help in designing capacity development elements of the project.

*World Wide Fund for Nature (WWF):* The World Wide Fund for Nature will work with the project team and help in organizing the communities and sensitize community organizations.

*Lead – Pakistan:* Pakistan will work with the project implementers in designing and delivering training programmes on GLOF risk reduction.

*IUCN:* IUCN – Pakistan sub-offices in project areas will help in organizing communities and provide information about the community based organizations and their activities.

*Karakoram University:* The Karakoram University situated in Gilgit will help in technical scientific aspects of the project. The climate risk reduction measures could be integrated into the environmental curriculum.

*Communities in the target areas:* Local communities in Bagrot and Drongagh valleys are the direct beneficiaries of the project. They will be actively involved in any planning, implementation and analysis functions performed by the project.

*District government in the target areas:* All district level administration offices involved in the project will work closely with GBDMA and DDMA in the districts where the project activities will be implemented.

*Provincial authorities in the target areas:* The provincial level administration offices will work closely with the GBDMA and DDMA for the project activities and provide overall support and guidance.

*UNDP:* UNDP Pakistan Country Office will provide technical and financial implementation support and monitoring to the project. It will help mobilize and coordinate support from other partners (especially GLOF and DRR projects in the HKH region) through its global network.

*Ministry of Foreign Affairs:* The ministry will help in establishing international linkages of the project and emphasize policy recommendations.

## **2.5 Expected Results**

The project aims to achieve its objective through four outcomes which will have a total of 15 outputs. These outcome and outputs are as follows:

**Outcome 1:** Policy recommendations & institutional strengthening to prevent climate change induced GLOF events in northern Pakistan

Output 1.1: Policy framework and guidelines to address GLOF risks in northern Pakistan institutionalized.

Output 1.2: Indicators and criteria for GLOF vulnerability developed and systematically applied to enable priority allocation of risk reduction efforts and investment.

**Outcome 2:** Strengthening Knowledge and Information about GLOF risks in northern Pakistan

Output 2.1: Systematic engagement with global and regional research networks and centres working on GLOF issues.

Output 2.2: Risk and hazard maps for mountain valleys with the highest GLOF risk and exposure of lives, livelihoods and infrastructure

**Outcome 3:** Demonstration of community-based GLOF risk management in vulnerable mountain valleys of northern Pakistan

Output 3.1: Preparedness actions for vulnerable communities conducted to reduce risks from GLOF events

Output 3.2: A community based system for GLOF risk monitoring and early warning established in priority communities

Output 3.3: Targeted GLOF risk reduction measures such as check dams, spill ways, slope stabilization or controlled drainage established in Bagrot and Drmagrah valleys.

**Outcome 4:** Documentation, analysis and continued application of lessons learnt

Output 4.1: Technical knowledge and project lessons documented for use in future initiatives

Output 4.2: Project experiences disseminated to policy makers and disaster management planners in Pakistan and wider HKH region.

As per the project document, two project sites (Chitral and Gilgit) were selected for implementing pilot activities.

**Table 1: Summary of expected global environmental benefits arising from the Project.**

<p><b>Outcome 1:</b> Policy recommendations &amp; institutional strengthening to prevent climate change induced GLOF events in northern Pakistan</p>	<ul style="list-style-type: none"> <li>• Strengthened national capacities to mainstream environment concerns into national development plans and implementation systems.</li> </ul>
<p><b>Outcome 2:</b> Strengthening Knowledge and Information about GLOF risks in northern Pakistan</p>	<ul style="list-style-type: none"> <li>• Comprehensive approach integrating environmentally sustainable development, and global environmental concerns and commitments in national development planning, with emphasis on livelihood improvement and with quality gender analysis</li> </ul>
<p><b>Outcome 3:</b> Demonstration of community-based GLOF risk management in vulnerable mountain valleys of northern Pakistan</p>	<ul style="list-style-type: none"> <li>• Improved living conditions through environmental management for Sustainable Development</li> <li>• Countries develop and use communities’ support in environmental management</li> </ul>
<p><b>Outcome 4:</b> Documentation, analysis and continued application of lessons learnt</p>	<ul style="list-style-type: none"> <li>• Establish monitoring plan to help adaptive management and strategic planning practices for reducing climate change related catastrophe</li> <li>• Knowledge management and dissemination in wide audience will help effective adaptation practices and will also help to find additional support for replication of the success stories</li> </ul>

Baseline indicators were fully established and the latter given in the Project Document ahead of the Project’s commencement.

## 3 Findings

### 3.1 Project Design/Formulation

The project was designed to address the problem by improving access of disaster management planners and policy makers to knowledge, information and research on GLOF risks, strengthening institutional capacities for effective implementation of policies, plans and investments that prevent human and material losses from GLOF events in vulnerable areas and reduce human and material losses in vulnerable communities in the Northern areas of Pakistan through GLOF early warnings and other adaptation measure. The project aimed to integrate modern and traditional adaptive measures to address GLOF problems. The design of the RRF was very clear with clear outputs milestones, activities for each outputs and SMART indicators to monitor implementation and achievements. The project was designed to work at both a macro level (national government scale) and a micro level (local government and pilot sites or local scale). On the national level, it aimed to identify policy gaps and recommend legislative needs, improves access of disaster management planners and policy makers to knowledge base and strengthens Institutional capacities to implement policies, plans and investments that prevent human and material losses. Similarly, at the micro level it aimed to work at developing early warning system, increase awareness among communities and local government and non-nongovernment institution and strengthen disaster response cell at community and local government offices. Two sites namely Chitral and Gilgit were identified based on the information on vulnerability of GLOFs in Pakistan.

The implementing and executing institutions were involved in the project from the project design phase. The project design involved a thorough analysis of capacities of various partners and their interests. Project design has incorporated lessons learned from several relevant projects in Nepal, China, Bhutan and India. Role and responsibilities of implementing partner and other institutions is very clearly defined in the project design. Hence to address these problems, the project was designed to apply following approaches:

- (i) Institutionalize Policy framework and guidelines to address GLOF risks in northern Pakistan
- (ii) Develop and systematically apply indicators and criteria for GLOF vulnerability to enable priority allocation of risk reduction efforts and investments.
- (iii) Engage with global and regional research networks and centres working on GLOF issues.
- (iv) Develop Risk and hazard maps for mountain valleys with the highest GLOF risk and exposure of lives, livelihoods and infrastructure.
- (v) Conduct preparedness actions for vulnerable communities to reduce risks from GLOF events.
- (vi) Establish community based system for GLOF risk monitoring and early warning in priority communities.
- (vii) Establish GLOF risk reduction measures such as check dams, spill-ways, slope stabilisation or controlled drainage.
- (viii) Document technical knowledge and project lessons for use in future initiatives.
- (ix) Disseminate project experiences to policy makers and disaster management planners in Pakistan and the wider HKH region.

#### 3.1.1 Analysis of Logical Framework

The log frame has a single development objective and 4 outcomes. The extensive activities are also listed in full, complete with their own indicators. The objectives, components and outputs are clear and appropriate to the issues and also designed considering the timeframe of the project. Project also utilised lessons from other project (see in 3.1.3) and also capacity of executing/implementing agencies

considered while developing project activities (see 3.1.4 & 3.1.8). Project design sufficiently analysed potential risks and assumptions (see 3.1.2) related to the project and it is well articulated in the PIF. Role and responsibilities of the partners were made clear from the project design phase (see 3.1.8). The logical framework was revised in 2011 and indicators were adjusted to make them more realistic. There has not been any change in number of output and sub-outputs (activities) from the original logframe. The revised log-frame includes 4 outcome, 9 outputs and 19 indicators.

The indicators of the logframe are all SMART (Specific; Measurable; Achievable and attributable; Relevant and realistic; Time-bound, timely, trackable and targeted) and are relevant and precise. All are based on sound scientific monitoring protocols using the most relevant measures for a given criteria.

### **3.1.2 Assumptions and Risks**

There were seven risks identified in the project document and later during inception workshop three additional risks were identified. All the risks and assumptions set in the project document were logical and robust. These helped to identify appropriate activities and required precaution measures to address the risks and assumptions. Arrangements for all risks and assumptions other than related to natural fluctuation were made and with these arrangements, project was able to implement activities effectively to achieve the targeted results. One assumption was related to potential natural fluctuations (e.g. weather or climate change) and its impact on adaptation measures being implemented. No such natural fluctuations took place within the project period and such things are beyond the control of the project and in the future also no organisation could help in such risks as these are related to global climate change or other natural process/disasters. Similarly, project also assumed that the overall security situation and political conditions will remain appropriate. Fortunately, no security problem took place and also project didn't suffer from any political changes. Project assumed to receive support from local government authorities and key stakeholder. By involving local government authorities and key stakeholders helped project implementation with mutual consensus.

### **3.1.3 Lessons from other Relevant Projects incorporated into Project Design**

During the formulation phase of this project, inputs from the UNDP/DIPECHO-funded "Regional GLOF Risk Reduction Project" have been analysed and incorporated into the project design. Some surveys have been conducted to assess basic GLOF hazards in the Indus River Basin, but there has been limited progress on the establishment of a comprehensive GLOF risk assessment. The World Wide Fund for Nature (WWF), ICIMOD and the World Conservation Union (IUCN) have conducted initial hazard mapping exercises in the Gilgit-Baltistan districts, which provide part of the scientific foundation for this project. A DIPECHO/UNDP-funded regional project on climate risk reduction has carried out a detailed risk assessment and community based survey for GLOF risk in the Hunza River basin. With the exception of these initial efforts, and a regional ICIMOD study (2010) which was integrated into the formulation of this project document, there is no finer-grained risk and hazard analysis in mountain valleys which have been characterized as potentially hazard-prone.

The already on-going One – UN Joint Programme on Disaster Risk Management has gathered experience devising systems for seasonal flood forecasting: A Sustainable Land Management project (SLMP) has initiated a small-scale project with the Pakistan Meteorological Department (PMD) for the upgrading of a seasonal flood early warning system. The existing Early Warning System needs to be up-graded and a training programme is required for communities to operate such a system effectively.

This project was prepared in cooperation between UNDP, the Regional Glacial Lake Outburst Floods Risk Reduction Initiative, ICIMOD, the National Agricultural Research Center, the Ministry of Food, NDMA-Pakistan, and the Pakistan Meteorological Department and local communities in Bagrot and Drongagh.



### **3.1.4 Planned Stakeholder Participation**

At the project development phase, the project development team undertook extensive consultations with wide range of stakeholders from National government bodies, Non-government institutions, INGOs, local government bodies and university through a series of opinion polls, presentations, interviews, group discussion and workshops. These wide-ranging consultations were undertaken to ensure that stakeholders at all levels are aware of the project and its objectives and that they assist in the identification of threats of GLOF vulnerable areas and potential institutions that could contribute to various activities of the project. A through assessment of relevancy, experience and capacity of implementing partner and other implementing stakeholders was also conducted. This assessment also helped to utilise strength of the implementing partners and also develop capacity enhancement programs. Project design, criteria for potential sites and site selection was carried out with the stakeholders' participation. The communities from Gilgit-Baltistan and Chitral were also involved in the stakeholders' consultations.

Project was planned to implement following the UNDP National Execution (NIM) modality in close coordination with the then Ministry of Environment, Pakistan.

### **3.1.5. Replication Approach**

Project document explained that the government is intended to replicate innovative approach of dealing with the threats tested by this project to address problem at national scale. It also planned to upscale the project concept in other vulnerable areas. Project expect that sharing of lessons learned and best technical and management knowledge will help to encourage other organisation to invest in such activities. Government authority also expressed their desire to replicate/upscale the lessons learned from this project in other areas and the Ministry of Environment has given priority to GLOF hazard and working to generate support to continue outcomes of the project and also replicate in new areas.

Project tested approaches with dual benefits of mainstreaming GLOF issues in development planning and increase awareness at local to national level. The learning from this project could be useful for other part of Hind Kush region as well. Hence for the benefit of projects and for replication in other areas, Project intend to systematically capture and document Technical knowledge and lessons in lowering of glacier lake levels, as well as the stabilizing of slopes, moraine dams and drainage channels. Arrangement is made to provide Lessons learnt from the project via a number of national, regional and international communication channels to increase their outreach (including radio and TV news pieces). This will enable adoption of project experiences in the up-scaling of early warning systems outside of the immediate project area, and benefit other disaster-prone areas downstream of potentially hazardous glacier lakes.

### **3.1.6 UNDP Comparative Advantage**

In the inception workshop, UNDP's project assurance role was presented and discussed in detail. The Participants endorsed the assurance role described in the approved project document. Enhancement of capacities at the national and sub-national levels has been considered by UNDP to be essential to its strategy to for disaster risk reduction. Accordingly, and in line with the government's national priorities, support to enhance capacities and make planning evidence based in the fields of Climate Change and Disaster Risk Management was also a priority area. The GLOF Project deemed to congruent with these priorities as elaborated in the Millennium Development Goal 7 where ensuring environment sustainability is one of the priority programme areas for Pakistan; second UNDAF priority for Improved living conditions through environmental management for Sustainable Development and the third UNDP Country Program (2013-2017). The project is in line with the pillars of technical and

financial assistance which form the foundation from which risks of GLOF can be reduced in the Northern Pakistan. Specifically, the project will help realise four pillars identified by UNDP:

- Development of the capacity of the rural population to adapt best practices on climate change threads;
- Establish knowledge base and assure access to the information to encourage evidence based planning;
- Engagement of communities and local government and NGOs to reduce risk of GLOF;
- Networking with national and region organisations working in the field of environment and climate change.

UNDP has been working in the field of environment protection, Disaster Risk Reduction, GLOF, biodiversity conservation and sustainable use of natural resources for economic development and poverty alleviation. UNDP has a lot experience from these areas. The project has been benefited from UNDP experience from the project development phase to implementation. This project aimed to encourage national and local authorities and communities in mitigating disaster risks like GLOF by enhancing their capacities and thereby address climate change and disaster issues of global significance. Similarly, project also aimed to establish early warning system to safeguard human lives and property from disasters like GLOF.

Thought project document listed services that UNDP will provide to this project, it has not included global and national assets of UNDP in order to inform the strategy and implementation approach of this project.

### **3.1.7 Linkages between Project and other Interventions within the Sector**

Project tested participatory GLOF management using traditional knowledge and scientific knowledge on adaptation and mitigation of GLOF risks. The findings from the piloting will contribute to fine-tuning the international standard for developing a framework of principles and criteria that can be applied for the management of disaster risks; to provide guidance for environment friendly development planning; to serve as a basis for monitoring and reporting; and to recommend requirements for improvement of policies and practices related to disaster risks management.

As per the plan indicated in the project document, the findings (lessons learned) were distributed to many relevant audiences including other AF funded projects dealing with GLOF and/or Disaster management.

Project established linkage with ICIMOD, UNEP, PARC, Royal Netherland Meteorology Department, German Water Board, Zurich University Switzerland, The Mountain Institute (TMI), Pakistan Meteorology Department, Pakistan Climate Change Ministry, WWF-Pakistan, Gilgit Baltisan Disaster Management Authority, Keyber Pakhtunkhwa Disaster Management Authority, Pakistan Forest and Environment Department, District Emergency Response Cells of pilot districts and the Asia Pacific Network for Global Change Research (APN). Project also made linkages with Centre for Disaster Preparedness and Management (CDPM) of University of Peshawar, Karakoram International University (KIU) Gilgit, Bahria and Punjab Universities, DevCom, Pakistan National Heritage Museum Islamabad, EVK2-CNR, Foreign Embassies and Bilateral donors in Islamabad.

Project conducted visits to Bhutan, Switzerland, Germany, The Netherlands and also organised International GLOF Conference in Islamabad which helped to share lessons learned. These visits and conference also helped to established link with organisations that were represented. Challenges and situations of many of these Glacier problem countries are similar and sharing and linkage development helped each other and will also be helpful to each other in the future.

### **3.1.8 Management Arrangement**

UNDP National Implementation Modality (NIM) was applied to ensure broad stakeholder participation and to create both a high flexibility and an enabling environment for innovation. Project was earlier planned to execute under the execution of UNDP CO in close coordination with Ministry of Environment but latter it was Climate Change Division under the Cabinet Secretariat of the Prime Minister (latter under Ministry of Climate Change) through a Project Management Unit (PMU). Regular meetings were conducted to discuss on progress and constraints of the project. UNDP maintained high-quality technical and financial implementation of the project through its local office in Pakistan. UNDP CO also assured activities implementation, monitoring and ensuring proper use of AF funds to assigned activities, timely reporting of implementation progress as well as undertaking of mandatory and non-mandatory evaluations. All services for the procurement of goods and services, and the recruitment of personnel were conducted in accordance with UNDP procedures, rules and regulations.

A Project Steering Committee (PSC) was established at the federal level to provide strategic guidance for the implementation of the project. The PSC was chaired by the Secretary, Ministry of Climate Change and the representatives from relevant departments, NGOs and community members. The implementation arrangements and the representation in the PSCs and PMCs was finalized after consultations with the local stakeholders. All main stakeholders were represented in PSC and PMCs. Joint Secretary of Ministry of Climate Change took responsibility of National Project Director to oversee the project activities. But in the initial first two years NPD was changed five times which affected momentum of the project implementation. Similarly, two Project Management Committees (PMCs) were established at the provincial level for the smooth implementation of the project activities. The day to day management of the project was handled by National Project Manager and the support team of the Project Management Unit. Similarly, Project had one office assistant, one field assistant and part time technical consultants all hired by UNDP CO to facilitate activities of the project. The project was implemented in close coordination with the Ministry of Climate Change, local government and NGO/CBOs. The implementing partner was identified based on the through exercise of analysis of relevancy, experience and willingness of potential agencies.

The Project's management and implementation focused on the revised log-frame throughout. The project team made effort on raising awareness and developing capacity amongst stakeholders to provide a solid baseline of understanding prior to, and continuing through, development of the Project's main activities. The role and responsibilities of executing and implementing parties were made clear and negotiated prior signing the project development. A thorough review of relevant legislations was carried out to assure enabling environment for the project implementation. Similarly, agreement on co-funding was made before signing the project document. Similarly, staffs, equipment and logistics were in place by the time of initiation of project.

## **3.2 Project Implementation**

Two pilot sites (Chitral and Gilgit) were selected by the project to implement policies, plans and investments that prevent human and material losses, improve access of disaster management planners and policy makers to knowledge, information and research on GLOF risks and reduce human and material losses in vulnerable communities in the Northern areas of Pakistan through GLOF early warnings and other adaptation measures.

### **3.2.1 Adaptive Management**

The Project's adaptive management has been good throughout, stemming from the highly capable management, backed by good decision-making by the Project Steering Committee and support and

advice from the UNDP-CO. Adaptive management has operated effectively at both the strategic level and the tactical level.

As per suggested in the inception report, project redefined its scope and also made edited outcome and outputs to improve indicators and activities more clear and straight.

The MTE made 11 recommendations and positive responses were made to the majority – the management response listing “agreed” to all of them. Only the recommendation made to rehabilitation of damaged irrigation canals intakes was not completed due to lack of budget but this was not the planned activities of the project.

The Project monitored the impact, success and challenges of the plans and policies and identified gaps and developed legislative documents.

Project was designed to pilot in two areas based on the suggestion from the vulnerability assessment. Adaptation of inception report recommendation and recommendation from MTR by the project management is described under the heading “Feedback from M&E activities used for adaptive management”.

No major change was made in the project design and no new outputs added but only prioritisation to outputs was done according to suggestion from the MTR.

### **3.2.2 Partnership Arrangement**

The UNDP CO provides technical and financial support and also fulfil role of monitoring. Climate Change Division under the Cabinet Secretariat of the Prime Minister has taken the lead implementing agency’s role. Climate Change Division Secretary is Chair of the Project Steering Committee (PSC) and the Division has the clear technical mandate related to climate change and adaptation strategies, including knowledge of the international developments and networks related to climate change.

The Pakistan Meteorological Department is a key partner of the project as it is in charge of a double research agenda with two activities (Updating the GLOF Inventory of Northern Pakistan, and The Establishment of community-based Early Warning Systems in Bagrot and Bindogol Valleys). PMD collaborated with several of sub-contractors to carry out these two distinct tasks, amongst others: FOCUS Humanitarian Assistance for Hazard, Vulnerability and Risk assessments, the University of Peshawar (NCEG) for specialized geological and geophysical investigations, and the National Agricultural Research Council (NARC) for specific Remote Sensing and GIS tasks.

Similarly, the National Center of Excellence of Geology of the University of Peshawar (NCEG), had assisted PMD in carrying out specific geological and geophysical investigations in the pilot areas to establish mass balances of glaciers and to locate potential hazardous en-glacial lakes with ground penetrating radar (GPR).

A local NGO named “FOCUS Humanitarian Assistance” in Northern-Pakistan with a broad experience with community-based development activities was involved as a sub-contractor for PMD, and carried out Hazard, Vulnerability and Risk assessments of the pilot areas. Through participatory assessments it had developed hazard and vulnerability maps of Bagrot and Bindogol Valleys, essential for the identification of preferred locations of adaptation structures along the river beds.

Community-based organizations, like the Dubani Development Organization in Gilgit-Baltistan facilitated the planning and implementation of the project activities in the project areas. The Dubani Development Organization (DDO) of Gilgit was also local project partner. It has strong grassroots group. A new CBO was formed in Chitral which represented all local household, and was functioning as the community-based disaster management committee.

The district authorities of the project area were also closely cooperating with project through the district administration (Deputy Commissioner and District Coordination Officer) and the district disaster management authority (DDMA). The district authorities are key partners in the consultation process to incorporate GLOF hazard as a critical element into multi-hazard DRM planning. In the communication flow for the EWSs they are essential for a smooth flow of command. District C&W Department engineers are involved in the quality assurance and monitoring of the on-going construction activities of the climate change adaptation structures.

The provincial authorities of Gilgit-Baltistan and Khyber-Pakhtunkhwa (through DC and DDMA in case of Chitral) provinces together with the district authorities in these provinces were actively involved in the project. The incorporation of the provincial administration was essential for the development of the multi-hazard DRM set-up, with an effective information flow from communities via districts to provincial authorities.

The Project focussed efforts on building local capacity for monitoring GLOF and implementing preparedness actions for vulnerable communities. The research findings and experience from working with local stakeholders, provided the project with information for the formulation and amendment of legislations, development of guidelines for GLUF risk management, revise National Disaster Risk Management Plan and enhancement capacity of the authorities from local to national level. Awareness generation, networking with regional organisations, involvement of various organisation specialised on specific technical field related to the subject and involvement of local government staffs have contributed a lot in creating an enabling environment for the smooth progress of the project. These capacity enhancements, commitment from government agency and policy back up is likely to make project initiative sustainable in the long-term.

The Project reached a wider audience through awareness generation through exhibitions, media coverage, webpages of UNDP and Climate Change Division. Wide distribution of quality knowledge products (reports, booklets, manuals etc.) of the project were also distributed to a wide range of audiences. All project outputs / deliverables were uploaded on websites for wide and easy access (<http://glof.pk/index.php/knowledge-products>). The Project has also uploaded audio-visual material related to the subject in the website. The TECs found that stakeholder engagement and participatory approaches have been of the highest order throughout.

The Project has worked closely with many stakeholders throughout and the active engagement of stakeholders has been vital to fulfilling its achievements, hence stakeholder participation is evaluated as **Highly Satisfactory**.

### 3.2.3 Gender

Women and children are the one who are most vulnerable to disaster as they mostly remain at home and also couldn't escape easily and men could not help if suddenly any disaster take place as most of the men will be in off farm employments mainly away from the village. Project therefore made efforts to include women in activities that were not seen offensive culturally and that provide practical knowledge to safeguard in disaster events. Project organised 107 awareness workshops which were participated by 2375 local women. Project also conducted DRM training for disabled men and women. Besides, some additional workshop on DRM planning, consultation workshop, provincial DRM planning meeting, meeting for disabled men and women were also conducted. Similarly women were also made aware through Radio awareness programs and IEC material distribution. Also women are included purposely and they are represented in the village DRM committees. But due to nature of the work and cultural

barrier, women were not included in other laborious activities like EWS, repairing of trail, construction of walls, bio-engineering, monitoring of Glaciers and training on rescue operations.

### **3.2.4 Feedback from M&E Activities used for Adaptive Management**

The Project's adaptive management has been good throughout, stemming from the highly capable management, backed by good decision-making by the Project Steering Committee and support and advice from the UNDP-CO. As per suggested in the inception report, project redefined its scope and also made edited outcome and outputs to improve indicators and activities more clear and straight.

The MTR made 11 recommendations and positive responses were made to the majority – the management response listing “agreed” to all of them and following actions were taken:

- Hired additional technical staff to strengthen the PMU with regards to documentation and monitoring and evaluation. This was immediately followed to strengthen the project implementation.
- Hire Monitoring and Documentation officer and initiated reviewing, editing and publishing a uniformly styled series of GLOF related reports. To address this, project hired monitoring and documentation officer.
- Project finalized the updated GLOF Inventory with essential ground truthing, documentation and dissemination.
- Practiced regular compiling detailed break-down of in-kind government contribution.
- Critically Screened the EWSs in development for the location of water level/discharge sensors (more upstream/less exposed).
- Tested the EWSs after installation and their thresholds values, tuned the SOP, and eventually trained local stakeholders and compiled a final SOP.
- Developed gabion spurs in addition to the gabion walls for a stream controlling measure which was useful and also economical.
- Explored stabilisation works in mass movement areas triggered and destabilized by recent GLOF and extreme flash flood events in both the pilot areas. Communities were supported with bio-engineering and low-tech interventions to limit the hazard of these destabilized masses.
- Alternative livelihood support was provided to the communities through rehabilitation of damaged irrigation channel intakes and critical access points, such as suspension bridges.
- Conducted a study visit to Bhutan to observe a functional EWS and CB-DRM and related guidelines and procedures to learn from their best practices.
- An exit strategy addressing PC-1, community maintenance, scaling-up initiatives, proposal formulation and GLOF-EWS entity creation was developed to enhance post-project sustainability.

### **3.2.5 Project Finance**

The total project cost is US\$6,826,662 which includes US\$4,407,112 in cash and US\$2,419,550 in kind. Of these the AF contribution is US\$3,600,000 in cash, UNDP contribution US\$807,112 in cash, and Government of Pakistan's contribution US\$2,419,550 in kind (Table 2 and 3). If Project spending is used as a basis of measure of the progress of implementation, then the Project has achieved the progress originally envisaged with some additional achievements. Co-financing was well planned and clearly mentioned in the project document. There was no difference between committed contribution and actual contribution from the AF i.e. US\$3,600,000. The UNDP contribution was more than committed in the project document i.e. committed amount was US\$500,000 but actual received amount

was US\$807,112. The committed amount of Government of Pakistan was 3,500,000 but received amount was US\$2,419,550 (i.e. only 69%). The executing and implementing agencies made close monitoring of financial transactions and program implementation and timely materialised the fund for activities by re-allocation of fund and this helped to accomplish activities for desired results.

- Project management costs were proposed US\$520,000 and primarily funded by AF (69.23%) and UNDP (30.77%), but it was revised and AF funding was used only for component 1-4 and management cost was borne by UNDP (74.6%) and GoP (25.4%). The actual management cost of the project is more than projected;
- Project management costs comprised about 15.85% of the total spend. The increased number of staffs, staff benefits and increase of additional project office and on additional site (Golain) in Chitral District for establishing early warning system had increased the management cost of the project.
- The project was co-financed by the AF, UNDP and GoP. The final AF co-finance ratio in terms of monies spent was 1:1.13 (US\$3,226,662 (UNDP+GoP) to US\$3,600,000 (AF), a very good result;
- Spending on Component 1, 2, 3 and 4 (US\$ 255,050, US\$368,250, US\$4,757,900 and US\$363,350) accounted for 3.7%, 5.4% , 69.7% and 5.3% of the total spend, while management cost (US\$1,082,112 i.e. 15.85%) was higher than component 1, 2 and 4;
- AF funding was mainly re-allocated in Component 1, 2, 3 and 4 while UNDP funding in mainly component 5. GoP support was distributed to all five component with highest allocation for component 3 (Table 2). Of the total AF fund, 4.3% spend on component 1, 6.2% on component 2, 82.8% on component 3 and 6.7% on component 4. UNDP fund was allocated only for component 5 i.e. for management cost. Similarly, of the GoP contribution, 4.1% spend on component 1, 6% on component 2, 73.4% on component 3, 5.1% on component 4 and 11.4% on component 5.

Table 2: Total disbursement of funds by output (to end November 2015) (US\$) against full project budget as per Project Document.

	AF			UNDP			Govt. Of Pakistan (co-financing in kind)			Total		
	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%
Component 1	155,000/-	155,000/-	100				145,500/-	100,050/-	69	300,500/-	255,050/-	85
Component 2	222,000/-	222,000/-	100				195,000/-	146,250/-	75	417,000/-	368,250/-	88
Component 3	2,982,500/-	2,982,500/-	100				2,684,000/-	1,775,400/-	66	5,666,500/-	4,757,900/-	84
Component 4	240,500/-	240,500/-	100				175,500/-	122,850/-	70	416,000/-	363,350/-	87
Component 5 (PMU)				500,000/-	807,112/-	111	300,000/-	275,000/-	92	1,024,727/-	1,082,112/-	105
<b>Total</b>	<b>3,600,000/-</b>	<b>3,600,000/-</b>	<b>100</b>	<b>500,000/-</b>	<b>807,112/-</b>	<b>111</b>	<b>3,500,000</b>	<b>2,419,550/-</b>	<b>69</b>	<b>7,824,727/-</b>	<b>6,826,662/-</b>	<b>87</b>

Source: Project Management Unit.

Analysis of budgeted and actual expenditure shows big difference in all components. At the design phase project intended to keep only one field office and also there was no provision of Monitoring and Documentation Officer but latter difficulties due to geography and also need of M&E officer to manage knowledge base. The increase of one field office and increased work due to addition of one more site in Chitral has increased management cost. Besides, staff benefits (as per UNDP rules) were overlooked in project design and that has also increased project budget. Government contribution (kind) was decreased than what was committed and this was mainly due to decreased need of time of government

personnel than expected. The planned management cost was US\$800,000 while actual management cost was US\$1,082,112. The cost increase was US\$282,112, which is comparatively big because an average annual management cost of the project was US\$270,528.

Tables 3-5 show the disbursement of AF, UNDP, and Pakistan Government funds by component over time. GoP kind contribution covers cost of office rooms in field offices, cost of electricity, telecommunication, government staffs' salary, cost of the time contribution by NPD and Chair of the project board, provincial board members. UNDP in-kind contribution covers cost of vehicles, fuel and maintenance of vehicles, Project Management Unit office rent, PMU staff salary, office equipment, office running expenses including stationary and internets, board meeting costs. Capacity building of Pakistan Meteorological Department, District weather stations and District Emergency Response Cell on updated information generation and management of early warning system helped to safeguard lives and property of the vulnerable communities from the project sites.

Personnel from Environment Ministry at Islamabad, provincial ministry of forest and environment, UNDP CO, local government institutions, community based organisations, community members and I/NGOs were found very impressed from the project as they were advocating achievement of the project. Ministry officials, Provincial Government authorities, UNDP CO and PMD also expressed commitment to continue support to the project activities. Similarly, they also informed that ministry had already applied for GLOF phase II to Green Climate Fund and had much hope to get it approved. UNDP CO was positive in providing some money to bridge achievement of this project to the phase II project. It is also known that PMD and Ministry of Environment applied proposals to government for support for continuing outcomes of this project. Similarly, it is also learned that Proposal is also submitted to Green Climate Fund for Phase II which also includes some component to arrange endowment for making outcome financially sustainable.



**TABLE 3:** Total disbursement of AF funds (US\$) by Component by year against budget as per Project Document

	2011			2012			2013			2014		
	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%
Component 1				71,000/-	70,569/-	99	17,500	17,404/-	99	49,500	49115/-	99
Component 2	34,385/-	34,385/-	100	45,500	44,845/-	98.5	30,000	25330/-	84	59,000	55970/-	85
Component 3				690,000/-	689,999/-	99	578,500	575,578/-	99	1,108,062	1,086,374/-	98
Component 4				17,040/-	9,039/-	53	42500	40,408/-	95	107000	106,578/-	99.6
<b>Total</b>	<b>34,385</b>	<b>34385</b>	<b>100</b>	<b>823,540</b>	<b>814,452/-</b>	<b>99</b>	<b>668500</b>	<b>658,720/-</b>	<b>98.5</b>	<b>1,323,562</b>	<b>1,298,037/-</b>	<b>98</b>

**TABLE 3: CONT..**

	2015			Total		
	Budget	Actual	%	Budget	Actual	%
Component 1	17,000/-	17,000	100	155,000/-	155,000/-	100
Component 2	53,115/-	57,508/-	108	222,000/-	222,000/-	100
Component 3	605,938/-	619,898/-	102	2,982,500/-	2,982,500/-	100
Component 4	73,960/-	100,000/-	135	240,500/-	240,500/-	100
<b>Total</b>	<b>750,013</b>	<b>794,406/-</b>	<b>103</b>	<b>3,600,000/-</b>	<b>3,600,000/-</b>	<b>100</b>

SOURCE: Project Management Unit.

**TABLE 4:** Total disbursement of Government of Pakistan co-funding (US\$) by Component by year

	2011			2012			2013			2014		
	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%
Component 1				42000	37,000/-	88	36250	22,000/-	61	38945	18,000/-	46
Component 2				56750	38,750/-	68	43450	39,000/-	90	40250	36,000/-	90
Component 3				735000	578,500	79	665000	438,000/-	66	675000	389,500/-	58
Component 4				53875	48,750/-	90	43750	25,434/-	58	38765	18,750/-	48
Component 5 PMU	2,000/-	2,000/-	100	85000	71,875	85	72550	62,800	87	65000	62,938	97
<b>Total</b>	<b>2,000/-</b>	<b>2,000/-</b>	<b>100</b>	<b>972625</b>	<b>774,875/-</b>	<b>80</b>	<b>861000</b>	<b>587,234/-</b>	<b>68</b>	<b>857960</b>	<b>525,188/-</b>	<b>61</b>

**TABLE 4: CONT..**

	2015			Total		
	Budget	Actual	%	Budget	Actual	%
Component 1	28305	23,050/-	81	145,500/-	100,050/-	69
Component 2	54550	23,000/-	42	195,000/-	146,250/-	75
Component 3	609000	369,400/-	61	2,684,000/-	1,775,400/-	66
Component 4	39110	29,916/-	76	175,500/-	122,850/-	70
Component 5 PMU	75450	75,387/-	99	300,000/-	275,000/-	92
<b>Total</b>	<b>806415</b>	<b>520,753/-</b>	<b>65</b>	<b>3,500,000</b>	<b>2,419,550/-</b>	<b>69</b>

Source: Project Management Unit.

**TABLE 5: Total disbursement of UNDP funds (US\$) by Component by year against budget as per Project Document**

	2011			2012			2013			2014		
	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%
Component 1												
Component 2												
Component 3												
Component 4												
Component 5 PMU				200,000	198876		144,000	140,634	98	156000	155490	99
<b>Total</b>				<b>200,000</b>	<b>198,876</b>	<b>99</b>	<b>144,000</b>	<b>140,634</b>	<b>98</b>	<b>156000</b>	<b>155490</b>	<b>99</b>

Source: Project Management Unit.

**Table 5: Cont..**

	2015			Total			
	Budget	Actual	%	Budget	Budget	Actual	%
Component 1							
Component 2							
Component 3							
Component 4							
Component 5 PMU	224,727	312,112	138				
<b>Total</b>	<b>224,727</b>	<b>312,112</b>	<b>138</b>		<b>724,727/-</b>	<b>807,112/-</b>	<b>111</b>

Table 3 shows the actual funds spent for each component by year. These show clearly that Component 5 was funded by the UNDP with peak disbursement in 2015; Component 1 funding by AF peaked disbursement in 2014 and by GoP peaked on the year 2012; Component 2 funding by the AF peaked disbursement in 2015 and by GoP peaked disbursement in 2013; Component 3 received highest funding from both AF and GoP with peak disbursement made in 2014 in case of AF and in 2012. These expenses correspond to the work accomplishment in respective years. Project management costs (Component 5) peaked in 2015 with a significant input from UNDP, believed to be connected with the staff benefits and support to communities.

Throughout, Project Management Unit has exhibited excellent financial planning and management skills in dealing with the Project in terms of the array of activities undertaken. At all times, the director of the Climate Change Division has been kept abreast of the Project's progress through good reporting and this has allowed the necessary budget revisions to be made on a sound basis. Similarly, the link between Climate Change Division and the UNDP-CO has been efficient in ensuring that budget replenishments have been timely and there have been no inherent procedural delays.

Table no 6 : Co-financing of the project.

Co-financing (type/source)	UNDP own financing (mill. US\$)		AF (mill. US\$)		Govt. of Pakistan (mill. US\$)		Total (mill. US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants	500,000	807,112	3,600,000	3,600,000	-	-	4,100,000	4,407,112
Loans/Concessions	-	-	-	-	-	-	-	-
• In-kind support	-	-	-	-	3,500,000	2,419,550	3,500,000	2,419,550
• Other	-	-	-	-	-	-	-	-
<b>Totals</b>	<b>500,000</b>	<b>807,112</b>	<b>3,600,000</b>	<b>3,600,000</b>	<b>3,500,000</b>	<b>2,419,550</b>	<b>7,600,000</b>	<b>6,826,662</b>

Source: UNDP (Project Management Unit)

### 3.2.6 Monitoring and Evaluation: Design at Entry and Implementation

#### *M&E Design*

The Project design contained an excellent monitoring and evaluation (M&E) plan which is very comprehensive in its depth and scope. The project had logframe to monitor achievement and logframe had clear objectives, components and outputs and appropriate to the issues and also designed considering the timeframe of the project. A detailed survey was conducted following the standard scientific methods to identify the most vulnerable site which helped to judge impact of intervention. Role and responsibilities of the partners were made clear from the project design phase. The indicators of the logframe were all SMART (Specific; Measurable; Achievable and attributable; Relevant and realistic; Time-bound, timely, trackable and targeted) and are relevant and precise. At the stage of the Inception Report, clarification and updates were made to the M & E plan but no major change was made. MTR also did not made any change in output but suggested to improve technical strength of the implementing team. All activities were listed and explained, and a table was included determining responsibilities, budgets and timeframe for each. Budgets were set realistically, with a total of USD 151,487 (One Hundred Fifty One Thousand Four Hundred Eighty Seven) being set aside specifically for M&E activities. Log-frame indicators were quantitative, SMART (Specific; Measurable; Achievable and attributable; Relevant and realistic; Time-bound, timely, trackable and targeted) and results-oriented. Baselines were already set in the Project Document. The inclusion of indicators for each activities were not only very appropriate and useful for evaluation but also very good for management purposes.

The design of M&E was of a standard much advanced over that normal for the design period, with a fully itemised and costed Plan included in the Project Document covering all the various M&E steps including the allocation of responsibilities; hence monitoring and evaluation design has been evaluated as **Highly Satisfactory**.

### ***M&E Implementation***

Monitoring and evaluation of Project activities have been undertaken in varying detail at three levels:

- i. Progress monitoring
- ii. Internal activity monitoring
- iii. Impact monitoring

Progress monitoring has been good and has been made through quarterly and annual reports to the UNDP-CO. The annual work plans have been developed at the end of each year with inputs from Project staff and the UNDP-CO. The annual work plans were then submitted for endorsement by the Project Steering Committee, and subsequently sent to UNDP for formal approval. The implementing team has also been largely in regular communication with the UNDP-CO regarding progress, the work plan, and its implementation. The indicators from the logframe were effective in measuring progress and performances. Project management has also ensured that the UNDP-CO received quarterly progress reports providing updates on the status of planned activities, the status of the overall project schedule, the products completed, and an outline of the activities planned for the following quarter. These reports' format contained quantitative estimates of project progress based on financial disbursements. The UNDP-CO generated its own quarterly financial reports from Atlas. These expenditure records, together with Atlas disbursement records of any direct payments, served as a basis for expenditure monitoring and budget revisions, the latter taking place bi-annually following the disbursement progress and changes in the operational work plan, and also on an *ad hoc* basis depending upon the rate of delivery.

From the quarterly reports, the UNDP-CO has prepared Quarterly Operational Reports which have been forwarded to UNDP/AF Regional Coordination Unit, and also upload all the information on ATLAS. The major findings and observations of all these reports have been given in an annual report covering the period July to June, the Project Implementation Review (PIR), which is also submitted by the Project Team to the UNDP-CO, UNDP Regional Coordination Unit, and UNDP HQ for review and official comments, followed by final submission to the AF. All key reports were presented to steering committee members ahead of their half-yearly meetings and through this means, the key national ministries and national government has been kept abreast of the Project's implementation progress.

The Project Management Office (PMO) and the UNDP-CO have maintained a close working relationship, with Project staff members meeting, or talking with, CO staff on an almost daily basis to discuss implementation issues and problems.

The Project's risk assessment has been updated quarterly together by the UNDP-CO with the main risks identified along with adequate management responses and person responsible (termed the risk "owner"), who in most cases differs from the person who identified the risk.

A Mid-term Review (MTR) was undertaken in May 2014. MTR made 11 recommendations (status discussed in adaptive management chapter of this report). The report contains no formal ratings for any of the elements usually rated but only overall rating of "*satisfactory*" appear liberally. The report has not discussed efficiency, effectiveness, sustainability, cost-effectiveness and replication aspects. It suggested prioritization of the regulative framework-resulted outputs. The report listed four lessons learned and made 11 recommendations. A complete reading of the report returns an overview that the Project was considered to be on track.

Internal activity monitoring undertaken by UNDP CO, Climate Change Division and the Project Manager appears to have been good comprising a range of mechanisms to keep abreast of the situation and to respond quickly and effectively to any areas of concern. These comprised many of the methods used to track progress, and implementation has been heavily guided by the Annual Work Plan and the quarterly plans submitted to release funds. Generally the Project has been small enough not to require formalised communication or monitoring procedures; members being in almost daily contact. Where external contracts have been issued, these were on a lump-sum basis payable according to milestones defined by time and quality – failure to achieve either resulting in forfeiture of some part of the payment. By and large, this provided enough incentive for sound delivery.

Unusually, impact monitoring has been very well-developed, with formal protocols in place to measure function of community based early warning system, practicing of disaster management and climate change in planning, safety situation from flood in the valley due to development of spurs and use of knowledge base. Undoubtedly this has arisen from the strong scientific backgrounds of the Project’s designers, enhanced by the same of its technical staffs and managers. As is most often the case, the adaptive management of the Project has been influenced to a much greater extent by external variables and overcoming the problems (or taking opportunities) that these have presented than by responding to internal monitoring.

M&E implementation has been of a very high standard, with excellent progress monitoring and strong internal activity monitoring. Good responses have also been made to the mid-term review and the risk assessments, and the TECs considers it to be “good practice”, hence the implementation of monitoring and evaluation has been evaluated as **Highly Satisfactory**.

### **3.2.7 UNDP and Implementing Partners Implementation / Execution, Coordination and Operational Issues**

#### **Project Oversight**

Project was implemented following National Implementation Modality (NIM) to ensure broad stakeholder participation and to create both a high flexibility and an enabling environment for innovation. Project was executed under the execution of UNDP CO in close coordination with Climate Change Division of Ministry of Climate Change Ministry. There was very good communication and coordination between Implementing and executing agencies. Regular meetings were conducted to discuss on progress and constraints of the project. UNDP had ensured high-quality technical and financial implementation of the project through its local office in Pakistan. UNDP CO was responsible for implementing activities, monitoring and ensuring proper use of AF funds to assigned activities, timely reporting of implementation progress as well as undertaking of mandatory and non-mandatory evaluations. All services for the procurement of goods and services, and the recruitment of personnel were conducted in accordance with UNDP procedures, rules and regulations. Project Management Unit was formed to coordinate and manage project activities and it assured achieving targeted result on time, adequate and appropriate management practices, program planning and properly implementing and timely reporting. PMU had one National Project Manager, Monitoring, Evaluation and Documentation Officer, Finance Assistant, Office Assistant, Office Helper and two drivers. Similarly, in each of the two field offices there was one Field Manager, Office Assistant, Officer Helper and driver. Risk management strategy was developed involving all partners and expert through detail analysis of issues and was effectively implemented. Local Government provided office spaces in the field and also shared time by provincial board members and from Ministry of Climate Change, Secretary (Chair of Project Board) and Joint Secretary (National Project Director) shared their time to the project. Project hired highly qualified experts to conduct studies and develop demonstration sites.

Also capacity of the Meteorological Department and District Meteorological office was enhanced for strengthening performance. Since Climate Change Division and Pakistan Meteorological Department and provincial and District government's involvement was on behalf of Government of Pakistan, there is Government ownership in this project.

The technical management of the Project was of the highest standard. The Project has deployed expertise of the highest calibre, whether internationally or nationally, and 9 outputs/deliverables which have been developed have also been excellent whether these are specialist material, e.g. various study report. Hazard mapping, glacial lakes mapping, database, brochures or legal document (Review and Analysis of Existing National Disaster Act of Pakistan, Policy Recommendations and Guidelines to streamline & Incorporate GLOF issues for future Policy formulation, Review and analysis of Existing Disaster Management Plan of Pakistan from GLOF perspective). The Climate Change Division's annual report highlighted success of the project and also Ministry of Climate Change, Provincial government and Pakistan Meteorological Department was satisfied from the achievement of the project.

Though the project was officially initiated in May 2011 only few activities were carried out in the first year. Project activities were officially launched in May 2011 with the recruitment of two project managers for two sites.

The Project has been well-organised and well-managed throughout providing products of the highest technical quality on time and within budget, while responding effectively to a range of internal and external challenges through good adaptive management, hence the implementation approach has been evaluated as **Highly Satisfactory**.

### **UNDP Supervision and Backstopping**

UNDP supervision was accomplished by standard procedures and undertaken competently. Terminal Evaluator received no complaints from interviewees about excessive UNDP bureaucracy or delays in procurement, and UNDP's heavy requirements for reporting.

Key aspects of supervision were made through UNDP's involvement in communication with the Ministry of Climate Change and other stakeholders. Members of the Energy and Environment Cluster were heavily involved in regular issues such as the review and approval of work plans and budgets, review of progress and performance against such work plans, and completion of the tracking tools. It appears that the CO was helpful and supportive throughout the implementation period, responding adequately to provide good guidance, honest and constructive criticism, and help to overcome particular problems as necessary. UNDP support was focused towards achieving targeted results and support was appropriate, adequate and timely and the project staffs were satisfied from the UNDP support. The annual planning was done on time with active participation of stakeholders. Similarly, risk management options were identified in close consultation of partners and experts and the project was able to manage risk efficiently. The speed of the project was slow in the initial years but latter by appointing new project Director the implementation went smoothly. Due to initial delay, there was time constraint at the end of the project to accomplish all tasks so an extension was made from 30 April 2015 to 30 November 2015.

UNDP have provided an adequate level of supervision and backstopping to the Project, and its performance has benefitted as a direct result, hence UNDP's supervision and backstopping role is evaluated as **Satisfactory**.

## 3.3 Project Results

### 3.3.1 Overall Results

#### *Attainment of Objectives:*

Project helped to reduce GLOF risk by addressing policy gaps, enhancing capacity of the local government, generating awareness among community members from GLOF risk areas, establishing early warning system and supporting evidence based planning with the establishment of information database and access to them. The following arrangements were made for GLOF risk management:

- Conducted several studies on subjects related to GLOF, its impact. Profile of GLOF and other disaster in these areas, distribution and status of glacial lakes, various practices of management, etc. to enrich knowledge base.
- Increased knowledge on GLOF from community to planning level helps in adaptation practices.
- Involvement of local communities in construction of physical structures provided economic benefit (payment for work) and also skills learned helped them to get work in the other areas which is contributing in their livelihood.
- Establishment of knowledge base with access to planners support evidence based planning which helps to mainstream GLOF and climate change disasters and national development.
- Conducted policy gap analysis and developed recommendation for policy improvement for incorporating GLOF issues.
- Strengthened institutional capacities to implement policies and to encourage evidence based planning.
- Establishment of GLOF management committee, development and implementation of GLOF management guidelines, development of hazard and vulnerability maps helped evidence based planning which help to address GLOF risk.
- Establishment of monitoring plan to help adaptive management and strategic planning practices helped in management of GLOF risk.
- Increased awareness among local communities and formation of community hazard watch group, Hazard management committee at local level and establishment of community managed endowment fund for supporting GLOF and other disaster management from local level makes outcomes sustainable.
- Knowledge management and dissemination in wide audience help awareness generation and replication at broader scale from national to global level.

A Summary of the Project's achievements is given directly below, followed by an outline of the attainment of objectives. This is followed by a Review of Outcomes to Impacts in Table 7 and a brief discussion on the verifiable impacts. A summary evaluation of Project Outputs is given in Table 8 followed by a more detailed description. A detailed evaluation of the level of achievements made against the indicators of success contained in the log frame is given in [Annex IV](#).

#### *Summary of Achievements*

Project results were measured against achievement indicators guided by evaluation questions (tracking tools, Annex XII). The GLOF Project has been well designed, and well- managed and implemented throughout. The project team has managed to deliver a series of interventions that have significantly reduced the threats of GLOF to local communities from the downstream. In the process, the Project has demonstrated a number of innovative approaches particularly involvement of community members in EWS establishment and management that could be expanded within the region or be replicated elsewhere in the country. One of its biggest strengths has come about through a design-decision to work directly through existing government structures (CCD) rather than parallel project structures. Since CCD and Pakistan Meteorological Department are institutions under the Ministry of Climate Change this made

easier to work in close cooperation with Ministry, and government institution taking full ownership for most of the Project's outputs. Excellent work in the two pilot sites brought benefits to many community members thereby laying a solid foundation for improved understanding of, and cooperation on, GLOF management. As will be seen below, the achievement of the outputs and activities under each of the four Outcomes has been evaluated as highly satisfactory, and the evaluation of achievements against indicators (provided in Annex IV) show that all of the activities and accomplished with 100% success. Moreover, it has achieved some additional outputs also besides set indicators e.g. established early warning system in Golain valley and training local community on establishment of early warning system and construction of infrastructures helped them to find job in other areas which provided them financial benefit supporting their household economy. Project helped to address threat related to Climate change to local communities through awareness, strengthening capacity of relevant institution, establishing early warning system and supporting evidence based development planning.

Overall, the Project has achieved all its major global and local environmental objectives, and yielded substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice", and hence its attainment of objectives and results is evaluated as **Highly Satisfactory**.

Key Project achievements include:

***A. Institutional and Financial Arrangements for Community Based GLOF RISK REDUCTION (GRR):***

1. Disaster Risk Management Committees (DRMCs) established in all 3 project sites.
2. Established and Strengthened DRMC Office in all three project sites.
3. Established and strengthened Community based Disaster Risk Committee (CBDRC) in all 3 sites.
4. Established and strengthened 26 Village based Hazards Watch Groups (VHWGs).
5. 14 Indigenous Early Warning system strengthened.
6. Community based DRM endowment Fund established in all three project sites with input of PRs2.2million for each.

***B. Adaptation Structures in selected valleys for GRR:***

1. 12 Protection Walls (Gabions) constructed.
2. 2 River Diversion spurs developed.
3. 7 GLOF Monitoring Trails developed.
4. Excavation/path clearing done in 6 places.
5. Made River Diversion in one place of Bindo Gol valley.
6. Safe places identified and established 23 Safe Heaven and provided equipment and also made sanitary arrangement in the Safe heaven.
7. Explored and identified safe route and improved access of the 25 Safe Routes.



8. Bioengineering work done in 32 places and used as demonstration sites to provide knowledge to local communities on bioengineering.
9. Plantation using local species of trees were conducted and used these as demonstration plots. 37,000 saplings planted.
10. 2 Bridge constructed in Bindo Gol valley to improve access to GLOF risk Valley.

***C. Non-structural interventions: (awareness raising, exposures, trainings, linkages development etc):***

1. Conducted 85 workshops/meetings in the community for students, community members etc. for awareness generation.
2. 22 Workshops conducted on GLOF for Women.
3. 9 DRM Trainings conducted for local community leaders and community organisation.
4. DRM Plan developed for three working Valleys.
5. 7 exposure visits conducted for various sector personalities including government representatives to the project sites for first-hand information.
6. Conducted 25 studies on various subjects related to GLOF and its impact.
7. Developed Watershed Management Plan for the three project valleys.
8. 20 Linkages development meetings were conducted which was followed by exposure visits of line departments and NGOs to Target Valleys.
9. 5 Hazard maps (2Bagrote, 2Bindo Gol and 1 Golain Valley) of the valley and of villages developed.
10. 170 Capacity Building activities conducted for disabled and elderly persons through organizing GLOF awareness sessions and making provision of necessary equipment to minimize risk during disasters.

***D. Community Based Early Warning System:***

1. 5 Automatic Weather Stations installed.
2. 5 Automatic Rain Gauges installed.
3. Installed six RQ30 (automatic river discharge measuring system).
4. Installed 2 Glacier Monitoring Sensors/Cameras
5. Installed 2 Glacial Lake Monitoring Sensors
6. 3 Meteorological Weather Station (Manual) established.

**INTERVENTION AT THE DISTRICT AND NATIONAL LEVEL**

***A. Activities with local, and National Stakeholders:***

1. Conducted 31 coordination/consultation workshops.
2. Conducted 1 Media Launch workshop.
3. At the beginning of the project to improve project component for implementation an Inception workshop was conducted which refined indicators, approaches and also outlined specific activities.

4. Organised 3 Capacity Need assessment workshops.
5. Strengthened Provincial Disaster Emergency Response Cells in Gilgit (GB).
6. Strengthened Environmental Protection Agency, Gilgit (GB).
7. Established and strengthened 2 District Emergency Response Cells
8. Establishment and strengthening of Tehsil Emergency Response Cells
9. Strengthening of Meteorological Observatory in Bindo Gol.
10. Strengthened NTFP Directorate/Forest Office of Gilgit and Chitral.
11. Strengthened wildlife office Chitral.
12. Conducted DRM training for representatives of public institutions from both Project Districts.
13. Organised 6 exposure visits (in country and abroad) for representatives of public institutions.
14. Prepared Provincial DRM Plan for Gilgit.
15. Prepared District DRM Plan for Gilgit and Chitral.

***B. Intervention at the Policy Level:***

1. Reviewed environment and climate change related policies and recommendation developed. Formulated Policy Recommendations for protection of glaciers and pre-glacial environment of Gilgit and Chitral.

***C. Awareness, Communication and Documentation:***

1. Aired 162 awareness programs on Radio.
2. Used print media for conducting campaign through News clips, articles etc (303 publications clips).
3. 2 Media Training Workshops conducted for increasing knowledge on GLOF among journalists.
4. 3 Audio visual Documentaries prepared and showed on training, national/international workshops and seminars and also aired on Television.
5. 40,000 pcs of IEC materials developed and disseminated.

The main problem areas identified by the TECs are:

- Climate Change Division (Ministry of Climate Change) and also Pakistan Meteorological Department expressed their support to project activities but funds were not committed to cover operational costs for EWS and other equipment installed and also regular visits to the field for collecting ground information and also status of the equipment;
- At the time of TE, no guaranteed commitment from any non-governmental/development partners was available to replicate lessons from this project to other vulnerable areas of Pakistan. Only proposal submitted to Green Climate Fund but decision will be known only after March 2016.

***Objective Indicators***

A single “Project Goal” and single “Project Objective” was articulated in the log frame with two development objectives. The overall project goal is to enhance adaptive capacity to prevent climate change-induced GLOF disasters in Pakistan, which secure live and property of communities living in

downstream valleys. The project objective is to reduce climate change-induced risks of Glacial Lake Outburst Floods (GLOFs) in Gilgit-Baltistan and Chitral. The project aims to achieve its stated objective through four outcomes. Furthermore, during the log-frame's revision, a series of 48 indicators were defined for 11 outputs. Full details and an evaluation of achievements against targets are provided in Annex IV. Project was able to accomplish all targeted activities and achievements indicated. Besides, some additional achievements were also made (see table 8 and Annex IV) by the project. The TECs believes this to be an extremely creditworthy performance.

### **3.3.2 Relevance**

Pakistan's National Environment Policy (2005), the second Poverty Reduction Strategy Paper (PRSP-II), and provincial sustainable development strategies and district development plans has given priority to address the risks and vulnerabilities from climate change induced hazards. Pakistan's Initial National Communication to the UNFCCC (2003) highlighted the need of a detailed meso-scale atmospheric model and a regional hydrological model for the upper Indus basin to accurately quantify the long term effects of increased temperatures on the melting of glaciers. Such information will be useful for future water management strategies and for prediction of floods including Glacier Lake Outburst Floods. Without these information it is difficult to address the risks and vulnerability in the national policies. This project helped national policies and planning activities with such information making them evidence based. This will also help Pakistan to make second and third National Communications more evidence based.

The National Disaster Management Framework of Pakistan developed by the National Disaster Management Authority (2007) had raised GLOF risk issues and emphasized efforts to address them. Similarly, the Task Force on Climate Change (TFCC) formed by the Planning Commission has highlighted GLOF issues in Gilgit-Baltistan as one of the key vulnerabilities and had also included it in its final report (2010).

The DIPECHO/UNDP-funded Regional Climate Risk Reduction Project that was initiated in four countries (Pakistan, India, Bhutan and Nepal) in 2008 also recognized the importance of risks posed by GLOF and pointed towards the inadequate attention it has received amongst governments / communities and development actors.

Project is designed to address the critical knowledge gap that existed in Pakistan and also strengthening institutions and the regulatory framework related to GLOF risk. It is community-based project that attempt through bottom-up awareness raising and participatory planning and implementation approach to reduce GLOF risk and vulnerability. These projects could focus on mitigation efforts at source, trying to lower the glacial lake levels, making use of extensive scientific investigations into moraine stability and weighing of effective mitigation options. The project is in line of the present country priorities. The recent flood events in Pakistan in 2010, originating from the Upper Indus Basin that caused extensive damage in the mountain valleys and catastrophic floods in the downstream alluvial plains, has confirmed the pressing need of mitigation measures for extreme flood events, and also need of building awareness and local and regional capacities in the field of disaster management and early warning to limit loss of human lives and damage to infrastructure. This project addressed these needs of Pakistan. Project is also relevant to AF priority areas.

The government of Pakistan has also formulated the National Climate Change Policy 2012. The Climate Change Division (CCD) of the Government of Pakistan implements, coordinates and monitors the implementation of the National Climate Change Policy 2012. The policy has incorporated GLOF issues. Disaster risk is also addressed by the National Disaster Risk Reduction Policy 2013. This policy is implemented, coordinated and monitored by the NDMA.

World Conference on Disaster Reduction (18 - 22 Jan 2005, Japan) adopted Hyogo Framework for Action (HFA) for the period 2005-2015 (UNISDR, 2011). The HFA recognized —Disaster Risk Management as an important element for achieving internationally agreed goals. Pakistan is signatory of Hyogo Framework. Following HGA, the Government of Pakistan (GoP) has taken Disaster Risk Reduction as a national, provincial and district levels priority. Institutional structure has been established, Policy, Act and plans have been prepared and certain projects and programmes for on-the-ground implementation of planned interventions have been initiated.

Similarly, the thirteenth Summit meeting of the South Asian Association for Regional Cooperation (SAARC) in Dhaka, Bangladesh on 12 - 13 November 2005, the Heads of State or Government underscored the urgency to put in place a permanent regional response mechanism dedicated to disaster preparedness, emergency relief and rehabilitation to ensure immediate response. They directed the concerned national authorities to coordinate their activities in such areas of disaster management as early warning, exchange of information, training and sharing of experiences and best practices in emergency relief efforts. SAARC Agreement on Rapid Response to Natural Disasters was finalized and agreed by the Inter-governmental meeting held in Male on 25-26 May 2011.

To fulfil such commitments, Pakistan has the policy, regulatory framework, plan and institutional set up at the national, provincial and district levels for disaster management. The DRR is taken as a priority in Government's programmes.

The Project intervenes to reduce GLOF risk to human lives and property in the Northern valleys of Pakistan and is congruent with AF and national priorities, and remains pertinent in the light of the current levels of threat; hence it is evaluated as **Relevant**.

### 3.3.3 Effectiveness and Efficiency

#### Cost-effectiveness

The UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported Projects defines the criteria of “efficiency” as:

*“The extent to which results have been delivered with the least costly resources possible; also called cost effectiveness or efficacy.”*

Overall, the Project appears to have been extremely cost-effective since it has produced all of its planned deliverables within its original AF budget (Component 1-4), and has also delivered some additional benefits. All levels of the Project have appeared to have taken cost-effectiveness very seriously, looking to get the best results for the money spent. The activities of all four components were accomplished without exceeding the budgeted amount and achievement indicates no lack of quality. Overall management cost is increased than budgeted but this was due to increase in salary of the additional staffs as M &E and documentation officer was not provisioned in project design (project Document) and hired after recommendation of MTR and also cost of one field office with support staff and office equipment and vehicle added to what was provisioned in project design. Project design provisioned only one field office to implement project activities in both Districts but that is not feasible due to geographic situation. Similarly, increased work due to increase of one site (Golain in Chitral) for early warning system establishment also increased the management cost. Management cost increased basically due to weak management planning while project design and not due to over- expenses for any implementation process. Total expenses of the project is only 87% of the total budgeted amount and this expenses is including increased management cost. Hence project is very cost effective.

Project generated support from the government which helped to reduce cost of project office renting and also voluntary participation by personnel from these institutions in project implementation and also project used national consultants (except MTR and TE) helped to reduce cost of project management that otherwise involve for implementation of such projects in classical approach. In this project approach, involvement of local communities in development of infrastructures helped to increase knowledge and skills which also helped them to get work in the nearby areas and has been incentive systems that generate financial benefits for GLOF risk reduction work. The early warning system and the construction of spurs helped to save lives and property of the people from these areas in recent flash flood and that helped to generate interest of government and other like-minded institution in such activities.

Project was able to achieve all expected outputs with additional achievement, and cost-effectiveness has been a priority of the implementing agency throughout, amongst their priorities. This, combined with significant levels of additional co-financing leveraged by the Project's activities, means the overall cost-effectiveness of the Project has been extremely high, hence it is evaluated as **Highly Satisfactory**.

Project is able to achieve its targeted level of expected outcomes or objectives. Stakeholders were also found very satisfied from the accomplishment of the project. They view that the project achievements made significant impacts and is able to meet the objective.

Project has made changes in management practices and development planning processes, practices and increased level of awareness which will have long term positive impact in GLOF and Climate Change of global concern. Similarly, project delivery modalities and consistency has been efficient and has been able to contribute to AF focal area and UNDP objectives and also to national development strategies.

Project followed standard scientific methods and used qualified, experienced and dedicated technical manpower which made implementation of activities efficient and helped to achieve target on time and with quality outcomes.

Project maintained good relation with all stakeholders and worked in close cooperation and this helped to execute activities efficiently with their cooperation and also made impact effective.

### 3.3.4 Impacts

Table 7 provides a review of the likelihood of outcomes being translated into intended impacts.

**TABLE 7: Review of outcomes to impacts at the end of project situation**

Component	Findings	Review of Outcomes to Impacts
<b>Site Level Outcomes</b>		
<p><b>Outcome 1:</b> Policy recommendations &amp; institutional strengthening to prevent climate change induced GLOF events in northern Pakistan</p>	<ul style="list-style-type: none"> <li>• Disaster Management Act is formulated incorporating GLOF and other climate risk issues.</li> <li>• Existing DRM guidelines integrated with longer-term climate change risk planning.</li> <li>• Conducted various studies related to GLOF, various knowled related to it, its risks, impact, Practices etc.</li> <li>• Developed IEC Material and Introductory Sheets on GLOF Issues and distributed.</li> <li>• Developed Action Plan to enhance capacity of partner organizations and communities.</li> <li>• Developed GLOF Communication &amp; Awareness Raising Strategy.</li> <li>• Conducted Media Campaigns for Mass Awareness programs</li> <li>• Conducted orientation Workshops for key stakeholders and partners</li> <li>• Criteria for GLOF specific Hazard Vulnerability Risk Assessment (HVRA) developed to enrich baseline information.</li> <li>• An expanded inventory of potential hazardous GLOF sites (Identifying GLOF Hot Spots) developed.</li> <li>• Developed GLOF knowledge repository</li> </ul>	<p>AB: Highly Likely</p>
<p><b>Outcome 2:</b> Strengthening Knowledge and Information about GLOF risks in northern Pakistan</p>	<ul style="list-style-type: none"> <li>• Selected organizations engaged for remote sensing, GIS mapping and HVRA.</li> <li>• Conducted GLOF Risk &amp; Vulnerability Assessment of Bagrot and Drongagh valleys.</li> <li>• Established working relations with organizations and research groups working on GLOF in the Alps, HKH and Andes region.</li> <li>• Conducted visits to regional and global networks and institutions working on GLOF for learning and sharing experience.</li> <li>• Developed new GLOF Hazard Maps for Bagrot and Drongagh</li> </ul>	<p>AA: Highly Likely</p>

Component	Findings	Review of Outcomes to Impacts
<p><b>Outcome 3:</b> Demonstration of community-based GLOF risk management in Vulnerable mountain valleys of northern Pakistan</p>	<ul style="list-style-type: none"> <li>• Conducted programs to sensitize vulnerable communities on GLOF related hazards, preparedness and adaptation.</li> <li>• On mutual agreement developed standard operating procedures and command structures for establishing a Disaster Risk Reduction Committee, Early Warning System, and Emergency Response Cells</li> <li>• Provisional Emergency Response Cells established/ strengthened under the command of a Dy. Commissioner in two targeted Districts</li> <li>• Awareness raising workshops on GLOF issues conducted</li> <li>• Studied existing community-based Early Warning Systems in place</li> <li>• Established Early Warning Systems in Drongagh and Bagrot</li> <li>• Established valley specific Disaster Risk Reduction Committees</li> <li>• Community-based natural hazard watch groups Established in Bagrot and Drongagh</li> <li>• Safe havens and safe access routes developed.</li> </ul>	<p>AB: Highly Likely</p>
<p><b>Outcome 4:</b> Documentation, analysis and continued application of lessons learnt</p>	<ul style="list-style-type: none"> <li>• Developed project website,</li> <li>• Developed Case Studies to document Best Practices</li> <li>• Conducted observation visits to Bhutan, Alps, Switzerland, Netherland, Germany, Austria to share experiences</li> <li>• DRM planning authorities of 3 GLOF-prone districts in Pakistan visited the target sites with a view of replication of the project approach in other vulnerable sites</li> <li>• 2 project dissemination workshops have been conducted in Pakistan, with attendance by stakeholders from all GLOF-prone districts. One international seminar organised to share experience.</li> </ul>	<p>AB: Highly Likely</p>

TECs found local people very much aware of the GLOF risks and safety precautions. Also the local and central government officials were very much sensitized on the issues of GLOF and developed thought of giving priority in future plans and programs. In the recent heavy GLOF on July 21<sup>st</sup>, 23<sup>rd</sup> and 24<sup>th</sup> 2014 in the Bindo Gol valley of Chitral, the early warning helped villagers to move to safe place on time and also spurs and walls constructed by the project minimised damage to life and property which is accepted by the local community members and was also highlighted by print and electronic news media (<http://www.chitralpost.net/index.php?newsid=2101>). Awareness generated among the community members was seen in their doing also as they stopped grazing their livestock close to glacier which helped to preserve vegetation of those areas. This project also helped to initiate coordination between different government agencies and community agencies which is very important for addressing issues with integrated approach and also help to bring expertise of diverse field. Similarly, TECs observed that EWS was functioning properly and equipment installed were updating information to Meteorological Department regularly. These indicate that the expected impact is taking place in the project areas.

Implementation of GLOF management activities in each project pilot sites, increased awareness among the local government and community based organisations helped to initiate evidence based management that help to address climate change induced disasters including GLOF risks. In the field visit, TECs observed awareness among local communities and local government and CBOs conforms impact of these interventions to improve status GLOF management.

Improving traditional GLOF monitoring and early warning practices by forming Community CLOF management Committee and Community Hazard Group with modern equipment and improving monitoring trail to glacial lake areas helped to establish local stakeholders for the management of GLOF and other disasters and establishment of endowment fund helped to make initiative sustainable.

Documentation and dissemination of information on management practices and status of glacial lakes and their vulnerability status helped to share knowledge for benefit of large population from countries with GLOF risks. Similarly, improvement in acts and plans addressing GLOF issues will help to mainstream GLOF and other disasters in development practices which helps in mitigation of such risks.

As a result of the review of outcomes to impacts, the overall likelihood of impacts being achieved is all **Highly Likely**, hence the Project is expected to achieve all of its major environmental objectives, and yield satisfactory environmental benefits by managing GLOF risk and its effectiveness is evaluated as **Highly Satisfactory**.

### Achievement of Project Output & Outcome

This section provides an overview of the main achievements of the Project. Considering the results achieved under each of the outcomes, and the progress toward the overall objective, the project effectiveness is rated highly satisfactory. The GLOF project generated numerous significant results, meeting all of the planned accomplishments, with additional the results. The project objective was stated as *“Reducing Risks and Vulnerabilities from Glacier Lake Outburst Floods in the Northern Pakistan.”*

Based on the respective indicators and overall level of progress toward the four outcomes, the outcomes rating are as follows:

**TABLE 8: Evaluation of the end of project situation as per the revised logframe**

Component	Evaluation*					
	HS	S	MS	MU	U	HU
<b>Outcome 1: Policy recommendations &amp; institutional strengthening to prevent climate change induced GLOF events in northern Pakistan.</b>						
Output 1.1: Policy framework and guidelines to address GLOF risks in northern Pakistan institutionalized.						
Output 1.2 Indicators and criteria for GLOF vulnerability developed and systematically applied to enable priority allocation of risk reduction efforts and investment.						
<b>Outcome 2: Strengthening Knowledge and Information about GLOF risks in northern Pakistan</b>						
Output 2.1 Systematic engagement with global and regional research networks and centres working on GLOF issues.						
Output 2.2 Risk and hazard maps for mountain valleys with the highest GLOF risk and exposure of lives, livelihoods and infrastructure						
<b>Outcome 3: Demonstration of community-based GLOF risk management in vulnerable mountain valleys of northern Pakistan</b>						
Output 3.1 Preparedness actions for vulnerable communities conducted to reduce risks from GLOF events						
Output 3.2 A community based system for GLOF risk monitoring and early warning established in priority communities						
Output 3.3 Targeted GLOF risk reduction measures such as check dams, spill ways, slope stabilization or controlled drainage established in Bagrot and Drmgrah valleys.						
<b>Outcome 4: Documentation, analysis and continued application of lessons learnt</b>						



Component	Evaluation*					
	HS	S	MS	MU	U	HU
Output 4. Technical knowledge and project lessons documented for use in future initiatives						
Output 4.2 Project experiences disseminated to policy makers and disaster management planners in Pakistan and wider HKH region.						
<b>Overall Project Rating</b>						

\* Note: HS = Highly satisfactory; S = Satisfactory; MS = Marginally satisfactory; MU= Marginally unsatisfactory; U = Unsatisfactory; HU = Highly unsatisfactory. Components are hyperlinked to relevant section.

The Project made community based GLOF risk management approach by incorporating activities like policy reform, evidence based planning, infrastructure development, awareness generation, capacity enhancement of institutions involved in GLOF disaster management, upgrading of indigenous EWS with scientific technique and applied in two pilot districts and demonstrated successfully participatory approach with cooperation from government staffs and local to national institutions. All most all Project outputs are ranked individually as **Highly Satisfactory**; hence overall the achievement of outputs and activities is evaluated as **Highly Satisfactory**. Achievement of all outputs successfully, project outcomes are also achieved as per planned, hence all outcomes of the project is also rated as **Highly Satisfactory** and overall project is also rated as **Highly Satisfactory**.

***Outcome 1: Policy recommendations & institutional strengthening to prevent climate change induced GLOF events in northern Pakistan..***

To achieve the outcome 1, project had identified two main outputs that need to be achieved. Activities and achievements of outputs are listed below.

***Output 1.1: Policy framework and guidelines to address GLOF risks in northern Pakistan institutionalized.***

- National Disaster Management plan revised with incorporation of GLOF issues.
- NDMA-Act revised and GLOF issues integrated.
- DRM Plan developed (National and Provincial level with incorporation of GLOF issues).
- DRR Plan Developed for Gligit and Chitral.
- Policy Recommendation for Chitral and Gilgit-Baltistan are developed and shared for review and approval of the stakeholders and partners on GLOF issues.

***Output 1.2 Indicators and criteria for GLOF vulnerability developed and systematically applied to enable priority allocation of risk reduction efforts and investment.***

- Inventory of Glacial Lake conducted to update status.
- GLOF web-site developed and operational with all relevant information.
- GLOF digital knowledge repository developed and disseminated to all stakeholders.

The outputs has achieved all its major targets, and yielded substantial global environmental benefits, without major shortcomings. These outputs can be presented as “good practice” and is rated as **Highly Satisfactory**. Project has accomplished all activities of outcome that were required to make GLOF management sustainable for ensuring a viable long-term safety to live and property from disasters, hence the outcome achievement is rated as **Highly Satisfactory**.

***Outcome 2: Strengthening Knowledge and Information about GLOF risks in northern Pakistan***

To achieve the outcome 2, project had identified two outputs that need to be achieved. Activities and achievements of outputs are listed below:

*Output 2.1 Systematic engagement with global and regional research networks and centres working on GLOF issues.*

- Networking visits conducted by Ministry of Climate Change, Community members, UNDP, Project Staff and line department representatives for regional and global networking to HKH region, ALPs region.

*Output 2.2 Risk and hazard maps for mountain valleys with the highest GLOF risk and exposure of lives, livelihoods and infrastructure*

- Hazards and Vulnerability maps developed.
- Regional meetings for establishment of the learning and knowledge sharing platform conducted
- Simulation modeling for three GLOF sites completed
- 25 Case Studies conducted on:
  - Bio-Diversity study
  - Best Practices
  - Disaster Profile of Gilgit and Chitral
  - Comparative Report of GLOD Risk Reduction Initiatives Conducted (i.e. of Bhutan, Nepal and China)
  - KAP Surveys conducted of targeted valleys
  - Socio Economic studies conducted
  - Bio-Engineering Case Study developed
- Developed required documents for management on:
  - DRR Manual
  - DRM Manual
  - Communication Strategy

The outcome of Strengthening Knowledge and Information about GLOF risks through generating information from various studies and establishing system of updating information on weather, snow, flood etc. is achieved successfully and the outcome is rated as **Highly Satisfactory**. Similarly, outputs under this outcome have achieved all its major targets, and yielded substantial environmental benefits of local and global value by establishing community based disaster management arrangement, without major shortcomings. The outputs can be presented as “good practice”, hence is evaluated as **Highly Satisfactory**.

***Outcome 3: Demonstration of community-based GLOF risk management in vulnerable mountain valleys of northern Pakistan***

To achieve the outcome 3, project had identified three main outputs that need to be achieved. Activities and achievements of outputs are listed below. Besides, project has also made some additional achievements that also help to achieve outcome 3.

*Output 3.1 Preparedness actions for vulnerable communities conducted to reduce risks from GLOF events*

- Conducted 22 workshops for Women awareness generation and 170 programs to capacity enhancement and strengthening by awareness generation, providing equipment to minimize risk for disabled and elderly persons.
- 2 DRM training for representatives of public institutions and 9 trainings sessions conducted for community members
- Developed 3 documentary on GLOF issues
- Relevant Line Departments strengthened by provision of office equipment and equipment needed in emergency situation.
- 40,000 IEC materials developed for mass awareness and distributed.
- Radio and TV awareness programs conducted in national and local radio and TV.
- CBDRMC formed in all villages of project sites and strengthened with training, exchange visits and equipment.
- Identified safe place based on villagers knowledge and also scientific data. Safe Havens constructed in 23 places of the project sites and were equipped with equipment and also safe access trail developed to Safe Heaven.

*Output 3.2 A community based system for GLOF risk monitoring and early warning established in priority communities*

- Installed 5 automatic weather stations in Weather stations, 5 rain gauges 6 RQ30 (automatic river discharge measuring system) 2 Glacier Monitoring Sensor/Cameras, 2 Glacial Lake Monitoring Sensor and established 3 Meteorological Weather Station (manual) in all three project sites.
- SOPs for Early Warning System Developed and implemented.
- Conducted 85 exposure visits for community members for learning and experience sharing.
- Community Based Village Hazard watch groups developed in every project villages and were equipped with gears needed to visit glacial areas for monitoring.

*Output 3.3 Targeted GLOF risk reduction measures such as check dams, spill ways, slope stabilization or controlled drainage established in Bagrot and Drmgrah valleys.*

- DERC, TERC and CBDRC established in all project sites and strengthened with training, equipment support and establishment of endowment fund.
- Check dams constructed
- Slope Stabilization and Bio-Engineering activities conducted and implemented
- 27 flood protection walls constructed in Bagrote valley and Bindo Gol valley.
- Two bridges constructed Bagrote valley of Gilgit to make access to these valleys.
- Safe Access Routed developed in 25 places of the three project sites.
- Endowment fund established and strengthened for future DRM in all three project sites.

- Mock drills/alerts conducted.
- River diversion spur constructed in two places of Bindo gol area to reduce flood damage.
- Plantation done to reduce Green House gas and also to stabilize soil runoff. Only 37,000 saplings were planed and used as a demo sites for encouraging villagers to conduct such activities by themselves.

Project is able to achieve target outcome of Demonstration of community-based GLOF risk management and promoted awareness for sustainable and evidence based management, hence outcome is rated as **Highly Satisfactory**. Similarly, The outputs under this outcome have achieved its all major targets, and yielded substantial environmental benefits by establishing EWS, establishing automatic equipment to monitor climate, glacial status, making access routes to monitor and to more to safe heaven, construction of spur and retaining walls and clearing obstruction for the flow of waters, community watch groups/committees and raising awareness. The outputs can be presented as “good practice”, hence is evaluated as **Highly Satisfactory**.

***Outcome 4: Documentation, analysis and continued application of lessons learnt***

To achieve the outcome 4, project had identified two main outputs that need to be achieved. Activities and achievements of outputs are listed below:

***Output 4.1 Technical knowledge and project lessons documented for use in future initiatives***

- Conducted best Practices Case Studies in all project sites.
- Conducted Mid-Term Review.
- Terminal Evaluation (Undergoing)
- Developed Exit Strategy and submitted to secretary of Ministry of Climate Change and Focal Point of the Project and approved.

***Output 4.2 Project experiences disseminated to policy makers and disaster management planners in Pakistan and wider HKH region.***

- Conducted several meetings and workshops with govt. officials and other stakeholders to disseminate lessons learned.
- Organized knowledge sharing workshops in Bagrot, Gilgit, Skardu, Bindogol, Chitral, Peshawar and Islamabad.
- Representatives of Line Departments and stakeholders experience from several sharing meetings and six exposure visits.
- International GLOF Conference conducted in Islamabad which was attended by 300 people from 13 countries.
- Replication and scaling up proposal developed and submitted to Green Climate Fund.

Accomplishment of these outputs has contributed to achieve outcome of arranging adaptive management (application of lessons learnt), evaluation (analysis) system and documentation and knowledge management. The outcome can be presented as “good practice”, hence is evaluated as **Highly Satisfactory**. Accomplishing these activities successfully, project has achieved target outcome of

documentation, analysis and continued application of lessons learnt (adaptive management), hence this outcome is rated as **Highly Satisfactory**.

### **3.3.5 Country Ownership**

Climate Change Division of Ministry of Climate Change took the responsibility of project execution and its involvement in the project was on behalf of Government of Pakistan, therefore Government has ownership in this project. The project outputs identification and project design was carried out by involving relevant government agencies. The results of the project complemented government's priorities. Some of the government strategies, programs and plans that were complemented by this project are described below:

On the ground of the past damages, Government reform agenda remains not only relevant, but critical. The socio-economic impact of the war and disaster has given increased urgency to the agenda.

The government development strategy has also given priority to the improvement of the well-being of local communities in rural areas. Government development strategy and UNDPs framework for Pakistan has emphasised the need to address vulnerable situation of the rural areas of the country.

Government of Pakistan has given special attention to Climate Change and Disasters, and drawn attention to the fact that change in climate has already lead to the damage to life and property and also affected development of the country.

The ultimate aim of the programme is also to incorporate climate change/disaster and natural resources management into key development frameworks. The contribution of knowledge base, early warning system and rural development to food security, health, livelihoods and reduced vulnerability to natural disasters is factored into national planning for the achievement of development goals, including safeguards to protect these resources. This project will therefore form an additional building block to put together environment protection and social development within a national applicable scheme for better-integrated rural development. Moreover, development of guidelines on management of GLOF and mainstreaming disaster and climate change in development planning makes dual benefit of risk reduction and economic development.

Since much of Northern Pakistan's rural economy was severely impacted by the war and natural disasters, the recovery of rural livelihoods and creation of environmental and disaster free situation is a national priority. This project is fully consistent with the framework of initiatives for early recovery, led by UNDP at the request of the Government.

Finally, since the ultimately the project will be safeguarding the environment by minimising risk situation which also create environment for economic development in the area. The project outcomes will bring Pakistan a step closer towards achieving MDG Goal 7: Ensure environmental sustainability.

### **3.3.6 Mainstreaming**

The mainstreaming of Climate Change and Disaster Risk Management into development planning by the local government by this project is very important for mitigation of such risks. This project by enhancing knowledge and involving local government and community based institutions in project implementation help to mainstream climate change and disaster management. Development of knowledge base and assuring access of planners to information supports evidence based planning. Enhancing knowledge and establishment of early warning system and physical structure to minimise damage from GLOF contribute to minimise risk situation and safeguarding and empower livelihood and also it is inline of the UNDP country programme and country program action plan (CPAP).

As per project document, the project development process involved analysis of various options of management and based on that GLOF risk management by utilising scientific knowledge and indigenous

knowledge has been selected as the most effective framework for improving the situation. The project's efforts were focused on addressing policy gap identification and recommending policy needs, development of early warning system and physical structures to prevent damage of GLOF, develop knowledge base for promoting evidence based planning, enhancing capacity of local government and community based institutions and networking with like-minded national, regional and international institutions.. The GLOF management approach to address risk was relevant as people had a clear vested interest due to the direct relation of securing of life and property.

The fundamental principle of the project was to address policy gaps, enhance knowledge of planners and local communities and establish knowledge base for evidence based planning for mainstreaming GLOF management in development planning and this will help to address the present and future problem.

### **3.3.7 Sustainability**

The evaluation of the sustainability of this Project is most likely to be sustainable beyond the project life. As will be seen below, the sustainability at the Project level is actually very strong and it is difficult to see what more those involved could have done.

Financial: The outlook for the long-term financial sustainability of the project appears unusually good but it is connected to the interest of the local government and the national government. Climate Change Division mentioned that they are committed to continue their support to these projects' activities. Similarly, the local government mentioned that they will continue their support and will utilise information in planning exercise which help to mitigate risk form climate change and different disasters. Project provided 2million rupees to establish endowment fund at all three sites. Community members also made a rule of raising Rs100 from each member every year. The interest from this endowment will help to bear the cost of management at the local level as at this level cost will not be very high. Moreover, village has Morn system (traditional) which practice committing labour for repair and maintenance of trails, irrigation etc. These also assures financial sustainability at project site level.

Socio-economic: The social sustainability of the project appears very promising. The awareness-raising activities have certainly been beneficial and undoubtedly changed people's minds at the community level to local and national government as regards to management of GLOF risk. The empowerment of local communities through awareness raising and involvement in implementation of project activities has been one of the lynchpins upon which all behavioural change has occurred. For many others, this has been matched by provision of safety measures and knowledge base establishment directly linked to GLOF risk management and these arrangements are particularly strong. It has contributed to the safety environment creation and as a result enjoys a very wide support base which is being used to help in replicating the approach in other vulnerable areas. As a result, the socio-economic sustainability is adjudged to be Likely.

Institutional and Governance: The institutional sustainability of the Project is good. Those agencies directly involved appear strongly committed towards its aims and the impacts that it has had. Clearly, the decision to route all activities directly through local Government institutions and local communities has paid dividends in this respect, and the local government officials of the pilot sites are not only extremely supportive of what has been accomplished but also are strong advocates of its achievements. Field offices of two sites upgraded to Regional Directorate which is permanent structure with more capacity and this also assures technical supervision to outputs of this project. Project enhanced capacity of PMD and the output of the project work (meteorological) increased visibility of this office so that also encourage PMD to maintain it. Moreover, development of early warning system and practicing of evidence based development planning and enhanced capacity of local communities and local government will also assures sustainability of the project outcomes. Moreover, Government authority are sensitised on FLOG

issues so they may prioritise future management of output of this project. Therefore, the institutional sustainability is believed to be **Likely**.

Environmental: Environment sustainability is one of the important elements of the project strategy. The project achievement will directly reduce vulnerability of life and property and also ecological resources of Northern Pakistan. The capacity development, policy formulation and evidence based planning to mainstream disaster management and climate change will make project outcomes sustainable. Moreover, involvement of local communities and community based organisations assures adaptation to disasters and make achievement of the project sustainable. Possible precautions are taken to safeguard the installed equipment and other than that there are no assumable environmental risks associated with the sustainability of this Project, hence the environmental sustainability is deemed to be **Likely**.

The overall sustainability of the regional component is ranked as **Likely**.

### **3.3.8 Catalytic Role and Replication**

Discussion of replication in relation to the GLOF Project has to be undertaken at two levels – the macro-level of replicating it as a national-scale project to cover wide area, and the micro-level with regard to replication at site-based interventions. Success of GLOF risk reduction approach in these two vulnerable sites has indicated that the approach can work in Pakistan and could be replicated in broad area including all vulnerable parts of the country. The integrated nature of the policy-level mainstreaming, awareness generating on GLOF and Climate Change Risks, arrangement of knowledge base with access to policy makers for encouraging evidence based planning, early warning system, capacity building of government agency, increased enforcement, research and monitoring provide a solid model of success that it is hoped may influence future project design in the country.

At the micro-level, GLOF project's performance is good. Most outputs of the Project fall under the middle two levels of catalytic role, i.e. demonstration and replication. It also creates environment for economic development in these areas. Creation of environment for economic development will also be incentives to mainstreaming GLOF management into National Development Plans.

Since project activities are piloted in two sites, it needs to be replicated in other vulnerable areas of Pakistan. Project also contributed in developing legislation and trained local government staffs and community members which confirm the enforcement of the actions. These will help strengthen GLOF management efforts and also make replication easier.

Government agencies, local government institutions and community based organisations and local communities expressed interest to replicate lessons from this project in wide areas.

Besides Pakistan, the learning from this project could be useful for other countries with risk of Glacial lakes. Hence for the benefit of projects and for replication in other areas, project disseminated lessons learned to a wide audience through various means like report distribution, information sharing through different network, shared with other AF and UNDP projects, international networks like ICIMOD, UNEP, and other institutions mentioned in the sub-section explaining linkage of the project.

Project conducted meetings and workshops with govt. officials and other stakeholders. Similarly, knowledge sharing workshops conducted in Bagrot, Gilgit, Skardu, Bindogol, Chitral, Peshawar and Islamabad. Moreover, exposure visits were conducted for line departments and stakeholders' representatives. The awareness generation among line department, government offices and other stakeholders will play a catalytic role to replicate lessons in other vulnerable areas. Similarly, project conducted international GLOF Conference which provided forum to share success of the project and spread replication agenda among different donors. Project also developed replication and scaling up proposal and submitted to funding agencies.

### 3.3.9 Ratings

104. As per UNDP guidelines, the TE ratings are consolidated in Table 9 below.

**Table 9: Terminal Evaluation's Rating Project Performance**

Criterion	Comments	Rating
<b>Monitoring and Evaluation</b>		
Overall quality of M&E	The design of M&E was up to standard with a fully itemised and cost Plan included in the Project Document covering all the various M&E steps including the allocation of responsibilities.	Highly Satisfactory
M&E design at project start up	As above.	Highly Satisfactory
M&E Plan Implementation	M&E implementation has been standard, with excellent progress monitoring and strong internal activity monitoring. The impact monitoring, normally the weak point of any project's M&E, is particularly noteworthy for its quality and effectiveness and has been used to influence management decisions.	Highly Satisfactory
<b>IA &amp; EA Execution:</b>		
Overall Quality of Project Implementation/Execution	The Project has been well-organised and well-managed throughout providing products of the highest technical quality on time and within budget, while responding effectively to a range of internal and external challenges through good adaptive management.	Highly Satisfactory
Implementing Agency Execution	Climate Change Division assembled a coherent, well-integrated team of the high calibre which exhibited a real drive to ensure their targets were met, a demand for high technical quality in all that they did, and a desire to communicate their knowledge to others.	Highly Satisfactory
Executing Agency Execution	UNDP have provided an adequate level of supervision and backstopping to the Project, and its performance has benefitted as a direct result.	Satisfactory
<b>Outcomes</b>		
Overall Quality of Project Outcomes	Overall quality is of the high order.	Highly Satisfactory
Relevance	The Project intervenes to conserve globally important GLOF management, is congruent with AF and national priorities, and remains pertinent in the light of the current levels of threat	Relevant
Effectiveness	A review of outcomes to impacts (ROtI) shows the overall likelihood of impacts being achieved is Highly Likely.	Highly Satisfactory



Cost-effectiveness (Efficiency)	Project management costs increased slightly than budgeted but that was due to increased one field office, staffs and equipment and also due to increase of one site (Golain valley), and cost-effectiveness has been a priority of the implementing partner- CCD, throughout, amongst their priorities. This, combined with significant levels of additional co-financing leveraged by the Project's activities, means the overall cost-effectiveness of the Project has been extremely high	Highly Satisfactory
<b>Sustainability:</b>		
Overall likelihood of risks to Sustainability	There are some risks but since stakeholders are aware, strengthened and committed these risks will not take place.	Unlikely
Financial resources	Good – CCD, Local government and community based organisations show long-term commitment to the area and there is evidence of considerable technical, policy and some financial commitments from the Government.	Likely
Socio-economic	Solid – beneficiaries show increased awareness and changed behaviours linked to GLOF risk management.	Likely
Institutional framework and governance	Institutionally good through strengthened capacity and support from senior staff in the CCD. Political transition didn't pose any risks rather strengthened	Unlikely
Environmental	The project itself is designed to address GLOF risk and other than unpredictable there are no evident risks.	Likely
<b>Impact:</b>		
Environmental Status Improvement	Improved GLOF risk management; Generation of information on status and distribution of glacial lakes and development of knowledge base for evidence based planning was satisfactory. Similarly, legislation recommended on GLOF for crating long term management environment.	Significant
Environmental Stress Reduction	Construction of physical structures for controlling damage from GLOF set up of early warning system and capacity enhancement of local government and community based organisations reduce environmental stress. Moreover, awareness generation on local communities and at government level also creates environment for proper management of GLOF risk.	Minimal
Progress towards stress/status change	Generally very good – construction of physical structures helps to decrease damage from GLOF, arrangement of early warning system, community management arrangements, increased interest of the government bodies, local political bodies and NGOs, increased awareness level of planners.	Significant
<b>Overall Project Results</b>		<b>Highly Satisfactory</b>

## **4 Conclusion, Recommendation & Lessons Learned**

### **4.1 Conclusion**

The GLOF Project has been well designed, and well- managed and implemented throughout. Despite difficulties in the beginning of the project, the team has managed to deliver a series of interventions that have significantly reduced the threats of GLOF by generating awareness from local level to the national level, mainstreaming GLOF mitigation in development planning through creation of knowledge base and access to it and developing adaptation measures like early warning system and construction of physical structures for preventing damage from GLOF. The Project has been underpinned by good science and a technical approach of the highest calibre throughout. It has enhanced capacity to incorporated climate change and GLOF vulnerability issues into the development planning process of the local government in the pilot areas; and improved the environment friendly situation by generating a local communities and government concern on the GLOF risk.

Project is able to accomplish all activities to meet the targeted results. To address the GLOF related problems, project attempted through three main approaches: improvement in policies, awareness generation and infrastructure structure development. Policy development approach included revision of National Disaster Management plan and National Disaster Management act to incorporate GLOF issues. Similarly, National and provincial level DRM plans and Disaster Risk Reduction plan developed incorporating GLOF. Likewise, policy recommendation was made for Chitral and Gilgit. To encourage evidence based planning exercise, project developed knowledge base and arranged access to them for the local and national government officials. Glacial lake inventory was conducted to update information and also the Hazard and vulnerability maps were developed and updated in the knowledge base. To reach large number of audience, the websites were developed, awareness program conducted in radio and TV and also networking with like- minded institutions within the country and at regional and global level. Besides, various seminars, workshops, trainings, site visits and exchange visits and developed audio-visual program for awareness generation and sharing of lessons learned. To enrich information base, case studies on best practices, biodiversity, bio-engineering, comparative study of GLOF risk reduction activities in various countries, KAP survey, disaster profile and developed DRR and DRM manual and communication strategy. Similarly capacity of line agencies was strengthened by providing equipment.

Infrastructure development activities accomplished to address GLOF issues includes establishment of weather stations, rain gauges, sensors and observatories, SOPs Early Warning System, construction of Check dams, flood protection walls, bridges, slope stabilization and bio-engineering, path clearing of rivers and streams, plantation, Mock drills and development of access routes.

To make outcome of interventions sustainable, project formed CBDRMC, DERC, TERC, CBDRC and community based hazard watch groups developed. The Community members were involved in development of structures and early warning system which will help for its continuity in the future. Wall constructions and other physical structure including establishment of weather stations and early warning system developed skills among the local community and that helped them to find job in other surrounding areas providing financial benefits and this is an added benefit of the project to the local communities. Similarly, to make outcome of this project financially sustainable, an endowment fund is established.

Project tested mixed approach of traditional and scientific knowledge to manage GLOF risks. Since it is only tested in two pilot sites, the lessons learned from this should be replicated in other northern vulnerable areas of Pakistan. The experience from this project will be valuable assets to expand such activities at the national level covering all areas of the country and also useful for other countries with similar problems.

## 4.1 Recommendations

### **Corrective Actions for the Design, Implementation, Monitoring and Evaluation of the Project**

- Future project development exercise should properly analyse type and number of man power need and also consider geographical difficulties while deciding number of field office and human resources. Due to lack of consideration of geographic constraints and workload, this project had to rework to increase one more field office with staffs. Also at the PMU Monitoring and Documentation officer was hired after recommendation of MTR.
- Project site selection should be based on detail study of issues and historical data related to the subject of the project. This will help to identify appropriate site for project implementation and avoid problem of changing sites after launching the project. In this project Bindo Gol was selected which was more vulnerable to flash flood rather than GLOF risks, hence latter Golain was added.
- Project should start developing follow up project proposals or project to replicate lessons learned one year ahead of the end of the project. This will help to avoid need of bridging fund and also reduce cost of office establishment for new project.
- Project document should include more detail M & E budget not only lump sum amount.
- Livelihood aspect should also be integrated in such a way that it encourages villagers in environment friendly practices.
- Explore opportunity to arrange insurance of the equipment so that maintenance costs beyond project life could be arranged making early warning system sustainable.
- Shifting of monsoon towards north will trigger GLOF as it melt snow and increase flood so government should think of rehabilitation of villagers from highly vulnerable areas to safe places.
- Design project to cover broad areas. This will decrease cost and also address risk more effectively. Walls/spur at the downstream may not help much or doesn't last for long period in the areas with high current heavy flood and this is witnessed in Bindo Gol in recent flood. Hence the future projects should focus on mitigation activities like constructing dam and making arrangement of safe draining water from the glacial lakes.

### **Actions to follow up or reinforce Initial Benefits from the Project**

- Ministry of Climate Change should sign exit agreement with the community management committees to bind them for continuation of the management of project outputs. This agreement should include provisions to continue maintenance of trail, safe heaven, equipment provided by the project, transparency in endowment fund management and regular reporting of their observation to the office of meteorology.
- Amount of endowment fund established at the community level should be increased so that the interest from this will be enough to bear all management costs of maintaining outputs of this project.

### **Proposal for Future Directions underlying Main Objectives**

- It is learned that proposal is already developed for GLOF phase II and submitted to GCF. Rather than relying on one donor it will be safe if it is submitted to more donors. If proposal from more

than one donor is approved then the project sites could be expanded including many vulnerable areas.

- Project implementation should include provincial/District Government like in Gilgit in this project. This will help implementation easier and cost effective and also generate ownership of local government. This will also make outputs of the project sustainable with support from local government.
- Future projects should continue community based approach like strengthen traditional EWS and implementing activities through community committees. This will be cost effective and sustainable.
- UNDP and Ministry of Climate Change should work together to identify and mobilize some fund from other projects to maintain PMU for continuing monitoring of outputs of this project till GLOF II is approved. This will help to keep the existing implementation mechanism and systems of GLOF-I activated (including PSC-federal project board, and provincial management committees (PMCs)), which can be further used for implementation of the GLOF-II. This will reduce cost of initial set up. If UNDP has any other climate change related projects then they could use existing project structures for implementing activities of those project.

## 4.2 Lessons Learned

### Best and Worst Practices in addressing Issues relating to Relevance, Performance and Success

Lessons learned are arranged under project-related headings. Further discussion and key points for future projects have been added in this section. Some of the lessons learned listed below have arisen from discussions with persons interviewed during the evaluation and the TECs thanks them for their insights.

#### *Strategic*

- *Community organisations lack scientific knowledge and are weak equipped for visiting glacial areas so support to enhance their knowledge and strengthen their capacity will help to encourage them to continue in adapting risk of climate change or GLOF and there by generate their cooperation for reducing damage from GLOF.*

Lack of knowledge has been seen as drawbacks in many projects limiting communities from taking precaution. Similarly, lack of knowledge, literacy and weak equipped affect their ability and force them to accept risk and not think or adopt to safeguard. Awareness generation on risk of GLOF and adaptation measures and equipping with scientific equipment helps to reduce damage. Moreover, linking them with scientific early warning system and development safe heaven also helps to take precaution on right time. Increased return for their products encourages communities to conserve their resources.

- *Establishment of Endowment at community level assures financial sustainability.*

The Project has established endowment fund at the community level. This helps to make project outputs sustainable as the local level management cost of the project could be covered from the interest of the endowment fund. This also provides incentives to local to continue adaptation work to safe life and property form GLOF risks. Endowment fund with increased awareness and equipped with scientific equipment and knowledge assures sustainability of GLOF risk management in vulnerable areas.

## ***Design***

- *Working directly through existing government structures brings dividends*  
The Project chose to work directly through Ministry of Climate Change rather than setting up parallel implementation structures. This decision has proved very successful not only in empowering government by providing experience and training, but also in developing effective government “ownership”, engagement, participation and motivation, thereby promoting long-term sustainability of the Project’s achievements.
- *Designing a project linking various institutions from grassroots level institutions, government agencies, local authorities and communities generates huge benefits for sustainability, and through the synergies developed provides the intervention with much greater effectiveness than that which can be achieved by stand-alone projects.*  
The Project chose to work with various institutions of different levels and local communities. This helped in empowering the these institutions by providing experience, training and equipping in a well-funded and well-equipped environment and also in developing effective “ownership”, engagement, participation and motivation, thereby promoting long-term sustainability of the Project’s achievements. It also helped to generate local guardianship (from community organisations or groups, local authorities and National Government’s relevant sectors) that made project implementation efficient and effective.
- *Community participation in the project design, formulation of implementation modality, implementation and monitoring is very important.* This will help to implement project effectively and also make activities sustainable.

## ***Project Management***

- *Constant contacts with communities are vital to community-based GLOF risk management projects.*  
Good communication and regular communication in relation to project activities with the communities helps to successful, community-based projects as it built trust and motivation of the local communities targeted. To achieve this, the quality and commitment of those employed as site manager and assistants are key attributes of a project. This Project has been blessed with particularly impressive site managers and support staffs, but what the TEC believes to be the most important factor has been the almost constant contact that they have had with the communities throughout the Project’s lifetime by deploying people on the ground for long periods of time. This frequency of contact has undoubtedly enabled the Project to build high levels of trust, capacity, and motivation which in turn has facilitated the change in people’s mind-sets and behaviours and brought about the success of the GLOF management schemes. The role of National Project Director and National Project Manager is very vital in motivating field managers and assistants.
- *Implementation by the Institution with long experience and capacity makes program technically sound.* All technical activities i.e. establishment of meteorological equipment to monitor ice, water discharge, temperature, wind, precipitation etc. were implemented through Pakistan Meteorological Department (PMD) which has very long experience, broad institutional set up from capital to field level and experienced personnel. This assured technical standard of installation of equipment and their performances. Due to involvement of experience and technically strong institution like PMD, technical implementation has gone smoothly and brought about successful results, generally thought to be of a higher standard. In the recent floods of Bindo Gol area effectiveness of this set up was demonstrated which provided warning to the community on time so they were move to safe heaven and that helped to avoid life and property damage from flood.

- *Upgrading traditional Early Warning system by equipping with modern science based techniques will be will be effective and sustainable.* Indigenous EWS provides strong base for enhancing scientific method in the rural environment.

# Annex I: Terms of Reference for Terminal Evaluation

## Annex-I

### TERMS OF REFERENCE

#### Terminal Evaluation of the UNDP/AF Project

#### Reducing Risks and Vulnerabilities from Glacier Lake Outburst Floods in Northern Pakistan

(July 2011 – December 2015)  
(GLOF - PAK/00077650)

#### INTRODUCTION

In accordance with United Nations Development Programme (UNDP) and Adaptation Fund (AF) M&E policies and procedures, all full and medium-sized UNDP support AF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the *Reducing Risks and Vulnerabilities from Glacier Lake Outburst Floods (GLOFs) in Northern Pakistan* (PIMS 4454.)

The essentials of the project to be evaluated are as follows:

#### PROJECT SUMMARY TABLE

Project Title:	"Reducing Risks and Vulnerabilities from Glacier Lake Outburst Floods in Northern Pakistan"			
UNDP Project ID:	4454	<b>Project financing</b>		<i>at TE (Million US\$)</i>
ATLAS Project ID:	61318	AF financing:	\$ 3,600,000	\$ 3,600,000
Country:	Pakistan	IA/EA own:	\$ 500,000	\$ 500,000
Region:	Asia	Government:	\$ 3,500,000	\$ 3,500,000 (in kind)
Focal Area:	Climate Change Adaptation	Other:		
		Total co-financing:	\$ 4,000,000	\$ 4,000,000
Executing Agency:	Ministry of Environment, Government of Pakistan	Total Project Cost in cash:	\$ 7,600,000	\$ 7,600,000
Other Partners	• Pakistan	Pro Doc Signature (date project began):		May 2011

involved:	Metrological Department. <ul style="list-style-type: none"> <li>• District Management</li> <li>• Disaster Management Authorities</li> <li>• Local communities</li> </ul>		Planned closing date: 30 April 2015	Revised closing date: Nov 2015
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## OBJECTIVE AND SCOPE

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The project was designed to enhance adaptive capacity to prevent climate change-induced Glacial Lake Outburst Floods (GLOF) disasters in Pakistan. **The objective** of the project is to reduce climate change-induced risks of GLOFs in Gilgit-Baltistan and Chitral and enable national, provincial, district authorities and communities to prioritize and implement climate change adaptation measures. The project seeks to achieve **four outcomes**:

Outcome 1: Strengthened Institutional capacities to implement policies, plans and investments that prevent human and material losses from GLOF events in vulnerable areas of Northern Pakistan.

Outcome 2: Improved access of disaster management planners and policy makers to knowledge, information and research on GLOF risks.

Outcome 3: Reduced human and material losses in vulnerable communities in the Northern areas of Pakistan through GLOF early warnings and other adaptation measures, and

Outcome 4: Project experiences documented and replicated.

**The project strategy** focuses on two pilot areas, Bagrot Valley in Gilgit-Baltistan province and Bindogol valley in Chitral district in Khyber-Pakhtunkhwa Province. In both pilot areas hazardous glacial lakes were identified and the project aims to reduce risks and vulnerabilities from GLOFs and snow-melt flash floods for the pilot areas through its **main objectives to**:

- Develop the human and technical capacity of public institutions to understand and address immediate GLOF risks for vulnerable communities in Northern Pakistan.
- Enable vulnerable local communities in northern areas of Pakistan to better understand and respond to GLOF risks and thereby adapt to growing climate change pressures.

The Project Management Unit in Islamabad is supported by two field offices in the pilot areas, with two field managers, who coordinate the planning, implementation and monitoring with local community based organizations, NGO's and the district and provincial authorities.

The project is implemented, as Executing Agency, by the Government of Pakistan, Climate Change Division under the Cabinet Secretariat of the Prime Minister through a Project Management Unit (PMU), and with implementation support provided by UNDP. The project is the first in Pakistan to receive a grant from the Adaptation Fund in order to adapt to adverse effects of climate change.



The TE will be conducted according to the guidance, rules and procedures established by UNDP and Global Environment Facility (GEF) as reflected in the UNDP Evaluation Guidance for GEF Financed Projects<sup>1</sup>.

The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming.

## EVALUATION APPROACH AND METHOD

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An overall approach and method<sup>2</sup> for conducting project terminal evaluations of UNDP supported AF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact**, as defined and explained in the [UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects](#). A set of questions covering each of these criteria have been drafted and are included with this TOR ([Annex C](#)). The evaluator is expected to amend, complete and submit this matrix as part of an TE inception report, and shall include it as an annex to the final report.

The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the AF/GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is expected to conduct a field mission to Bindogol Valley, Boni, Chitral and Golain Valley, Chitral, along with Bagrote Valley of Gilgit, Gilgit-Baltistan. Interviews will be held with the following organizations and individuals at a minimum: CBDPMC (Gilgit, Chitral), DERP (DC Office Chitral & Gilgit), GBDMA, DDMU-Chitral, Forest Department, Wildlife Department, Environment Department, Pakistan Meteorological Department.

The evaluator will review all relevant sources of information, such as the project document, project reports – including Annual PPRs, project budget revisions, midterm review, progress reports, AF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in [Annex B](#) of this Terms of Reference.

## EVALUATION CRITERIA & RATINGS

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An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see [Annex A](#)), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact**. Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in [Annex D](#).

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<sup>1</sup> The guidance document for UNDP-supported GEF financed projects can be used for AF financed projects as well. The document is available via [this link](#).

<sup>2</sup> For additional information on methods, see the [Handbook on Planning, Monitoring and Evaluating for Development Results](#), Chapter 7, pg. 163

<b>Evaluation Ratings:</b>			
<b>1. Monitoring and Evaluation</b>	<i>rating</i>	<b>2. IA &amp; EA Execution</b>	<i>rating</i>
M&E design at entry	(6 point scale)	Quality of UNDP Implementation– Implementing Agency (IA)	(6 point scale)
M&E Plan Implementation	(6 point scale)	Quality of Execution - Executing Agency (EA)	(6 point scale)
Overall quality of M&E	(6 point scale)	Overall quality of Implementation / Execution	(6 point scale)
<b>3. Assessment of Outcomes</b>	<i>rating</i>	<b>4. Sustainability</b>	<i>rating</i>
Relevance	(2 point R/NR scale)	Financial resources:	(4 point scale)
Effectiveness	(6 point scale)	Socio-political:	(4 point scale)
Efficiency	(6 point scale)	Institutional framework and governance:	(4 point scale)
Overall Project Outcome Rating	(6 point scale)	Environmental:	(4 point scale)
		Overall likelihood of sustainability:	(4 point scale)

### **PROJECT FINANCE / COFINANCE**

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

Co-financing (type/source)	UNDP own financing (mill. US\$)		Government (mill. US\$)		Partner Agency (mill. US\$)		Total (mill. US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Actual	Actual
Grants	0.5				3.6			
Loans/Concessions								
• In-kind support			3.5					
• Other								
Totals	0.5		3.5		3.6		7.6	

### **MAINSTREAMING**

UNDP supported AF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

## IMPACT

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.<sup>3</sup>

## CONCLUSIONS, RECOMMENDATIONS & LESSONS

The evaluation report must include a chapter providing a set of **conclusions, recommendations and lessons**.

## IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation resides with the UNDP CO in **Pakistan**. The UNDP CO will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

## EVALUATION TIMEFRAME

The total duration of the evaluation will be 30 days over a time period of three months according to the following plan:

Activity	Timing	Completion Date
<b>Preparation</b>	03 days	<i>15th September</i>
<b>Evaluation Mission</b>	15 days	<i>01st October</i>
<b>Draft Evaluation Report</b>	07 days	<i>07th October</i>
<b>Final Report</b>	05 days	<i>12th October</i>

## EVALUATION DELIVERABLES

The evaluation team is expected to deliver the following:

Deliverable	Content	Timing	Payment schedule in % Percentage	Responsibilities
<b>Inception Report</b>	Evaluator provides clarifications on timing and method	No later than 2 weeks before the evaluation mission	10%	Evaluator submits to UNDP CO
<b>Presentation</b>	Initial Findings	End of evaluation	20%	To project

<sup>3</sup>A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROTI) method developed by the GEF Evaluation Office: [ROTI Handbook 2009](#)

		mission		management, UNDP CO
<b>Draft Final Report</b>	Full report, (per annexed template) with annexes	Within 3 weeks of the evaluation mission	30%	Sent to CO, reviewed by RTA, PCU, AF OFPs
<b>Final Report*</b>	Revised report	Within 1 week of receiving UNDP comments on draft	40%	Sent to CO for uploading to UNDP ERC

\*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report. An audit trail template is available in Annex H.

## TEAM COMPOSITION

The evaluation team will be composed of *1 International Evaluator (team leader)<sup>4</sup> and 1 National Evaluator*. The consultants shall have prior experience in evaluating similar projects. Experience with AF financed projects is an advantage. The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The Team members must present the following qualifications:

- Minimum **10** years of relevant professional experience working in climate change adaptation, disaster risk management and related fields;
- Experience working with the AF or GEF or GEF-evaluations;
- Experience working in evaluation of similar kind of projects.
- Previous experience with results-based monitoring and evaluation methodologies;
- Technical knowledge in the targeted focal area(s): Climate Change Adaptation, Disaster Risk Management and related fields;
- Sound Knowledge of Meteorological Instruments;
- Project evaluation/review experiences within United Nations system will be considered an asset;
- A Master's degree in climate change related discipline, environment, disaster risk management, social sciences or other closely related field.

## EVALUATOR ETHICS

Evaluation consultants will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance with the principles outlined in the [UNEP 'Ethical Guidelines for Evaluations'](#)

## PAYMENT MODALITIES AND SPECIFICATIONS

<sup>4</sup> The team leader will be responsible for finalizing the report.

%	Milestone
10%	At submission and approval of inception report
20%	Presentation – initial findings
30%	Following submission and approval of the 1ST draft terminal evaluation report
40%	Following submission and approval (UNDP-CO and UNDP RTA) of the final terminal evaluation report

### APPLICATION PROCESS

Applicants are requested to apply online on the following link:

<http://jobs.undp.org/> by 10<sup>th</sup> August, 2015. Individual consultants are invited to submit applications together with their CV for these positions. The application should contain a current and complete C.V. in English with indication of the e-mail and phone contact. Shortlisted candidates will be requested to submit a price offer indicating the total cost of the assignment (including daily fee, per diem and travel costs).

UNDP applies a fair and transparent selection process that will take into account the competencies/skills of the applicants as well as their financial proposals. Qualified women and members of social minorities are encouraged to apply.

### ANNEX A: PROJECT LOGICAL FRAMEWORK

Expected Results (Outcomes & Outputs)	Indicators	Baseline	Targets	Source/Method of Collection	Schedule/ Frequency	Responsib le Staff	Risks and Assumptions
(Obtained from the CPAP and project Results Frameworks)	(Obtained from the CPAP and project Results Frameworks)	At the project start date	At the project end date	Specific publication, evaluation, survey, field observation, interviews, etc	Monthly, quarterly, annually, etc	Staff member responsible for collecting and reporting data	Any risks or assumptions concerning data collection
CPAP Outcome: Vulnerable populations benefit from improved sustainable environmental management practices, including climate change mitigation and adaptation;				<ul style="list-style-type: none"> <li>• Reports</li> <li>• Surveys</li> <li>• FGD's Interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly</li> <li>• Annually</li> <li>• Mid-Term</li> </ul>	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO Field Manager (GB &amp; KP)</li> </ul>	
	Number of key environmental institutions implementing adaptation and mitigation plans;			<ul style="list-style-type: none"> <li>• Reports</li> <li>• Surveys</li> <li>• FGD's Interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly</li> <li>• Annually</li> <li>• Mid-</li> </ul>	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO Field Manager (GB &amp; KP)</li> </ul>	

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					Term		
	Number of private sector companies, academic institutions and media bodies engaged in joint public awareness/advocacy initiatives on climate change.			<ul style="list-style-type: none"> <li>• Reports</li> <li>• Surveys</li> <li>• FGD's Interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly</li> <li>• Annually</li> <li>• Mid-Term</li> </ul>	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO Field Manager (GB &amp; KP)</li> </ul>	
CPAP Output: Climate change adaptation and mitigation strategies and action plans developed and piloted at local level by federal and provincial governments, private sector, academia and civil society, including women's groups.	Number of gender-sensitive provincial climate change adaptation and mitigation action plans developed and implementation supported.	National Climate Change Policy developed; Limited capacities at federal and provincial levels for policy implementation;	At least four gender-sensitive provincial climate change action plans developed, including ecosystem vulnerability mapping, and implementation supported; enhanced global resources for climate change adaptation and mitigation; Reducing Emissions from Deforestation and Forest Degradation (REDD) mechanism established and appropriate mitigation actions for four selected forest types demonstrated.	<ul style="list-style-type: none"> <li>• Reports</li> <li>• Surveys</li> <li>• FGD's Interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly</li> <li>• Annually</li> <li>• Mid-Term</li> </ul>	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO Field Manager (GB &amp; KP)</li> </ul>	

Project Output 1: Policy recommendations and guidelines to address GLOF risks in northern Pakistan institutionalized	<ul style="list-style-type: none"> <li>No. of policy recommendations made to address GLOF risks or adjusted to incorporate GLOF risks.</li> </ul>	<ul style="list-style-type: none"> <li>Climate change risks are mentioned in the current Task Force on Climate Change (TFCC) report</li> <li>No comprehensive disaster management guidelines addressing GLOF exist for the Gilgit-Baltistan and Chitral regions</li> </ul>	<ul style="list-style-type: none"> <li>By the end of the project, one the Disaster Management Act and one national disaster management plan is reviewed and policy recommendations are developed for further incorporation in the Act</li> <li>By the end of the project, existing DRM guidelines integrate longer-term climate change risk planning</li> </ul>	<ul style="list-style-type: none"> <li>Draft Reports and Policy recommendations on Disaster Management ACT and Disaster Management Plan</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>NPM</li> <li>MCDO</li> <li>FM (Gilgit and Chitral)</li> </ul>	<ul style="list-style-type: none"> <li>Security Situation</li> <li>Govt. Policies</li> <li>Communication (travel)</li> <li>Timely Transfer of Funds</li> </ul>
Project Output 2: Indicators and criteria for GLOF vulnerability developed and	No. of potentially GLOF prone communities that are integrated in a centralized, web-based GLOF risk	No comprehensive database and action plans exist for addressing GLOF risk in	By the end of project, all GLOF risk sites in Pakistan are identified and inventoried in a central, web-based GLOF risk database	<ul style="list-style-type: none"> <li>Updated GLOF inventory Report</li> <li>Field Survey Reports,</li> <li>Case studies</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>NPM</li> <li>MCDO</li> <li>FM (Gilgit and Chitral)</li> </ul>	<ul style="list-style-type: none"> <li>Security Situation</li> <li>Govt. Policies</li> <li>Communication (travel)</li> <li>Timely Transfer of</li> </ul>

systematically applied to enable priority allocation of	database	<i>Pakistan</i>					Funds
risk reduction efforts and investments	Availability of a government action plan to address GLOF risks in Pakistan, starting from the highest risk zones and the most vulnerable	<i>-No comprehensive database and action plans exist for addressing GLOF risk in Pakistan</i>	<i>-By the end of the project, a comprehensive disaster risk reduction plan is available to address the biggest GLOF threats in the most vulnerable communities</i>	<ul style="list-style-type: none"> <li>• GLOF DRR Plan and Manuals of Gilgit and Chitral</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO</li> <li>• FM (Gilgit and Chitral)</li> </ul>	<ul style="list-style-type: none"> <li>• Security Situation</li> <li>• Govt. Policies</li> <li>• Communication (travel)</li> <li>• Timely Transfer of Funds</li> </ul>
Project Output 3: Systematic engagement of the project with global and regional research networks and centres working on GLOF issues	No. of specialized institutions actively connected in the exchange of relevant technical information that can inform GLOF vulnerability analysis and risk reduction planning.	<i>-Regional platform established by the regional GLOF risk reduction project, with punctual interaction until the project has ended</i>	<ul style="list-style-type: none"> <li>-By the end of project at least 3 other GLOF risk reduction initiatives from other countries are analysed to inform risk assessment and – planning under the proposed project</li> <li>-Regional platform established by the regional GLOF risk reduction project, with punctual interaction</li> </ul>	<ul style="list-style-type: none"> <li>• PMD</li> <li>• Focus Humanitarian</li> <li>• CBO</li> <li>• PDMA</li> <li>• GBDMA</li> <li>• Forest Deptt.</li> <li>• Envir. Deptt.</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO</li> <li>• FM (Gilgit and Chitral)</li> </ul>	<ul style="list-style-type: none"> <li>• Security Situation</li> <li>• Govt. Policies</li> <li>• Communication (travel)</li> <li>• Timely Transfer of Funds</li> </ul>
Project Output 4:	Number of GLOF	<i>-No</i>	<i>-By the end of project, all</i>	• Draft Maps of	Quarterly	• NPM	• Security



Risk and hazard maps for mountain valleys with the highest GLOF risk and exposure of lives, livelihoods and infrastructure	hazard and vulnerability maps for GLOF prone	<i>comprehensive risk and vulnerability maps for mountain valleys with highest GLOF risks available</i>	<p><i>GLOF risk areas in Pakistan are covered by remote sensing information</i></p> <p><i>•By the end of project, GLOF specific simulation models for at least 2 GLOF prone mountain valleys are developed</i></p> <p><i>•By end of the project, at least 2 GLOF-prone mountain valleys are analysed by a detailed hazard zonation and vulnerability assessment</i></p>	Bagrot and Bindogol Valleys	and Annually	<ul style="list-style-type: none"> <li>• MCDO</li> <li>• FM (Gilgit and Chitral)</li> </ul>	<p>Situation</p> <ul style="list-style-type: none"> <li>• Govt. Policies</li> <li>• Communication (travel)</li> <li>• Timely Transfer of Funds</li> </ul>
	Project Output 5: Preparedness actions for vulnerable communities conducted to reduce risks from GLOF events	No. of targeted population aware of GLOF impacts and appropriate responses to the threat	<i>•Limited awareness by vulnerable communities in the Gilgit-Baltistan and Chitral valleys on GLOF risks and risk reduction</i>	<p><i>•By the end of the project, at least 90% of households in the target area are aware of the functionality of the GLOF EWS and able to respond to warning signals</i></p> <p><i>•By the end of the project, at least 2 full-scale GLOF early warning drills have</i></p>	<ul style="list-style-type: none"> <li>• Activities Reports, Media Campaigns, Workshops.</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO</li> <li>• FM (Gilgit and Chitral)</li> </ul>

		<i>measures</i>	<i>been conducted, involving all households in the target communities</i>				
Project Output 6: A community based system for GLOF risk monitoring & early warning in priority communities	No. of household in Bagrot and Drongagh valley reached by a GLOF early warning system	<i>•No GLOF early warning system for Bagrot and Drongagh valleys in place</i>	<i>•By the end of the project, 90% of households in each target valley are able to receive and respond to GLOF early warning signals and take the appropriate actions following the warning.</i>	<ul style="list-style-type: none"> <li>• Hazard Watch Groups,</li> <li>• DRM Committies</li> <li>• CBDRC</li> <li>• DERC</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO</li> <li>• FM (Gilgit and Chitral)</li> </ul>	<ul style="list-style-type: none"> <li>• Security Situation</li> <li>• Govt. Policies</li> <li>• Communication (travel)</li> <li>• Timely Transfer of Funds</li> </ul>
	No. of householdsreceiving and responding to warnings in time to avoid human loses	<i>•Vulnerable households are not able to receive and react to GLOF early warning messages</i>	<i>•By the end of the project , at least 2 CBOs are trained in the operation and maintenance of the EWS and ensure its continued functionality</i>  <i>•A special watch group for each GLOF prone valley will be formed to establish a new or to strengthen an existing Early Warning System</i>	<ul style="list-style-type: none"> <li>• Hazard Watch Groups,</li> <li>• DRM Committies</li> <li>• CBDRC</li> <li>• DERC</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO</li> <li>• FM (Gilgit and Chitral)</li> </ul>	<ul style="list-style-type: none"> <li>• Security Situation</li> <li>• Govt. Policies</li> <li>• Communication (travel)</li> <li>• Timely Transfer of Funds</li> </ul>

Project Output 7: Targeted GLOF risk reduction measures such as check dams, spillways, slope stabilization or controlled drainage established in Bagrot and Drongagh valleys	No. of physical assets strengthened or constructed to withstand or mitigate the effects of GLOF events avoid human losses	<i>-No risk reduction measures for GLOF in place in the target sites</i>	<i>-By the end of the project, concrete engineering measures are in place to reduce the impact of GLOF events on vulnerable communities in each target valley (as appropriate: effective drainage systems, check dams, mini dams, ponds, spill ways, slope stabilization, tree plantation, controlled drainage)</i>	<ul style="list-style-type: none"> <li>• Mitigation Structures like, Flood Protection/Diversion Walls,</li> <li>• Bio-Engineering Structures</li> <li>• Slope Stabilizations</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO</li> <li>• FM (Gilgit and Chitral)</li> </ul>	<ul style="list-style-type: none"> <li>• Security Situation</li> <li>• Govt. Policies</li> <li>• Communication (travel)</li> <li>• Timely Transfer of Funds</li> </ul>
Project Output 8: Technical knowledge and project lessons documented for use in future initiatives	No. of technical documents capturing project knowledge	<i>-Inadequate technical papers capturing project knowledge available</i>	<i>-By the end of the project, all technical decisions and lessons are captured in dedicated reports</i>	<ul style="list-style-type: none"> <li>• Mid-Term Evaluation Reports</li> <li>• Case Studies on Best Practices</li> <li>• Final Evaluation Reports</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO</li> <li>• FM (Gilgit and Chitral)</li> </ul>	<ul style="list-style-type: none"> <li>• Security Situation</li> <li>• Govt. Policies</li> <li>• Communication (travel)</li> <li>• Timely Transfer of Funds</li> </ul>
	No. of knowledge products prepared and disseminated	<i>-Inaccessibility to maps, reports, remote imagery and</i>	<i>-By the end of the project, a GLOF risk reduction manual is available and disseminated both</i>	<ul style="list-style-type: none"> <li>• Mid-Term Evaluation Reports</li> <li>• Case Studies on Best</li> </ul>	Quarterly and Annually	<ul style="list-style-type: none"> <li>• NPM</li> <li>• MCDO</li> <li>• FM (Gilgit and</li> </ul>	<ul style="list-style-type: none"> <li>• Security Situation</li> <li>• Govt. Policies</li> <li>• Communication (travel)</li> </ul>

		<i>case studies</i>	nationally and internationally •By year 2 of the project, a project website is established and linked to the GLOF risk database developed under Outcome 1	Practices • Final Evaluation Reports		Chitral)	• Timely Transfer of Funds
Project Output 9: Project experiences disseminated to policy makers and disaster management planners in Pakistan and the wider HKH region.	No. of organizations actively involved in knowledge transfer within and across district borders	•No systematic knowledge transfer on GLOF risks from Pakistan to other countries	•By the end of the project, at least 1 international exchange visit between GLOF risk reduction projects has taken place	• Workshops and Conferences Reports • Website updated with Updated reports	Quarterly and Annually	• NPM • MCDO • FM (Gilgit and Chitral)	• Security Situation • Govt. Policies • Communication (travel) • Timely Transfer of Funds
	No. of policy makers and disaster management practitioners within and outside of Pakistan who are aware of the project and willing to adopt lessons learned	•No systematic knowledge transfer on GLOF risks from Pakistan to other countries	•By the end of the project, DRM planning authorities of at least 3 GLOF-prone districts in Pakistan visit the target sites with a view on replication of the project approach in other vulnerable sites  •By the end of the project, at least 2 project dissemination	• Workshops and Conferences Reports • Website updated with Updated reports	Quarterly and Annually	• NPM • MCDO • FM (Gilgit and Chitral)	• Security Situation • Govt. Policies • Communication (travel) • Timely Transfer of Funds

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			workshops have been conducted in Pakistan, with attendance by stakeholders from all GLOF-prone districts				

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## ANNEX B: LIST OF DOCUMENTS TO BE REVIEWED BY THE EVALUATORS

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- AF Concept and/or Proposal, Project Document Revised Final Version April 26<sup>th</sup> 2011
- Inception Report, Report of the Inception Phase and Inception Workshop, organised on 15-17 September 2011
- Annual Progress Report 2012
- Annual Progress Report 2013
- Annual Progress Report 2014
- Quarterly Report January- March 2013
- Quarterly Report April-June 2013
- Quarterly Report July-September 2013
- Quarterly Report October- December 2013
- Quarterly Report January - March 2014
- Quarterly Report April - June 2014
- Quarterly Report July - September 2014
- Quarterly Report October - December 2014
- Quarterly Report January - March 2015
- Annual Work Plans 2012, 2013, 2014, and 2015
- Minutes of the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> PSC Meetings
- Mid-Term Evaluation Report

### Project Reports:

- **Fariduddin, S. (2013).**GLOF Communication and Awareness Raising Strategy for Pakistan, 54 pages.**FOCUS (2013).**Project Progress Report on Community Based DRM and Hazard and Risk Mapping in Bagrote and Bindogol Valleys, 15 pages.
- **Gohar, A. (2013a).** Study on the Best Practices and Indigenous Knowledge of GLOF and other Climate Change Induced Disasters in Chitral District, KP Province, 50 pages.
- **Gohar, A. (2013b).** Study on the Best Practices and Indigenous Knowledge of GLOF and other Climate Change Induced Disasters in Gilgit District (Gilgit-Baltistan), 51 pages.
- **Haider, N. (2012).** Literature Review on GLOF Issues: Work done in Pakistan, 15 pages.
- **Iqbal, A. (2013).**Developing a GLOF Knowledge Repository for Pakistan.
- **Khan, A.N., Ali, A. and Jan, M.A. (2012a).** Knowledge, Attitude and Practice (KAP) about Glacial Lake Outburst Floods (GLOFs) in Bindo Gol Valley, District Chitral, , 53 pages.University of Peshawar.
- **Khan, A.N., Ali, A. and Jan, M.A. (2012b).**Socio-Economic Impacts of Glacial Lake Outburst Floods (GLOFs) in Bindo Gol Valley, District Chitral, 61 pages. University of Peshawar.
- **Khan, M.I. (2013).**GLOF Risk Reduction Guidelines for Chitral, Khyber, Pakhtunkhwa, Pakistan, 43 pages.
- **LEAD Pakistan (2013).**GLOF Disaster Risk Management, Training Manual, October 2013, 73 pages.
- **Lone, M. A. (2012a).**A Study on Socio-Economic Impact of the GLOFs at Bagrot Valley in Gilgit-Baltistan, 44 pages.
- **Lone, M. A. (2012b).**Knowledge, Attitude and Practice (KAP) Studies on GLOFs at Bagrot Valley, Gilgit Baltistan, Pakistan, 65 pages.
- **NCER (2013).**Ground Penetrating Radar (GPR) Survey of Bindogol Valley Glacier (Chitral) and Bagrot Valley Glacier, Gilgit.Identification & measurements of GLOF lakes. Technical Report

prepared by Sarfraz Khan and Asif Khan, National Center of Excellence in Geology (NCEG), University of Peshawar, 15 pages.

- **PMD (2012a)**.Development of Criteria for Hazard & Vulnerability Risk Assessment, 21 pages, June 2012.
- **PMD (2012b)**.Feasibility of Early Warning System, 2 pages, September 2012.
- **PMD (2014a)** UPDATING GLOF LAKE INVENTORY OF NORTHERN PAKISTAN & ESTABLISHMENT OF COMMUNITY BASED EARLY WARNING SYSTEM IN BAGROT AND BINDOGOL VALLEYS

#### ANNEX C: EVALUATION QUESTIONS

*This is a generic list, to be further detailed by the evaluation team and submitted with the TE inception report and as an annex to the TE report.*

Evaluative Criteria Questions	Indicators	Sources	Methodology
<b>Relevance: How does the project relate to the main objectives of the AF focal area, and to the environment and development priorities at the local, regional and national levels?</b>			
<ul style="list-style-type: none"> <li>• Was/Is the project a good idea given the situation needing improvement?</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthened Institutional capacities to implement policies, plans and investments that prevent human and material losses from GLOF events in vulnerable areas of Northern Pakistan.</li> <li>• Improved access of disaster management planners and policy makers to knowledge, information and research on GLOF risks.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-Term Evaluation Reports</li> <li>• News Papers</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> </ul>
<ul style="list-style-type: none"> <li>• Does it deal with target group priorities? Why or why not?</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced human and material losses in vulnerable communities in the Northern areas of Pakistan through GLOF early warnings and other adaptation measures</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-Term Evaluation Reports</li> <li>• News Papers</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> <li>• FGD's</li> </ul>
<b>Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?</b>			
<ul style="list-style-type: none"> <li>• Have the planned purpose and component objectives, outputs and activities been achieved?</li> </ul>	<ul style="list-style-type: none"> <li>• Climate Change Adaptation and Mitigation Strategies and Action Plans Developed and piloted at local levels by federal and provincial governments, private sector, academia, and civil society including women's groups</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-Term Evaluation Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> <li>• FGD's</li> </ul>
<b>Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?</b>			
<ul style="list-style-type: none"> <li>• Were inputs (resources and time) used in the best possible way to achieve outcomes?</li> </ul>	<ul style="list-style-type: none"> <li>• To develop human and technical capacities of the public institutions to understand and address immediate GLOF risks for vulnerable communities in Northern Pakistan.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-Term Evaluation Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> </ul>

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			• FGD's
• What could be done differently to improved implementation, thereby maximising impact, at an acceptable and sustainable cost?	• To enable vulnerable local communities in the Northern Areas of Pakistan to better understand and respond to the GLOF risks and thereby adapt to the growing climate change pressures.	• Annual and Quarterly Reports • Mid-Term Evaluation Reports	• Individual Interviews • Desk Reviews • Reports • FGD's
• To what extent was the project cost-effective?	•	•	•
<b>Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?</b>			
• To what extent has the project contributed towards its longer-term goals? Why or why not? What unanticipated positive or negative consequences did the project have? Why did they arise?	• Improved living conditions through environmental management for Sustainable Development.	• Annual and Quarterly Reports • Mid-Term Evaluation Reports	• Individual Interviews • Desk Reviews • Reports • FGD's
• To what extent has the project contributed towards risks and vulnerability reduction (or other long-term goals)?	• Project develop and use different mechanisms to support environmental management and reducing risks and vulnerability	• Annual and Quarterly Reports • Mid-Term Evaluation Reports	• Individual Interviews • Desk Reviews • Reports • FGD's
• What are the remaining risks to project sustainability?	•	•	•
<b>Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status?</b>			
• Will there be continued positive impacts as a result of the project once it has finished?	• adaptive capacity enhanced to prevent climate change-induced GLOF disasters in Pakistan	• Annual and Quarterly Reports • Mid-Term Evaluation Reports •	• Individual Interviews • Desk Reviews • Reports • FGD's

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## ANNEX D: RATING SCALES

<b>Ratings for Effectiveness, Efficiency, Overall Project Outcome Rating, M&amp;E, IA &amp; EA Execution</b> 6: Highly Satisfactory (HS): no shortcomings 5: Satisfactory (S): minor shortcomings 4: Moderately Satisfactory (MS): moderate shortcomings 3: Moderately Unsatisfactory (MU): significant shortcomings 2: Unsatisfactory (U): major problems 1: Highly Unsatisfactory (HU): severe problems	<b>Sustainability ratings:</b> 4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML): moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks	<b>Relevance ratings</b> 2. Relevant (R) 1. Not relevant (NR)
<b>Additional ratings where relevant:</b> Not Applicable (N/A) Unable to Assess (U/A)		

## **ANNEX E: EVALUATION CONSULTANT CODE OF CONDUCT AND AGREEMENT FORM**

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### **Evaluators:**

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrong doing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. Inline with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

### **Evaluation Consultant Agreement Form<sup>5</sup>**

#### **Agreement to abide by the Code of Conduct for Evaluation in the UN System**

**Name of Consultant:** \_\_\_\_\_

**Name of Consultancy Organization** (where relevant): \_\_\_\_\_

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<sup>5</sup>[www.unevaluation.org/unegcodeofconduct](http://www.unevaluation.org/unegcodeofconduct)



## ANNEX F: EVALUATION REPORT OUTLINE<sup>6</sup>

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- 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
  - Acknowledgements
- ii.** Executive Summary
  - Project Summary Table
  - Project Description (brief)
  - Evaluation Rating Table
  - Summary of conclusions, recommendations and lessons
- iii.** Acronyms and Abbreviations  
(See: UNDP Editorial Manual<sup>7</sup>)
  - 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  
(In addition to a descriptive assessment, all criteria marked with (\*) must be rated<sup>8</sup>)
    - 3.1** Project Design / Formulation
      - Analysis of LFA/Results Framework (Project logic /strategy; Indicators)
      - Assumptions and Risks
      - Lessons from other relevant projects (e.g., same focal area) incorporated into project design
      - Planned stakeholder participation
      - Replication approach
      - UNDP comparative advantage
      - Linkages between project and other interventions within the sector
      - Management arrangements
    - 3.2** Project Implementation

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<sup>6</sup>The Report length should not exceed 40 pages in total (not including annexes).

<sup>7</sup> UNDP Style Manual, Office of Communications, Partnerships Bureau, updated November 2008

<sup>8</sup> See Annex D for rating scales.

- Adaptive management (changes to the project design and project outputs during implementation)
  - Partnership arrangements (with relevant stakeholders involved in the country/region)
  - Feedback from M&E activities used for adaptive management
  - Project Finance
  - Monitoring and evaluation: design at entry (\*), implementation (\*), and overall assessment (\*)
  - Implementing Agency (UNDP) execution (\*) and Executing Agency execution (\*), overall project implementation/ execution (\*), coordination, and operational issues
- 3.3** Project Results
- Overall results (attainment of objectives) (\*)
  - Relevance (\*)
  - Effectiveness (\*)
  - Efficiency (\*)
  - Country ownership
  - Mainstreaming
  - Sustainability: financial resources (\*), socio-economic (\*), institutional framework and governance (\*), environmental (\*), and overall likelihood (\*)
  - Impact
- 4.** 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
- 5.** Annexes
- ToR
  - Itinerary
  - List of persons interviewed
  - Summary of field visits
  - List of documents reviewed
  - Evaluation Question Matrix
  - Questionnaire used and summary of results
  - Evaluation Consultant Agreement Form
  - Report Clearance Form
  - *Annexed in a separate file:* TE audit trail
  - *Annexed in a separate file:* Terminal AF Tracking Tool, if applicable

**ANNEX G: EVALUATION REPORT CLEARANCE FORM**

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*(to be completed by CO and UNDP GEF Technical Adviser based in the region and included in the final document)*

Evaluation Report Reviewed and Cleared by	
UNDP Country Office	
Name: _____	
Signature: _____	Date: _____
UNDP GEF RTA	
Name: _____	
Signature: _____	Date: _____

## ANNEX H: TE REPORT AUDIT TRAIL

The following is a template for the evaluator to show how the received comments on the draft TE report have (or have not) been incorporated into the final TE report. This audit trail should be included as an annex in the final TE report.

To the comments received on *(date)* from the Terminal Evaluation of the project titled "Reducing Risks and Vulnerabilities from Glacier Lake Outburst Floods in Northern Pakistan" (UNDP PIMS #4454)

The following comments were provided in track changes to the draft Terminal Evaluation report; they are referenced by institution ("Author" column) and track change comment number ("#" column):

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken

## Annex II: Itinerary of Activities of the Final Evaluation Mission

Dates	Task	Time proposed
<b>A. Preparation</b>		
5–20 October, 2015	<ul style="list-style-type: none"> <li>• <i>Home-based work</i> to prepare for evaluation including desk review of documents provided in advance at home office and develop preliminary evaluation methodology</li> <li>• <i>Visa process and air ticket booking</i></li> <li>• <i>Submission of Inception Report</i></li> <li>• <i>Depart from home country (8 November, 2015)</i></li> </ul>	4 days
9 November, 2015	International consultant arrives in country. Meeting with National consultant to plan meetings and field visits	1 day
<b>B. Evaluation Mission</b>		
10 November 2015	<ul style="list-style-type: none"> <li>• Briefing meeting with NPM and MCDO, Pakistan GLOF Project Office</li> <li>• Meeting with PMD staffs that were involved in project activities</li> </ul>	1 day
11 November 2015	<ul style="list-style-type: none"> <li>• Meeting with Consultants involved in various studies.</li> <li>• Meeting with National Project Director (Joint Secretary, Ministry of Climate Change)</li> </ul>	1 day
12 November 2015	<ul style="list-style-type: none"> <li>• Meeting with Assistant Country Director and Program Officer of UNDP CO Pakistan.</li> <li>• Meeting with Secretary of Ministry of Climate Change (Chair of the Project Steering Committee)</li> </ul>	1 day
13 November, 2015	<ul style="list-style-type: none"> <li>• Meeting with Director General of PMD</li> <li>• Meeting with Acting Deputy Secretary of EAD</li> </ul>	1 day
14-16 November, 2015	• Analysis of the findings and also further review of the new documents that were received after arriving Pakistan.	3 day
17 November, 2015	Travel to Chital	1 day
18-19 November	Field visits in Bindogol Valley and meetings in Chital	3 day
20 November, 2015	International Consultant return to Islamabad while National Consultant travel to Gilgit.	1 day
21-22 November, 2015	International Consultant's meetings in Islamabad and preparation of notes on initial findings for debriefing.	2 day
21 November 2015	National Consultant arrive Gilgit	
22-24 November 2015	National Consultant's field visit and interaction with stakeholders in Gilgit.	3 days
23 November, 2015	International Consultant make debriefing and sharing of initial findings with Stakeholders	1 Day
24 November 2015	International Consultant Return	1 Day
<b>A. Draft Evaluation Report</b>		
25 November 5 December 2015	Draft Report Developed	10 days
5 December 2015	Draft report submitted to UNDP CO	
12 December 2015	UNDP provides comments and suggestions on draft report	
<b>A. Final Evaluation Report</b>		

Dates	Task	Time proposed
<b>A. Preparation</b>		
13-17 December, 2015	<i>Home-based work to</i> finalize report based on comments from stakeholders, followed by submission of the final report to UNDP for further circulation	5 day
17 December 2015	Submission of final report to UNDP	

### Annex III: Persons Interviewed

S.No.	Name	Designation	Institution
<b>10-11-2015</b>		<b>GLOF Project Office Islamabad</b>	
1	Mr. Khalil Ahmed	National Project Manager	GLOF Project
2	Mr. Fahad Bangash	Monitoring and Coordination Officer	GLOF Project
<b>10-11-2015</b>		<b>PMD office Islamabad</b>	
3	Mr. M. Akram Anjum	Chief Meteorologist	PMD
4	Mr. Mohammad Sharif	Meteorologist	PMD
5	Mr. Adnan Rana	Meteorologist	PMD
6	Mr. Qamar ul Zaman	Meteorologist	PMD
7	Mr. Atif Nawaz	Sub-engineer	PMD
8	Mr. Naveed hussain	Sub-engineer	PMD
9	Mr. Waqar Ali	Sub-engineer	PMD
10	Mr. Rizwan Ahmed	Sub-engineer	
11	Mr. Habibullah	Sub-engineer	PMD
12	Mr. Adil Munir	Sub-engineer	PMD
13	Mr. M. Haroon	Radio Mechanic	PMD
14	Mr. M. Amjad	Staff Officer	PMD
<b>11-11-2015</b>		<b>GLOF office Islamabad</b>	
15	Dr Bashir H. Shah	Consultant	Free Launce consultant
16	Dr. Naseem Javaid	Consultant	Free Launce consultant
17	Mr. Tayyab Shahzad	Consultant	Free Launce consultant
18	Mr. Abdul Latif Rao	Consultant	Free Launce consultant
<b>11-11-2015</b>		<b>Climate Change Ministry Islamabad</b>	
19	Mr. Aftab A. Manika	Joint Secretary/National Project Director	MCC /GLOF
<b>12-11-2015</b>		<b>Climate Change Ministry Islamabad</b>	
20	Mr. Arif Ahmed Khan	Secretary /GEF Focal Person	MCC
<b>12-11-2015</b>		<b>UNDP office Islamabad</b>	
21	Mr. Amanullah Khan	Assistant Country Director	UNDP Pakistan
22	Ms. Munazza Naqvi	Programme Officer	UNDP Pakistan
<b>13-11-2015</b>		<b>PMD office Islamabad</b>	
23	Dr. Ghulam Rasool	Director General	PMD
<b>13-11-2015</b>		<b>EAD Islamabad</b>	
24	Ms. Beenish Amjad	Acting Deputy Secretary (United Nation)	EAD
25	Dr. Haseeb Shahbaz	Section Officer	EAD
<b>18-11-2015</b>		<b>Bindo Gol valley Chitral</b>	
26	Mr. M. Ibrahim	Chairman	DRMC Bindo Gol
27	Mr. Burhan ud Din	Vice Chairman	DRMC Bindo Gol
28	Mr. Hameed Rehman	General Secretary	DRMC Bindo Gol
29	Mr. Naseerullah	Information Secretary	DRMC Bindo Gol
30	Mr. Salim Khan	Finance Secretary	DRMC Bindo Gol

31	Moulana M. Murad	Member	DRMC Bindo Gol
32	Mr. Abdul Hakim	Member	DRMC Bindo Gol
33	Mr. Siraj Khan	Member	DRMC Bindo Gol
34	Mr. Buzurg Ahmed	Member	DRMC Bindo Gol
35	Mr. Gulab	Member	DRMC Bindo Gol
36	Moulana Sher Azim	Member	DRMC Bindo Gol
37	Mr. Khalilullah	Member	DRMC Bindo Gol
38	Mr. Dinar Khan	Member	DRMC Bindo Gol
39	Mr. Abdur Rauf	Member	DRMC Bindo Gol
40	Haji Khosh Khabir	Member	DRMC Bindo Gol
41	Mr. Aziz ud Din	Member	DRMC Bindo Gol
42	Mr. Safirullah	Member	DRMC Bindo Gol
43	Mr. Shakor Khan	Member	DRMC Bindo Gol
44	Mr. Mir Ajab	Member	DRMC Bindo Gol
45	Mr. Assad	Member	DRMC Bindo Gol
46	Mr. Abdul Basit	Office Coordinator	DRMC Bindo Gol
47	Mr. Sher Bahader	Team Leader	Hazard Watch Group
48	Mr. Mohammad Ishaq	Member	Hazard Watch Group
49	Mr. Rashid	Member	Hazard Watch Group
50	Mr. Fazal	Member	Hazard Watch Group
51	Mr. Mohd Ishaq	Member	Hazard Watch Group
52	Mr. Salimullah	Member	Hazard Watch Group
53	Mr. Hamidullah	Member	Hazard Watch Group
54	Mr. Islamuddin	Member	Hazard Watch Group
55	Mr. Sardar Ayub	Team Leader	Hazard Watch Group
56	Mr. Iltafuddin	Member	Hazard Watch Group
57	Mr. Mohammad Shah	Member	Hazard Watch Group
58	Mr. Ijaz Ahmed	Member	Hazard Watch Group
<b>18-11-2015</b>		<b>District Administration Office Boni</b>	
59	Mr. Hamidullah Khattak	Assistant Commissioner Mastuj	District Administration
60	Mr. Mohammad Saleh	Add. Assistant Commissioner Mastuj	District Administration
<b>18-11-2015</b>		<b>Wildlife Office Boni</b>	
61	Mr. Fakhrul Islam	Deputy Ranger	Wild Life Department
<b>19-11-2015</b>		<b>WWF office Chitral</b>	
62	Mr. Shafiqullah Khan	Field Biologist	WWF Pakistan
<b>19-11-2015</b>		<b>Forest Department Chitral</b>	
63	Mr. Ajaz Ahmed	Assistant Director NTFP	Forest Department
<b>19-11-2015</b>		<b>DCO office Chitral</b>	
64	Mr. Rashid ul Ghafoor	Assistant District Disaster Management Officer	District Administration Chitral
<b>19-11-2015</b>		<b>PMD office Chitral</b>	
65	Mr. Manzoor Ahmed	In charge Officer	PMD Chitral
<b>21-11-2015</b>		<b>GLOF Project Office, Islamabad</b>	
66	Mr. Khalil Ahmed	National Project Manager	GLOFProject
67	Mr. Khurshid Khan	Finance Assistan	
<b>22-11-2015</b>		<b>Serena Gilgit</b>	
68	Syed Zahid Hussain	Field Manager	GLOF Project
<b>22-11-2015</b>		<b>Bari Bar Valley Bagrot DRMC office</b>	
69	Mr. Mazhar Hussain	Chairman	DDO
70	Haji Adil Shah	Vice Chairman	do
71	Mr. Shahid Ali	Joint Secretary	do

72	Mr. Muhammad Ayub	Finance Secretary	do
73	Mr. Sajid Ali	Office Manager	DRMC Office
74	Mr. Safar Ali	member	VHWG/DRMC
75	Mr. Muhammad Afzal	Member	VHWG/DRMC
76	Mr. Aun Ali Shah	Member	VHWG/DRMC
77	Mr. Hussain Ali	VHWG/DRMC	Member
78	Mr. Akbar Shah	Member	VHWG/DRMC
<b>22-11-2015</b>		<b>DRMC office Bari Bar Valley Bagrot</b>	
79	Ms. Abida	Member	VHWG/DRMC
80	Ms. Zamrud	Member	VHWG/DRMC
81	Ms. Fouzia	Member	VHWG/DRMC
82	Ms. Shireen Khatoon	Member	VHWG/DRMC
83	Ms. Lahora	Member	VHWG/DRMC
84	Ms. Janan	Member	VHWG/DRMC
85	Ms. Muneeza	Member	VHWG/DRMC
<b>23-11-2014</b>		<b>Safe heaven Chuni Bar valley Bagrot</b>	
86	Haji Adil Shah	Vice Chairman	DDO
87	Subedar Ashdar	Member	VHWG/DRMC
88	Mr. M. Hussain	Member	VHWG/DRMC
89	Mr. Mubashar Hussain	Member	VHWG/DRMC
90	Mr. Shaheen Shah	Member	VHWG/DRMC
91	Mr. Ghulam Muhammad	Member	VHWG/DRMC
92	Mr. Shafqat Hussain	Member	VHWG/DRMC
<b>24-11-2014</b>		<b>GBDMA Office</b>	
93	Mr. Zaheer ud Din	Assistant Director	GBDMA
94	Mr. Raseed ud Din	Coordinator	DDMA Gilgit district
95	Mr. Zubair	Coordinator	DDMA Diamer
96	Mr. Imtiaz Ahmed	Coordinator	DDMA Ghizer



## Annex IV: Summary Evaluation of Project Achievements by Objectives and Outcomes

The Project logframe in the Project Document was revised in the Inception Report. The present evaluation matrix uses the version contained in the Inception Report and also used by the MTR.

### KEY:

**GREEN** = Indicators show achievement successful at the end of the Project.

**YELLOW** = Indicators show achievement nearly successful at the end of the Project.

**RED** = Indicators not achieved at the end of Project.

HATCHED COLOUR = estimate; situation either unclear or indicator inadequate to make a firm assessment against.

**Project Objective:** To develop the human and technical capacity of public institutions to understand and address immediate GLOF risks for vulnerable communities in Northern Pakistan and to enable vulnerable local communities of the Northern Pakistan to better understand and respond to GLOF risks and thereby adapt to growing climate change pressure.

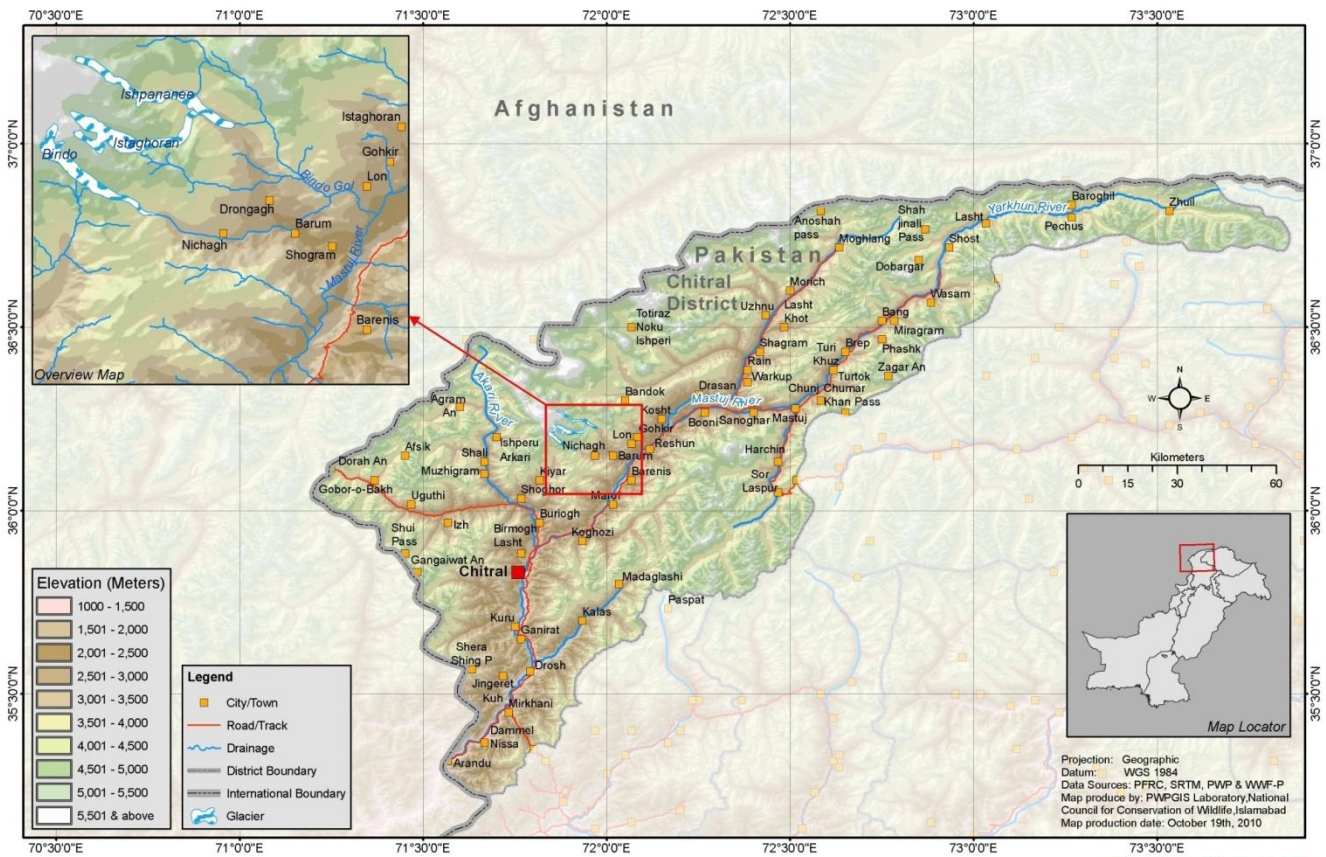
Project Strategy	Outputs	Indicator	Baseline	Achievements
<b>Outcome 1:</b> Policy recommendations & institutional strengthening to prevent climate change induced GLOF events in northern Pakistan	Output 1.1: Policy framework and guidelines to address GLOF risks in northern Pakistan institutionalized.  Output 1.2: Indicators and criteria for GLOF vulnerability developed and systematically applied to enable priority allocation of risk reduction efforts and investment.	1.1.1. Number of policy recommendations made to address GLOF risks or adjusted to incorporate GLOF risks.  1.2.1. Number of potentially GLOF prone communities that are integrated in a centralized, web-based GLOF risk database  1.2.2. Availability of a government action plan to address GLOF risks in Pakistan, starting from the highest risk zones and the most vulnerable communities	1.1.1. Climate change risks are mentioned in the current Task Force on Climate Change (TFCC) report  1.1.2. No comprehensive disaster management guidelines addressing GLOF exist for the Gilgit-Baltistan and Chitral Regions  1.2.1. No comprehensive database and action plans exist for addressing GLOF risk in Pakistan	<ul style="list-style-type: none"> <li>National Disaster Management plan revised with incorporation of GLOF issues.</li> <li>NDMA-Act revised and GLOF issues integrated.</li> <li>DRM Plan developed (National and Provincial level with incorporation of GLOF issues).</li> <li>DRR Plan Developed for Gilgit and Chitral.</li> <li>Policy Recommendation for Chitral and Gilgit-Baltistan are developed and shared for review and approval of the stakeholders and partners on GLOF issues.</li> <li>Inventory of Glacial Lake conducted to update status.</li> <li>GLOF web-site developed and operational with all relevant information.</li> <li>GLOF digital knowledge repository developed and disseminated to all stakeholders.</li> </ul>
<b>Outcome 2:</b> Strengthening and Knowledge	Output 2.1: Systematic engagement with global and	2.1.1. Number of specialized institutions	2.1.1. Regional platform established	<ul style="list-style-type: none"> <li>Networking visits conducted by Ministry of Climate Change,</li> </ul>

<p>Information about GLOF risks in northern Pakistan</p>	<p>regional research networks and centres working on GLOF issues.</p> <p>Output 2.2: Risk and hazard maps for mountain valleys with the highest GLOF risk and exposure of lives, livelihoods and infrastructure</p>	<p>actively connected in the exchange of relevant technical information that can inform GLOF vulnerability analysis and risk reduction Planning.</p> <p>2.2.1. Number of GLOF hazard and vulnerability maps for GLOF prone mountain valleys</p>	<p>by the regional GLOF risk reduction project, with punctual interaction until the project has ended.</p> <p>2.2.1. No comprehensive risk and vulnerability maps for mountain valleys with highest GLOF risks available</p>	<p>Community members, UNDP, Project Staff and line department representatives for regional and global networking to HKH region, ALPs region.</p> <ul style="list-style-type: none"> <li>• Hazards and Vulnerability maps developed.</li> <li>• Regional meetings for establishment of the learning and knowledge sharing platform conducted</li> <li>• Simulation modeling for three GLOF sites completed</li> <li>• 25 Case Studies conducted on:</li> <li>• Bio-Diversity study</li> <li>• Best Practices</li> <li>• Disaster Profile of Gilgit and Chitral</li> <li>• Comparative Report of GLOD Risk Reduction Initiatives Conducted (i.e. of Bhutan, Nepal and China)</li> <li>• KAP Surveys conducted of targeted valleys</li> <li>• Socio Economic studies conducted</li> <li>• Bio-Engineering Case Study developed</li> <li>• Developed required documents for management on:</li> <li>• DRR Manual</li> <li>• DRM Manual</li> <li>• Communication Strategy</li> </ul>
<p><b>Outcome 3:</b> Demonstration of community-based GLOF risk management in vulnerable mountain valleys of northern Pakistan</p>	<p>Output 3.1: Preparedness actions for vulnerable communities conducted to reduce risks from GLOF events</p> <p>Output 3.2: A community based system for GLOF risk monitoring and early warning established in priority communities</p> <p>Output 3.3: Targeted GLOF risk reduction measures such as check dams, spill ways,</p>	<p>3.1.1. Percentage of targeted population aware of GLOF impacts and appropriate responses to the threat</p> <p>3.2.1. Number of households in Bagrot and Drongagh valley reached by a GLOF early warning system</p> <p>3.2.2. Percentage of households receiving and responding to warnings in</p>	<p>3.1.1. Limited awareness by vulnerable communities in the Gilgit-Baltistan and Chitral valleys on GLOF risks and risk reduction measures</p> <p>3.2.1. No GLOF early warning system for Bagrot and Drongagh valleys in place</p> <p>3.2.2. Vulnerable</p>	<ul style="list-style-type: none"> <li>• Conducted 22 workshops for Women awareness generation and 170 programs to capacity enhancement and strengthening by awareness generation, providing equipment to minimize risk for disabled and elderly persons.</li> <li>• 2 DRM training for representatives of public institutions and 9 trainings sessions conducted for community members</li> <li>• Developed 3 documentary on GLOF issues</li> <li>• Relevant Line Departments strengthened by provision of office equipment and equipment needed in emergency situation.</li> <li>• 40,000 IEC materials developed for mass awareness and distributed.</li> <li>• Radio and TV awareness programs conducted in national and</li> </ul>

	<p>slope stabilization or controlled drainage established in Bagrot and Drmgrah valleys.</p>	<p>time to avoid human losses</p> <p>3.3.1. No. of physical assets strengthened or constructed to withstand or mitigate the effects of GLOF events</p>	<p>households are not able to receive and react to GLOF early warning messages</p> <p>3.3.1. No risk reduction measures for GLOF in place in the target sites</p>	<p>local radio and TV.</p> <ul style="list-style-type: none"> <li>• CBDRMC formed in all villages of project sites and strengthened with training, exchange visits and equipment.</li> <li>• Safe Havens constructed in 23 places of the project sites and were equipped with equipment and also safe access trail developed to Safe Heaven.</li> <li>• Installed 5 automatic weather stations in Weather stations, 5 rain gauges 6 RQ30 (automatic river discharge measuring system) 2 Glacier Monitoring Sensor/Cameras, 2 Glacial Lake Monitoring Sensor and established 3 Meteorological Weather Station (manual) in all three project sites.</li> <li>• SOPs for Early Warning System Developed and implemented.</li> <li>• Conducted 85 exposure visits for community members for learning and experience sharing.</li> <li>• Community Based Village Hazard watch groups developed in every project villages and were equipped with gears needed to visit glacial areas for monitoring.</li> <li>• DERC, TERC and CBDRC established in all project sites and strengthened with training, equipment support and establishment of endowment fund</li> <li>• Check dams constructed</li> <li>• Slope Stabilization and Bio-Engineering activities conducted and implemented</li> <li>• 27 flood protection walls constructed in Bagrote valley and Bindo Gol valley.</li> <li>• Two bridges constructed Bagrote valley of Gilgit to make access to these valleys.</li> <li>• Safe Access Routed developed in 25 places of the three project sites.</li> <li>• Endowment fund established and strengthened for future DRM in all three project sites.</li> <li>• Mock drills/alerts conducted.</li> <li>• River diversion spur constructed in two places of Bindo gol area to reduce flood damage.</li> <li>• Plantation done to reduce Green House gas and also to stabilize soil runoff. Only 37,000 saplings were planed and</li> </ul>
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				used as a demo sites for encouraging villagers to conduct such activities by themselves.
<b>Outcome 4:</b> Documentation, analysis and continued application of lessons learnt	<p>Output 4.1: Technical knowledge and project lessons documented for use in future initiatives</p> <p>Output 4.2: Project experiences disseminated to policy makers and disaster management planners in Pakistan and wider HKH region.</p>	<p>4.1.1. Number of technical documents capturing project knowledge</p> <p>4.1.2. Number of knowledge products.</p> <p>4.2.1. Number of organizations actively involved in knowledge transfer within and across district borders</p> <p>4.2.2. Number of policy makers and disaster management practitioners within and outside of Pakistan who are aware of the project and willing to adopt lessons learned</p>	<p>4.1.1. Inadequate technical papers capturing project knowledge available</p> <p>4.1.2. Inaccessibility to maps, reports, remote imagery and case studies</p> <p>4.2. No systematic knowledge transfer on GLOF risks from Pakistan to other countries</p>	<ul style="list-style-type: none"> <li>• Conducted best Practices Case Studies in all project sites.</li> <li>• Conducted Mid-Term Review.</li> <li>• Terminal Evaluation (Undergoing)</li> <li>• Developed Exit Strategy.</li> <li>• Conducted several meetings and workshops with govt. officials and other stakeholders to disseminate lessons learned.</li> <li>• Organized knowledge sharing workshops in Bagrot, Gilgit, Skardu, Bindogol, Chitral, Peshawar and Islamabad.</li> <li>• Representatives of Line Departments and stakeholders experience from several sharing meetings and six exposure visits.</li> <li>• International GLOF Conference conducted in Islamabad which was attended by 300 people from 13 countries.</li> <li>• Replication and scaling up proposal developed and submitted to Green Climate Fund.</li> </ul>

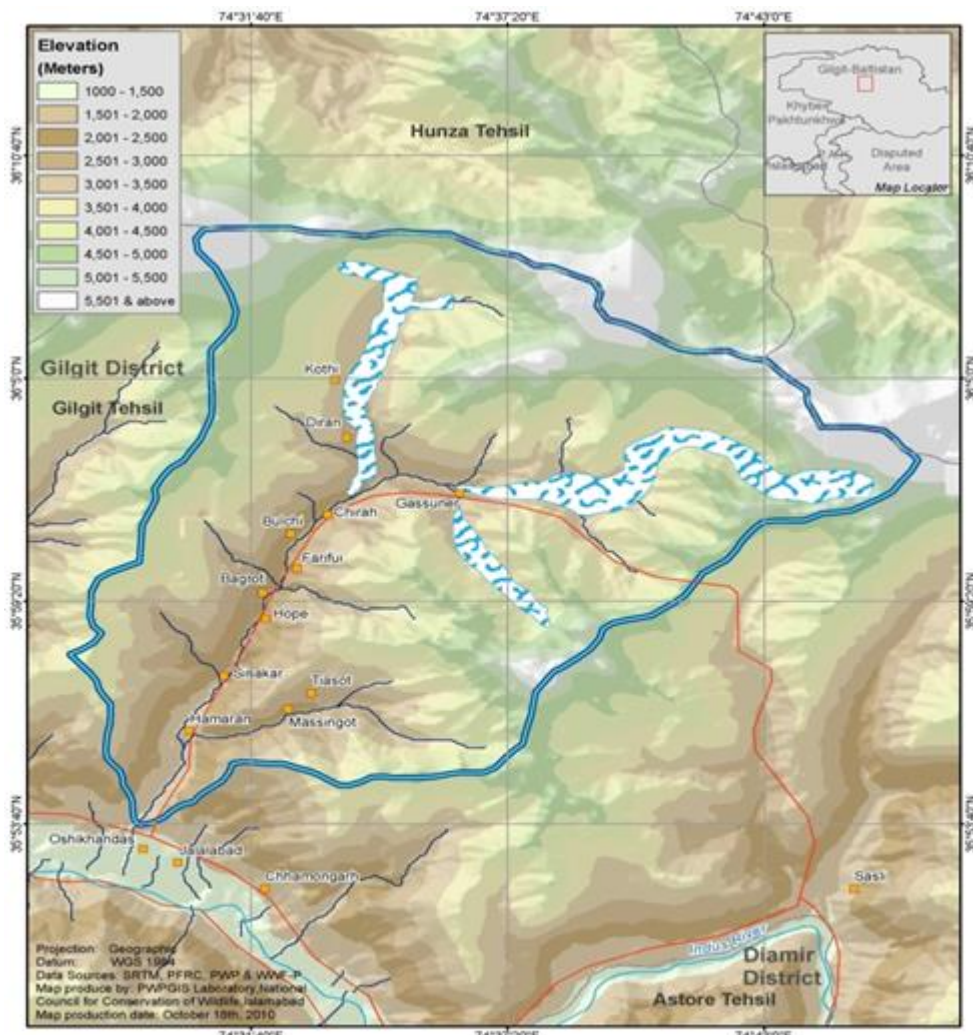
# Annex V: Map of Pakistan showing Project Sites



## Topographic Map of Drongagh Area, District Chitral

Disclaimer :The depiction and use of boundaries , geographic names and related data shown here do not necessarily imply official endorsement or acceptance by Pakistan Wetlands Programme / WWF-Pakistan.





**Map of Bagarot Valley**

- Legend**
- Locality
  - Road/Track
  - Drainage
  - River
  - Tehsil Boundary
  - Valley Watershed
  - Glacier



Disclaimer: The depiction and use of boundaries, geographic names and related data shown here do not necessarily imply official endorsement or acceptance by Pakistan Wetlands Programme / WWF-Pakistan.

## Annex VI: Revised Table of Project Indicators

Project Strategy	Objectively verifiable indicators				
Goal	To enhance adaptive capacity to prevent climate change-induced GLOF disasters in Pakistan				
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
<b>Objective: To reduce climate change-induced risks of Glacial Lake Outburst Floods (GLOFs) in Gilgit-Baltistan and Chitral</b>	<ul style="list-style-type: none"> <li>No. of potentially dangerous glacier lakes in Gilgit-Baltistan and Chitral</li> <li>No. of institutions with increased capacity to minimize human and material losses from GLOF events</li> <li>Number of people living in Gilgit-Baltistan and Chitral suffering losses from GLOF</li> </ul>	<ul style="list-style-type: none"> <li>There are 52 potentially dangerous lakes in Gilgit-Baltistan and Chitral areas.</li> <li>35 destructive outburst floods are recorded in Gilgit-Baltistan and Chitral areas in last two hundred years.</li> </ul>	<ul style="list-style-type: none"> <li>The GLOF risk from at least 2 potentially dangerous glacier lakes in Gilgit-Baltistan and Chitral is successfully reduced</li> <li>At least 80% of disaster management institutions in Gilgit-Baltistan and Chitral (national, provincial and district level) are able to access, interpret and use GLOF risk information for planning purposes</li> <li>At least 2 GLOF-prone mountain valleys are comprehensively covered by a GLOF Early Warning system</li> </ul>	<ul style="list-style-type: none"> <li>Questionnaire-based surveys (QBS)/ Interviews at the beginning, mid-term and end of the project</li> <li>Impact assessment at the end of the project</li> <li>Satellite imagery of glacier lakes and vulnerable sites before and after the project</li> </ul>	<ul style="list-style-type: none"> <li>The political situation stays stable throughout the project duration.</li> <li>Stakeholders are able to perceive reductions in vulnerability over the time-scale determined by project duration</li> <li>No flooding disasters in target communities occur throughout the project lifetime</li> </ul>

Project Strategy	Objectively verifiable indicators				
Goal	To enhance adaptive capacity to prevent climate change-induced GLOF disasters in Pakistan				
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
<b>Outcome 1:</b> Strengthened Institutional capacities to implement policies, plans and investments that prevent human and material losses from GLOF events in vulnerable areas of Northern Pakistan	<ul style="list-style-type: none"> <li>No. of targeted institutions with increased capacity to minimize exposure to GLOF risks</li> <li>Number of policy recommendations made to address GLOF risks or adjusted to incorporate GLOF risks</li> </ul>	<ul style="list-style-type: none"> <li>National, provincial and local disaster management institutions and development planners are unable to design, finance and analyze GLOF risk reduction measures on the basis of reliable, comprehensive information</li> </ul>	<ul style="list-style-type: none"> <li>By the end of Year 3, 100% of the national and 90% of district and community authorities in the Gilgit-Baltistan and Chitral regions are able to prioritize and plan measures to minimize potential losses from GLOFs in two target sites</li> <li>By the end of the project, at least two policies have been reviewed and/or revised to address or incorporate GLOF risk reduction</li> </ul>	<ul style="list-style-type: none"> <li>QBS, training protocols and attendance lists</li> <li>Review of CC, DRM and development policies and plans at the national, district, and community levels</li> </ul>	<ul style="list-style-type: none"> <li>Government remains supportive to link longer-term climate change planning with current disaster risk management initiatives</li> </ul>



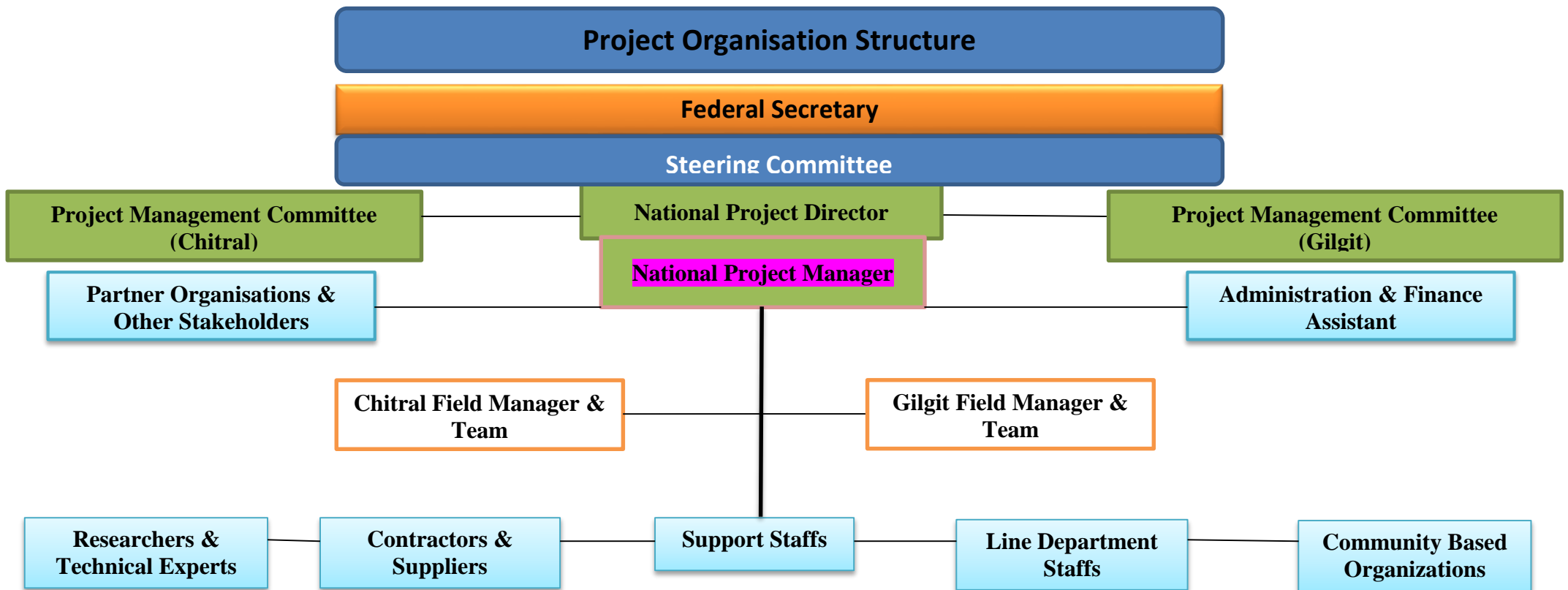
Output 1.1: Policy recommendations and guidelines to address GLOF risks in northern Pakistan institutionalized	<ul style="list-style-type: none"> <li>Number of policy recommendations made to address GLOF risks or adjusted to incorporate GLOF risks</li> </ul>	<ul style="list-style-type: none"> <li>Climate change risks are mentioned in the current Task Force on Climate Change (TFCC) report</li> <li>No comprehensive disaster management guidelines addressing GLOF exist for the Gilgit-Baltistan and Chitral regions</li> </ul>	<ul style="list-style-type: none"> <li>By the end of the project, a Disaster Management Act is formulated that incorporates GLOF and other climate risk issues</li> <li>By the end of the project, existing DRM guidelines integrate longer-term climate change risk planning</li> </ul>	<ul style="list-style-type: none"> <li>Review of Disaster Management Act, DRM policies, plans, and institutional structures</li> </ul>	<ul style="list-style-type: none"> <li>Government continues to support climate-resilient DRM.</li> </ul>
Output 1.2: Indicators and criteria for GLOF vulnerability developed and systematically applied to enable priority allocation of risk reduction efforts and investments	<ul style="list-style-type: none"> <li>Number of potentially GLOF-prone communities that are integrated in a centralized, web-based GLOF risk database</li> <li>Availability of a government action plan to address GLOF risks in Pakistan, starting from the highest risk zones and the most vulnerable communities</li> </ul>	<ul style="list-style-type: none"> <li>No comprehensive database and action plans exist for addressing GLOF risk in Pakistan</li> </ul>	<ul style="list-style-type: none"> <li>By year 1 of the project, all GLOF risk sites in Pakistan are identified and inventoried in a central, web-based GLOF risk database</li> <li>By the end of the project, a comprehensive disaster risk reduction plan is available to address the biggest GLOF threats in the most vulnerable communities</li> </ul>	<ul style="list-style-type: none"> <li>GLOF risk database,</li> <li>Satellite imagery</li> <li>Action plan document</li> </ul>	<ul style="list-style-type: none"> <li>Turnover of staff does not counteract benefits of capacity building efforts</li> <li>NOCs are obtained from relevant authorities for accessing restricted sites</li> </ul>
<b>Outcome 2:</b> Improved access of disaster management planners and policy makers to knowledge, information and research on GLOF risks	<ul style="list-style-type: none"> <li>No. and type of government-led initiatives which conduct and update risk and vulnerability assessments</li> </ul>	<ul style="list-style-type: none"> <li>Level of knowledge about GLOF exposure and sensitivity in northern Pakistan is very limited</li> </ul>	<ul style="list-style-type: none"> <li>By the end of the project, 95 percent of population in the two targeted communities has sufficient knowledge about GLOF risks and mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>QBS</li> <li>Surveys on communication channels</li> </ul>	<ul style="list-style-type: none"> <li>Continued government support for the project</li> </ul>
Output 2.1: Systematic engagement of the project with global and regional research networks and centres working on GLOF issues	<ul style="list-style-type: none"> <li>Number of specialized institutions actively connected in the exchange of relevant technical information that can inform GLOF vulnerability analysis and risk reduction planning</li> </ul>	<ul style="list-style-type: none"> <li>Regional platform established by the regional GLOF risk reduction project, with punctual interaction until the project has ended</li> </ul>	<ul style="list-style-type: none"> <li>By the end of year 2, at least 10 other GLOF risk reduction initiatives from other countries are analyzed to inform risk assessment and –planning under the proposed project</li> <li>Regional platform established by the regional GLOF risk reduction project, with punctual interaction</li> </ul>	<ul style="list-style-type: none"> <li>Comparative analysis report</li> <li>MoUs / agreements</li> <li>Website linkages</li> <li>International conference</li> </ul>	<ul style="list-style-type: none"> <li>Other GLOF projects have codified their lessons in an accessible format</li> <li>Relevant partners remain interested in cooperation</li> </ul>
Output 2.2: Risk and hazard maps for mountain valleys with the	<ul style="list-style-type: none"> <li>Number of GLOF hazard and vulnerability maps for GLOF-</li> </ul>	<ul style="list-style-type: none"> <li>No comprehensive risk and vulnerability maps for mountain</li> </ul>	<ul style="list-style-type: none"> <li>By year 1, all GLOF risk areas in Pakistan are covered by remote sensing information</li> </ul>	<ul style="list-style-type: none"> <li>Hazard maps</li> </ul>	<ul style="list-style-type: none"> <li>Availability of field staff to conduct vulnerability</li> </ul>

highest GLOF risk and exposure of lives, livelihoods and infrastructure	prone mountain valleys	valleys with highest GLOF risks available	<ul style="list-style-type: none"> <li>By year 2, GLOF specific simulation models for at least 2 GLOF prone mountain valleys are developed</li> <li>By year 2, at least 2 GLOF-prone mountain valleys are analyzed by a detailed hazard zonation and vulnerability assessment</li> </ul>	<ul style="list-style-type: none"> <li>Vulnerability maps</li> <li>Risk maps</li> </ul>	<p>assessment</p> <ul style="list-style-type: none"> <li>Availability of unrestricted satellite imagery</li> <li>No natural disasters in project area</li> </ul>
<b>Outcome 3:</b> Reduced human and material losses in vulnerable communities in the Northern areas of Pakistan through GLOF early warnings and other adaptation measures	<ul style="list-style-type: none"> <li>Number of vulnerable households in Bagrot in Gilgit-Baltistan and Drongagh valley in Chitra covered by a GLOF early warning system</li> <li>Number of physical assets strengthened or constructed to withstand or mitigate the effects of GLOF events</li> </ul>	<ul style="list-style-type: none"> <li>No GLOF early warning system for Bagrot and Drongagh Valley in place</li> <li>Vulnerable households are not able to receive and react to GLOF early warning messages</li> <li>No physical structures in place to mitigate the effect of GLOF events</li> </ul>	<ul style="list-style-type: none"> <li>By the end of the project, 90% of households in target communities are able to receive and respond to early warnings and take the appropriate actions following the warning</li> <li>By the end of the project, at least 2 targeted engineering structures (spurs, protective works, check dams, slope stabilization, spill ways and water drainage etc) have been established to reduce the effects of GLOF events on livelihood assets</li> </ul>	<ul style="list-style-type: none"> <li>QBS with households</li> <li>Site visits before/after the project</li> </ul>	<ul style="list-style-type: none"> <li>No tampering with early warning system installations</li> <li>Community workforce available to support engineering measures</li> </ul>
Output 3.1: Preparedness actions for vulnerable communities conducted to reduce risks from GLOF events	<ul style="list-style-type: none"> <li>Percentage of targeted population aware of GLOF impacts and appropriate responses to the threat</li> </ul>	<ul style="list-style-type: none"> <li>Limited awareness by vulnerable communities in the Gilgit-Baltistan and Chitral valleys on GLOF risks and risk reduction measures</li> </ul>	<ul style="list-style-type: none"> <li>By the end of the project, at least 90% of households in the target area are aware of the functionality of the GLOF EWS and able to respond to warning signals</li> <li>By the end of the project, at least 2 full-scale GLOF early warning drills have been conducted, involving all households in the target communities</li> </ul>	<ul style="list-style-type: none"> <li>QBS</li> <li>Video of mock drills, simulation protocol</li> <li>Debriefing notes</li> </ul>	<ul style="list-style-type: none"> <li>Messages are delivered in an appropriate way to enhance awareness, receptiveness and understanding</li> <li>Messages are delivered in a concerted, coordinated and consistent manner</li> </ul>
Output 3.2: A community based system for GLOF risk monitoring & early warning in priority communities	<ul style="list-style-type: none"> <li>Number of households in Bagrot and Drongagh valley reached by a GLOF early warning system</li> <li>Percentage of households receiving and responding to warnings in time to avoid</li> </ul>	<ul style="list-style-type: none"> <li>No GLOF early warning system for Bagrot and Drongagh valleys in place</li> <li>Vulnerable households are not able to receive and react to</li> </ul>	<ul style="list-style-type: none"> <li>By the end of the project, 90% of households in each target valley are able to receive and respond to GLOF early warning signals and take the appropriate actions following the warning.</li> <li>By the end of the project, at least 2 CBOs are trained in the operation and maintenance of the EWS and ensure its</li> </ul>	<ul style="list-style-type: none"> <li>QBS with households</li> <li>Mock drill protocols</li> <li>Field visits to EWS sensor, relay and communication sites</li> </ul>	<ul style="list-style-type: none"> <li>No tempering with the early warning system installations,</li> <li>Functioning backup systems in place</li> </ul>

	human losses	GLOF early warning messages	continued functionality <ul style="list-style-type: none"> <li>• A special watch group for each GLOF prone valley will be formed to establish a new or to strengthen an existing Early Warning System</li> </ul>	<ul style="list-style-type: none"> <li>• GLOF watch group meeting attendance and note for records</li> </ul>	<ul style="list-style-type: none"> <li>• Valley wide traditional communication systems are in place</li> </ul>
Output 3.3: Targeted GLOF risk reduction measures such as check dams, spillways, slope stabilization or controlled drainage established in Bagrot and Drongagh valleys	<ul style="list-style-type: none"> <li>• No. of physical assets strengthened or constructed to withstand or mitigate the effects of GLOF events</li> </ul>	<ul style="list-style-type: none"> <li>• No risk reduction measures for GLOF in place in the target sites</li> </ul>	<ul style="list-style-type: none"> <li>• By the end of the project, concrete engineering measures are in place to reduce the impact of GLOF events on vulnerable communities in each target valley (as appropriate: effective drainage systems, check dams, mini dams, ponds, spill ways, slope stabilization, tree plantation, controlled drainage)</li> </ul>	<ul style="list-style-type: none"> <li>• Field visits to engineering structures</li> <li>• Structural designs</li> <li>• Completion drawings</li> </ul>	<ul style="list-style-type: none"> <li>• Communities are receptive to the adoption of mitigation measures and participate actively in construction efforts</li> <li>• IEE yields positive result for the mitigation measures under consideration</li> </ul>
<b>Outcome 4:</b> Project experiences documented and replicated	<ul style="list-style-type: none"> <li>• Number of proposals, papers, and other documents that incorporate learning from the project</li> </ul>	<ul style="list-style-type: none"> <li>• Experiences regarding climate change-induced GLOF mitigation and preparedness in Pakistan have not been systematically captured and shared</li> </ul>	<ul style="list-style-type: none"> <li>• By the end of the project, at least 2 other GLOF mitigation and early warning initiatives or studies draw on learning from experiences in Pakistan</li> </ul>	<ul style="list-style-type: none"> <li>• Proposals, papers, knowledge products, and other documents referring to AF-funded GLOF project in Pakistan</li> </ul>	<ul style="list-style-type: none"> <li>• Political circumstances in Pakistan are conducive for international exchange on GLOF mitigation and preparedness efforts</li> </ul>
Output 4.1. Technical knowledge and project lessons documented for use in future initiatives	<ul style="list-style-type: none"> <li>• Number of technical documents capturing project knowledge</li> <li>• Number of knowledge products</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate technical papers capturing project knowledge available</li> <li>• Inaccessibility to maps, reports, remote imagery and case studies</li> </ul>	<ul style="list-style-type: none"> <li>• By the end of the project, all technical decisions and lessons are captured in dedicated reports</li> <li>• By the end of the project, a GLOF risk reduction manual is available and disseminated both nationally and internationally</li> <li>• By year 2 of the project, a project website is established and linked to the GLOF risk database developed under Outcome 1</li> </ul>	<ul style="list-style-type: none"> <li>• Technical briefs prepared by the project</li> <li>• Manual</li> <li>• Project website</li> </ul>	<ul style="list-style-type: none"> <li>• Technical knowledge is consistently codified and reflected upon over the lifetime of the project</li> </ul>
Output 4.2. Project experiences disseminated to policy makers and disaster management	<ul style="list-style-type: none"> <li>• Number of organizations actively involved in knowledge transfer within and across</li> </ul>	<ul style="list-style-type: none"> <li>• No systematic knowledge transfer on GLOF risks from Pakistan to other countries</li> </ul>	<ul style="list-style-type: none"> <li>• By the end of the project, at least 1 international exchange visit between GLOF risk reduction projects has taken place</li> </ul>	<ul style="list-style-type: none"> <li>• Study visit report</li> <li>• Site visits, consultation</li> </ul>	<ul style="list-style-type: none"> <li>• Other regions and countries believe experiences from the project will be valuable for future GLOF mitigation and</li> </ul>

<p>planners in Pakistan and the wider HKH region.</p>	<p>district borders</p> <ul style="list-style-type: none"> <li>• Number of policy makers and disaster management practitioners within and outside of Pakistan who are aware of the project and willing to adopt lessons learned</li> </ul>		<ul style="list-style-type: none"> <li>• By the end of the project, DRM planning authorities of at least 3 GLOF-prone districts in Pakistan visit the target sites with a view on replication of the project approach in other vulnerable sites</li> <li>• By the end of the project, at least 2 project dissemination workshops have been conducted in Pakistan, with attendance by stakeholders from all GLOF-prone districts</li> </ul>	<p>protocols</p> <ul style="list-style-type: none"> <li>• Workshop proceedings</li> </ul>	<p>preparedness initiatives</p> <ul style="list-style-type: none"> <li>• Project is sufficiently visible to other GLOF-prone districts</li> <li>• Project is able to mobilize follow-up financing for replication and up scaling.</li> </ul>
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## Annex VII: Organizational Structure of Project



## **Annex VIII: Field Visit Summary**

Field study mission started from 9<sup>th</sup> of November 2015. On 9<sup>th</sup> November National and International consultants had meeting to discuss on the evaluation mission plan. On the 10<sup>th</sup> Nov, Evaluation team (ET) had overview meeting with project management office in which Project Manager Mr. Khalil Ahmed and M and documentation Officer Mr. Fahad Bashid Bangash briefed on project activities and various issues related to implementation. On the second half of the same day, ET had meeting with Staffs of Pakistan Meteorological Department where they briefed on their activities related to this project. On the 11<sup>th</sup> November ET had meeting with consultants that were involved in different studies and drafting policy recommendations. In the second half of same day, ET had meeting with Joint Secretary of Ministry of Climate Change who is also National Project Director of GLOF project. On 12<sup>th</sup> November, ET had meeting with UNDP CO team (Mr. Amanullah Khan, Assistant Country Director and Ms Munazza Naqvi, Programme Officer). On 13<sup>th</sup> November, ET had meeting with Director General of Pakistan Meteorological Department and in the afternoon had meeting with Acting Deputy Secretary of EAD. On 14<sup>th</sup> ET had meeting with finance assistant of the project office and also project manager. On 15-16 ET documents that were received after arriving Pakistan and also discussed and planned filed mission. On 17 ET travelled to Chitral Area. On 18<sup>th</sup> and 19<sup>th</sup> Team visited Bindogol valley to observe activities of the project and also interacted with the community members and technicians involved in the project activities. On the same day ET had meeting with DAdministration Office chief in Boni. On 19<sup>th</sup> Team had meeting at Forest office, Meterological center office, Disaser Response Cell at the DC office. On 20<sup>th</sup> International Consultant return to Islamabad and National Consultant visited Gilgit. On 21-22<sup>nd</sup> International Consultant had further meeting with National Project Manager and Finance Assistant of GLOF project and also developed notes on field study. From 22<sup>nd</sup> to 24<sup>th</sup>, National consultant had visited filed sites and had meeting with community members, local government and NGOs related to GLOF project. On 23<sup>rd</sup> International Consultant conducted debriefing to all consultants in Islamabad.

Field visits included visits to spur construction sites, EWS stations and meteorological station at the sites.

## Annex IX: Project Deliverables

Description and Title of Report	Geographic Focus	Completion Date	Name of Author	Other Details
<b>1. Project Reports</b>				
GLOF Project's Inception Workshop Report	Gilgit & Chitral	November 2011	Mr. Faisal Farooq	Individual Consultant
Knowledge, Attitude and Practices (KAP) Studies about Glacial Lake Outburst Floods (GLOF) in Bindo Gol, District Chitral	Bindo Gol, Chitral/KP Province	August 2012	Dr. Amir Nawaz Khan	CDPM University of Peshawar
Socio-economic Impacts of GLOF in Bindo Gol valley, Chitral	Bindo Gol Chitral, KP	September 2012	Dr. Amir Nawaz Khan	CDPM University of Peshawar
A Study on Socio-economic Impacts of GLOFs at Bagrote Valley in Gilgit-Baltistan	Bagrot/Gilgit, Gilgit-Baltistan	August 2012	Dr. Nazir Ahmed Lone	ESD, Karakoram International University
Knowledge, Attitude and Practices (KAP) Studies on GLOFs at Bagrote Valley, Gilgit-Baltistan, Pakistan	Bagrote, Gilgit, GB	September 2012	Dr. Nazir Ahmed Lone	ESD, Karakoram International University
Lurking Mountain Tsunami (complete version); GLOF Documentary of Pakistan	Northern Pakistan	August 2012	Mr. Naveed Ahmad	Media Expert
Literature Review on GLOF Issues; the work done in Pakistan	Pakistan	December 2012	Ms. Noreen Haider	Individual Consultant
GLOF Communication and Awareness Raising Strategy; Pakistan	Pakistan	February 2013	Mr. Shadab Farid Uddin	Individual Consultant
Impact of Glacial Lake Outburst Floods (GLOFs) on Biodiversity and Ecosystems in Bagrote Valley	Bagrot, Gilgit	September 2013	Dr. Bashir Ahmed Wani	Individual Consultant
Impact of Glacial Lake Outburst Floods (GLOFs) on Biodiversity and Ecosystems in Bindo Gol Valley	Bindo Gol, Chitral	September 2013	Dr. Bashir Ahmed Wani	Individual Consultant
Study on the Best Practices and Indigenous Knowledge of GLOF and other Climate Change Induced Disasters in Gilgit, (Gilgit-Baltistan)	Gilgit, GB	September 2013	Dr. Ali Gohar	Individual Consultant
Study on the Best Practices and indigenous Knowledge of GLOF and other Climate Change Induced Disasters in Chitral, KP Province	Chitral, KP	September 2013	Dr. Ali Gohar	Individual Consultant
GLOF Risk Management Manual For the Pakistan GLOF Project (English Version)	Pakistan	September 2013	Mr. Abdul Latif Rao	Individual Expert
GLOF Risk Management Manual For Pakistan GLOF Project (Urdu Version)	Pakistan	September 2013	Mr. Abdul Latif Rao	Individual Expert
GLOF Risk Management Report	Pakistan	September	Mr. Abdul Latif	Individual

(literature review report)		2013	Rao	Expert
GLOF Risk Management Training Manual (English version)	Pakistan	October 2013	LEAD Pakistan	LEAD Pakistan (NGO)
GLOF Risk Management Training Manual (Urdu version)	Pakistan	October 2013	LEAD Pakistan	LEAD Pakistan (NGO)
GLOF Risk Reduction Guidelines for Chitral Khyber Pakhtunkhwa, Pakistan	Chitral, KP	December 2013	Mr. Muhammad Iqbal Khan	Individual Expert
DRM Plan of District Chitral (five-year)	Chitral	December 2013	DDMA Chitral	By District Administration Chitral through Support of Pakistan GLOF Project (PGP)
Five-year DRM Plan of Bindo Gol Valley (five-year)	Bindo Gol	December 2013	DRM Committee, Bindo Gol	By DRMC Bindo Gol through Support of PGP and its Partners
DRM Plan of District Gilgit (five-year)	Gilgit	December 2013	DDMA Gilgit	By District Administration Gilgit through Support of PGP
DRM Plan of Bagrote Valley (five-year)	Bagrote	December 2013	DRM Committee Bagrote	By DDO Bagrote through Support of PGP and its Partners
Developed Integrated Watershed Management Plans of three valleys	Bagrote, Bindogol & Golain	2014 & 2015	Dr. Bashir Hussain Shah	For three valleys
Developed Exit Strategy of the project	Islamabad	2015	Dr. Bashir Ahmed Wani & Mr. Mubashar Karim	For Pakistan GLOF Project
Developed a proposal for replication and scaling-up of the project	Islamabad	2014	Dr. Bashir Ahmed Wani	For MoCC & UNDP
KAP and Socio-economic impact of GLOFs in four valleys (Sosot, Darkut, Boni and Golain)	Gilgit & Chitral	2014	Dr. Ali Gohar	Individual Consultant
Impact Study of GLOF on Biodiversity in four valleys (Sosot, Darkut, Boni and	Gilgit & Chitral	2014	Dr. Bashir Husain Shah	Individual Consultant



Golain)				
Documentation of Best Practices and Lessons learned through GLOF Project	Islamabad	2015	Ms. Mahe Nau Haider	Individual consultant
<b>2. REPORTS PREPARED BY PMD UNDER THE LOA</b>				
Criteria for GLOF Hazard and Vulnerability Risk Assessment in Pakistan	Pakistan	Finalized	Pakistan Meteorological Department (PMD)	Pakistan Meteorological Department through Support of Pakistan GLOF Project under LOA
Report on Existing Early Warning System at Bagrot and Bindo Gol (Drongagh)	Bagrote and Bindo Gol	Finalized	PMD	-do-
Report for establishment of Early Warning System at Bagrot and Bindo Gol and Golain	Bagrote and Bindo Gol	Finalized	PMD	-do-
Scientific Indicators for monitoring GLOF in Pakistan	Pakistan	Finalized	PMD	-do-
Hazard and Vulnerability Risk Assessment (HVRA) of Bagrote and Bindo Gol and Golain valleys	Bagrote, Bindo Gol, Golain	Finalized	PMD	-do-
Draft report on Updated Glacial Lake Inventory of Northern Pakistan	Pakistan	Completed	NARC	-do-
SOPs for operation of the GLOF Early Warning System for Gilgit and Chitral developed	Gilgit & Chitral	Completed	PMD	-do-
Hazard maps of three valleys including all villages developed	Bindogol, Golain & Bagrote	completed	2015	Individual Consultant
<b>3. Documentaries on GLOF, Glacial and Other Climate issues developed by project</b>				
Lurking Mountain Tsunami		2012	Individual Consultant	
A Journey through the Glaciers		2014	Black Box Sounds	
Tackling GLOFs in Pakistan		2015	STEP media firm	

Besides project also produced Posters of various types, leaflets and P-cap, stationary with the awareness message of GLOF project.

## Annex X: List of materials provided to various institutions.

### A. Equipment and materials provided to Various Institutions in Chitral

#### Equipment provided to Deputy Commissioner Office, Chitral.

1	<b>Laptops</b>	5
2	<b>Printer</b>	5
3	<b>UPS + Battery</b>	5
4	<b>Office Table</b>	5
5	<b>Office Chair</b>	16
6	<b>LED TV</b>	1
7	<b>Search Light</b>	20
8	<b>Tents</b>	6
9	<b>LPG Stove and Utensils</b>	6
10	<b>Sleeping Bags</b>	10
11	<b>Climb Light Traveller</b>	10
12	<b>Insulated Jackets</b>	10

#### Radio communications

1	<b>VHF Handsets</b>	Hytra/I Com	10
2	<b>Mobile Units</b>	Hytra/I Com	4
3	<b>Mobile Antenna</b>	Diamond	4
4	<b>Base Station for DERC Control</b>	Hytra/I Com	4
5	<b>Base Antenna</b>	X50 with RG213	6
6	<b>Solar Power System</b>	Chinese with Controller	4
7	<b>Pwer Supply</b>	Ecom Local Manufactur	4
8	<b>Batteries</b>	Exit	6
9	<b>Repeater</b>	Hytra/I Com	1

## Equipment and materials provided to Disaster Risk Management Committee, Bindo Gol Valley

ID	Serial ID	Description/Items	Qty
1	<b>DRMC/GLOF/001-002</b>	Dell Cori-III 61ww 2GB RAM,500GB HD,DVD/R,ATX,19" LCD,Wifi Build	2
2	<b>DRMC/GLOF/003</b>	HP Scanner 2410 S/n E2211	1
3	<b>DRMC/GLOF/004</b>	Panasonic Fax Machine	1
4	<b>DRMC/GLOF/005</b>	Hp 2058DN LAN Printer	1
5	<b>DRMC/GLOF/006</b>	Sony Multimedia with screen 6x6	1
6	<b>DRMC/GLOF/007</b>	Generator 2.1 KVA	1
7	<b>DRMC/GLOF/008</b>	Wacky Talky GP 2000 Motorola	1
8	<b>DRMC/GLOF/009 to 028</b>	Office Chairs	20
9	<b>DRMC/GLOF/029-31</b>	Tables (5'x3')	3
10	<b>DRMC/GLOF/032-33</b>	Cupboards	2
11	<b>DRMC/GLOF/034</b>	Rack	1
12	<b>DRMC/GLOF/035</b>	Conference Table (10'x5')	1
13	<b>DRMC/GLOF/036</b>	Carpet	1
14	<b>DRMC/GLOF/037-38</b>	Wireless Phone	1
15	<b>DRMC/GLOF/039</b>	Office Sign Board	1

## Equipment to Indigenous EWS team

ID	Serial ID	Description/Items
1	<b>DRMC-IWS/GLOF/01-04</b>	Generators
2	<b>DRMC-IWS/GLOF/01-05</b>	Field Tents
3	<b>DRMC-IWS/GLOF/01-06</b>	Emergency Lights
4	<b>DRMC-IWS/GLOF/01-07</b>	Hand Carry Loudspeakers/Amplifiers
5	<b>DRMC-IWS/GLOF/01-08</b>	Wireless Phones
6	<b>DRMC-IWS/GLOF/01-09</b>	Field Gear (Suiting)

## Equipment to Hazard Watch Group

ID	Serial ID	Description/Items	Qty
1	DRMC-HWG/GLOF/01-04	Generators	7
2	DRMC-HWG/GLOF/05-20	Emergency Lights	28
3	DRMC-HWG/GLOF/021-32	First Aid Kit Box	27
4	DRMC-HWG/GLOF/033-44	Tents	24
5	DRMC-HWG/GLOF/45-64	Sleeping Bags	35
6	DRMC-HWG/GLOF/65-104	Field Suiting Gears	70
7	DRMC-HWG/GLOF/105-120	Liver	28
8	DRMC-HWG/GLOF/121-132	Big Hammer	24
9	DRMC-HWG/GLOF/133-164	Spade with handles	62
10	DRMC-HWG/GLOF/165-204	Pickaxe dal with handle	70

## Equipment to Community Based Disaster Risk Cell

ID	Serial ID	Description/Items	Qty
1	DRMC-CBDRC/GLOF/01	Desktop	1
2	DRMC-CBDRC/GLOF/02	Photocopier	1
3	DRMC-CBDRC/GLOF/03	Nikon DSRL camera	1
4	DRMC-CBDRC/GLOF/04-05	UPS's	2
5	DRMC-CBDRC/GLOF/06	External hard Disk (I-TB)	1
6	DRMC-CBDRC/GLOF/07	Heavy Duty Generator	1
7	DRMC-CBDRC/GLOF/07-10	Chain pully /Chain Cuppy	4
8	DRMC-CBDRC/GLOF/11	Solar System (Geysers and lighting)	1
9	DRMC-CBDRC/GLOF/12-13	Rock Drill Machine	2
10	DRMC-CBDRC/GLOF/14-15	Mobile	2
11	DRMC-CBDRC/GLOF/16-20	Flash lights	5
12	DRMC-CBDRC/GLOF/21-25	Heavy Duty hand torchs	5
13	DRMC-CBDRC/GLOF/26-30	Multipurpose Tents	5
14	DRMC-CBDRC/GLOF/31-40	Stricture (emergency purposes)	10
15	DRMC-CBDRC/GLOF/41-60	Chairs	20
16	DRMC-CBDRC/GLOF/61	Conference table (2 piece)	1
17	DRMC-CBDRC/GLOF/62	Multimedia Mount Equip	1
18	DRMC-CBDRC/GLOF/63-64	Gas Heater	2
19	DRMC-CBDRC/GLOF/65-66	Filing Cabinets	2
20	DRMC-CBDRC/GLOF/67-70	First aid box (large size) with medicines	4
21	DRMC-CBDRC/GLOF/71-72	Office Tables	2
22	DRMC-CBDRC/GLOF/73-74	Office Racks	2
23	DRMC-CBDRC/GLOF/75	Networking (duct system)	1
24	DRMC-CBDRC/GLOF/76	Office Cupboard	1
25	DRMC-CBDRC/GLOF/77	Steel Cash Box	1
26	DRMC-CBDRC/GLOF/78-82	Electricity Extensions	5
27	DRMC-CBDRC/GLOF/83	Paper Binding Machine	1
28	DRMC-CBDRC/GLOF/84-88	Soft/White Board	5
29	DRMC-CBDRC/GLOF/89-91	Gas Cylinders with accessories (heating)	3
30	DRMC-CBDRC/GLOF/92	Carpeting with foam	1
31	DRMC-CBDRC/GLOF/93	Office Board	1

### Equipment and Material to Safe Heaven

Area	Description	Qty
Bindo	Fiberglass Portable Toilets( 5gallon)	1
	Qenat	2
	Water Tank (500 Gallons)	1
Bishyandur	Fiberglass Portable Toilets( 5gallon)	2
	Qenat	1
	Water Tank (500 Gallons)	1
Blakh Drungah	Fiberglass Portable Toilets( 5gallon)	1
	Qenat	2
	Water Tank (500 Gallons)	0
Doqandur Eid Gah	Fiberglass Portable Toilets( 5gallon)	2
	Qenat	1
	Water Tank (500 gallons)	1
Drungah Gazlasht	Fiberglass Portable Toilets( 5gallon)	2
	Qenat	2
	Water Tank (500 Gallons)	1
Oxagh	Fiberglass Portable Toilets( 5gallon)	1
	Qenat	1
	Water Tank (500 Gallons)	1
Shitragh Gohkir	Fiberglass Portable Toilets( 5gallon)	1
	Qenat	1
	Water Tank (500 Gallons)	1
Shogram Bala	Fiberglass Portable Toilets( 5gallon)	2
	Qenat	2
	Water Tank (500 Gallons)	1
Shogram Payen	Fiberglass Portable Toilets( 5gallon)	2
	Qenat	2
	Water Tank (500 Gallons)	1
<b>Grand Total</b>		
	<b>Fiberglass Portable Toilets( 5gallon)</b>	<b>14</b>
	<b>Qenat</b>	<b>14</b>
	<b>Water Tank (500 Gallons)</b>	<b>8</b>

### Equipment to Disabled Persons

ID	Serial ID	Description/Items	Qty
1	DRMC-DE/GLOF/01-10	Wheel Chairs	10
2	DRMC-DE/GLOF/011-22	Crutches	12
3	DRMC-DE/GLOF/023-34	Walking stands	12
4	DRMC-DE/GLOF/35-64	Hearing Aids	20
5	DRMC-DE/GLOF/65-76	White Canes	12
6	DRMC-DE/GLOF/77-88	Mobile Phones with special software	12
7	DRMC-DE/GLOF/89-100	Magnifying Glass	12
8	DRMC-DE/GLOF/101-120	Eye glasses	20
9	DRMC-DE/GLOF/121-132	Talking watches	12
10	DRMC-DE/GLOF/0131-150	Torches	20

### Equipment and Materials provided to CBDRC, Golain Valley.

S#	Serial ID	Items	Specification	Quantity
1	DRMC/GLOF/001	Generator	Honda Generator 2 KVA	1
2	DRMC/GLOF/002	Printer (three in one)	Laserjet M1212nf MFP	1
3	DRMC/GLOF/003	Camera	Nikon D3200	1
4	DRMC/GLOF/004-05	Desktop	HP Corei 3	2
5	DRMC/GLOF/006	Multimedia	Panasonic PT-LB1 (2200L)	1
6	DRMC/GLOF/007-10	Mobiles for Field workers	Samsang DOUS	4
7	DRMC/GLOF/011-15	Flash lights	GEEPAS	5
8	DRMC/GLOF/016-25	Field Tents	Higher Pakistan. In Coated Nylone Cloth.	10
9	DRMC/GLOF/026-35	Stricture (emergency purposes)	Marks Pakistan	10
10	DRMC/GLOF/036-40	First aid box (large size)	Higher Pakistan or any other	5
11	DRMC/GLOF/041-42	Hand carry mega phones	-	2
12	DRMC/GLOF/043	Photocopier	Panasonic Digital Photo Copier DP-8060	1
13	DRMC/GLOF/044-45	Revolving Chair	-	2
14	DRMC/GLOF/046-65	Chairs	Locally wood made	20
15	DRMC/GLOF/066-68	Tables (two small and one large size)	Locally wood made	3
16	DRMC/GLOF/069-70	Office Racks	Locally wood made	2
17	DRMC/GLOF/071	Filing Cabinets	Locally wood made	1
18	DRMC/GLOF/072	Office Cupboard	Locally wood made	1
19	DRMC/GLOF/073	Carpeting with foam	-	-
20	DRMC/GLOF/074	Curtains etc	-	-
21	DRMC/GLOF/075-79	Electricity Extensions	-	5
22	DRMC/GLOF/080-84	Soft/White Board	-	2
23	DRMC/GLOF/085	Networking (duct system)	-	-
24	-	Website (www.drmcgolain.pk)	-	1

### Equipment to Hazard Watch Group Golain

S#	Serial ID	Items	Specification	Quantity
1	DRMC-HWG/GLOF/001	Generator	Power 8VA (China made)	8
2	DRMC-HWG/GLOF/002-33	Emergency lights	China Made (5000 Lumens)	32
3	DRMC-HWG/GLOF/034-73	First aid kits		40
4	DRMC-HWG/GLOF/074-103	Sleeping bags	Mummy shape/3 Seasons	40
5	DRMC-HWG/GLOF/104-135	Tents	Half Dome, 2 Person tent	32
6	DRMC-HWG/GLOF/136-205	Field suiting/gears	Equipments Pakistan	80
7	DRMC-HWG/GLOF/206-237	Liver	-	32
8	DRMC-HWG/GLOF/238-269	Big Hammer for boulder smashing	-	32
9	DRMC-HWG/GLOF/270-349	Bailcha with handle	-	80
10	DRMC-HWG/GLOF/350-429	Kudal with handle	-	80

### Equipment to Safe Heavens in Golain

Area	Description	Qty
Istoor	Fiberglass Portable Toilets( 5gallon)	2
	Qenat	2
	Water Tank (500 Gallons)	1
Birmogh	Fiberglass Portable Toilets( 5gallon)	2
	Qenat	2
	Water Tank (500 Gallons)	1
Golen Payeen	Fiberglass Portable Toilets( 5gallon)	0
	Qenat	2
	Water Tank (500 Gallons)	1
Jangal	Fiberglass Portable Toilets( 5gallon)	2
	Qenat	2
	Water Tank (500 gallons)	1
Shamkan	Fiberglass Portable Toilets( 5gallon)	2
	Qenat	2
	Water Tank (500 Gallons)	1
<b>Grand Total</b>		
	Fiberglass Portable Toilets( 5gallon)	8
	Qenat	10
	Water Tank (500 Gallons)	5

### Equipment Provided to Forest Department Chitral

S No.	Items	Qty
1	Laptop	1
2	Desktop with LED	3
3	Printer	1
4	Multimedia	1
5	Furnitur	
6	UPS	1
7	Walky Talky	5
8	Voltage Regulator	1

### Equipment Pakistan Meteriology Department office in Chitral

S No	Particulars	Specification	Qty
1	Desktop with LED	Core i3 HP/Dell	2
2	Printer (3in 1)	HP Lj 1100x Printer	1
3	Generator	Honda 1400w	1
4	Hand Torches	GEEPASS	3
5	Digital Camera	Sony/Nikon	1
6	Stabilizer	Univeral 4000w	1
7	GPS	Germin/Etrax	2
8	Racks,Cupboards and Chairs	Lumpsum	
9	Networking	Lumpsum	

### Equipment to Assistant Commissioner Office, Booni

ID	Serial ID	Items	Specification	Qty
1	TERC/GLOF-01	Laptops	Core i5 HP/Dell	1
2	TERC/GLOF-02/03	Desktops With LCD	Cori3 HP or Dell System	2
3	TERC/GLOF-04	Printer	HP LaserJet 3 in 1 (1132 printer)	1
4	TERC/GLOF-05-07	Binoculars	Olympus	3
5	TERC/GLOF-08	Generator	5 KVA	1
6	TERC/GLOF-09-16	Walky talkies with accessories	-	8
7	TERC/GLOF-17	Digital Camera	Sony	1
8	TERC/GLOF-18-32	Sleeping bags	Higher Pakistan	15
9	TERC/GLOF-33-47	Field tents	Higher Pakistan	15
10	TERC/GLOF-48-62	Mess Tents/Family tents	Higher Pakistan	15
11	TERC/GLOF-63-77	Field Gears for field staff	Higher Pakistan	20
12	TERC/GLOF-78-87	Search Lights	-----	10

### Equipment provided to Wildlife Office Booni



Serial ID	Items	Description/Items	Qty
WL/GLOF-01	Desktop	Core i3 HP/Dell	1
WL/GLOF-02	Printer	HP LJ pro P1102	1
WL/GLOF-03-07	Binoculars	Olympus/Nikon	5
WL/GLOF-08-12	GPS	Germin	5
WL/GLOF-13-14	Digital Camera	Sony	2
WL/GLOF-15-22	Sleeping Bags	Higher Pakistan	8
WL/GLOF-23-26	Field Tents	Higher Pakistan	4

## B. Equipment and Material provided to various institutions in Gilgit

### Equipment Provided to CBDRC in Chuni Bar

S#	Particulars	Specification	Unit	Qty
1	Emergency Light	North Face	No	6
2	Field tent for Rescue team	Higher (2 men tent)	No	6
3	Walkie talkie with accessories	I-com with base	No	6
4	Stretchers	North face	No	6
5	Hand torch	North face	No	6
6	Sleeping bag	North face (3 season- 10)	No	6
7	Life jacket	17 kg Higher	No	6
8	Field suiting	Higher Company	No	6
9	Fire Extinguisher	Habib & sons (co2)	No	6
10	Search & rescue kits	North face	kit	2
11	First Aid Kit	North face	kit	6
12	Folding stair/ Ladder	North Face	No	2
13	Water Pump with gen sets	MS Habib Latest	No	2
14	Rope 11mm & 7mm	Summit		12

### Equipment provided to CBDRC of Bari Bar Bagrote

S#	Particulars	Specification	Unit	Qty
1	Emergency Light	North Face	No	12
2	Field tent for Rescue team	Higher (2 men tent)	No	24
3	Walkie talkie with accessories	I-com with base	No	12
4	Stretchers	North face	No	10
5	Hand torch	North face	No	24
6	Sleeping bag	North face (3 season- 10)	No	24
7	Life jacket	17 kg Higher	No	24
8	Field suiting	Higher Company	No	12
9	Fire Extinguisher	Habib & sons (co2)	No	3
10	Search & rescue kits	North face	kit	5
11	First Aid Kit	North face	kit	5
12	Folding stair/ Ladder	North Face	No	3
13	Water Pump with gen sets	MS Habib Latest	No	3
14	Rope 11mm & 7mm	Summit		18

### Office Equipment provided to CBDRC of Bari Bar

1	Generotor (Heavy duty) 400 watt, 120/240V provides 5,000 watts for 10 secs to start larger equipment Honda commercial iGX engine Full GFCI protection long run time- up tp 16 hrs 120/220 selector switch 2 wheel kit & lift hook	Honda EB4000	No	1
2	Heater turbo for winters	National	No	2
3	Stabilizers fast stablizer 5000 watts	National	No	1
4	Office tables	6*4	No	2
5	Conference Table	3*6	No	1
6	Conference Chairs	ISM	No	24
7	Racks to store the stock		No	1
8	Bed with beddings		Set	2
1	Generotor (Heavy duty) 400 watt, 120/240V provides 5,000 watts for 10 secs to start larger equipment Honda commercial iGX engine Full GFCI protection long run time- up tp 16 hrs 120/220 selector switch 2 wheel kit & lift hook	Honda EB4000	No	1
2	Heater turbo for winters	National	No	2
3	Stabilizers fast stablizer 5000 watts	National	No	1
4	Office tables	6*4	No	2
5	Conference Table	3*6	No	1
6	Conference Chairs	ISM	No	24
7	Racks to store the stock		No	1
8	Bed with beddings		Set	2

### Equipment provided to CBDRC of Chuni Bar Bagrote

S#	Particulars	Specification	Unit	Qty
1	Emergency Light	North Face	No	6
2	Field tent for Rescue team	Higher (2 men tent)	No	6
3	Walkie talkie with accessories	I-com with base	No	6
4	Stretchers	North face	No	6
5	Hand torch	North face	No	6
6	Sleeping bag	North face (3 season- 10)	No	6
7	Life jacket	17 kg Higher	No	6
8	Field suiting	Higher Company	No	6
9	Fire Extinguisher	Habib & sons (co2)	No	6
10	Search & rescue kits	North face	kit	2
11	First Aid Kit	North face	kit	6
12	Folding stair/ Ladder	North Face	No	2
13	Water Pump with gen sets	MS Habib Latest	No	2
14	Rope 11mm & 7mm	Summit		12

### Equipment Provided to CBDRC of Bari Bar Bagrote

S#	Particulars	Specification	Unit	Qty
1	Emergency Light	North Face	No	12
2	Field tent for Rescue team	Higher (2 men tent)	No	24
3	Walkie talkie with accessories	I-com with base	No	12
4	Stretchers	North face	No	10
5	Hand torch	North face	No	24
6	Sleeping bag	North face (3 season- 10)	No	24
7	Life jacket	17 kg Higher	No	24
8	Field suiting	Higher Company	No	12
9	Fire Extinguisher	Habib & sons (co2)	No	3
10	Search & rescue kits	North face	kit	5
11	First Aid Kit	North face	kit	5
12	Folding stair/ Ladder	North Face	No	3
13	Water Pump with gen sets	MS Habib Latest	No	3
14	Rope 11mm & 7mm	Summit		18

### Support provided to Strengthening Conference Hall at Forest & Environment Complex, Gilgit.

S/No	Resources	Specs	Qty
1	Sound System	Conference halla ddress system	1
2	DSLR Camera	NIKON 24.2 MP	1
3	Split AC	Heir 1.5 Ton reversible	3
4	Water Cooler	Orient Hot and Cold	1
5	Laptop	Sony Vaio	1
6	UPS	2000 Watt	1
7	Battery	Exide 165 Amp	2
8	Stabilizer	8000 watt	4
9	LED TV	Samsung 43 "	1
10	Misc.	Lumpsump	1

### Support material to Disabled and Elderly Person in Bagrote Valley

S/No	PARTICULARS	Unit
1	Wheel Chairs	12
2	Crutches	12
3	Walking Stands	12
4	Walker Frames	12
5	Hearing Aids	12
6	White Canes	12

### Support provided to District Emergency Response cell in Gilgit

S/No	Resources	Specs	Qty
1	Emergency Lights	North Face	12
2	Field Tents for rescue team	Higher (2 men tents)	24
3	Walky talkies with accessories	I-Com	12
4	Satellite cell phone	Thuraya	2
5	Stretchers	North Face	12
6	Hand torches	North Face	24
7	Sleeping bags	North Face (3 season -10)	24
8	Life jackets	17 kg Higher	24
9	Field suiting	Higher Company	12
10	Fire extinguisher	Habib and Sons (CO2)	3
11	Search & Rescue Kits*	North Face	5
12	First aid Kits	North Face	5
13	Folding Stairs / ladder	North Face	3
14	Water pumps with gen sets	MS Habib latest	3
15	Rope 11mm and 7mm	Summit	6 each

### Support to CBDMC office in Bagrote

S/No	Description	Qty
1	Computer intel Core i3 3GHz Processor, 160 GB 19" Wide Screen	2
2	Printer HP Laser Jet 2055D	1
3	Fax Machine Panasonic Auto Cutter	1
4	Scanner negative & Positive, A4 Size	1
5	Generator Model no JD2800 DXCE IKV	1
6	Wireless phone	2
7	Multimedia view sonic 45sft	1
8	Office chair seat back	20
9	Office table 2*5*3.5	3
10	Office Rack 3*2 (1/2). 3*4	3
11	Conference table 4*8	1
12	Curtains	7
13	Carpet 336sft	1
14	Liver 10 kg	24
15	Hammer 12 pound with handle	18
16	Bailcha with handle	48
17	Kuddal with handle	60
18	Generator JD cap 650	6
19	Emergency Lights China chargeable	24
20	First Aid kit with medicines	24
21	Tents 5'*3'*7' hald dome	26
22	Sleeping bags 5'*9'*2 season mummy shape	30
23	Field suiting gear	60
24	Generators JD 950, 750	8
25	Emergency Lights China chargeable	8
26	Wireless phone	10
27	Field suiting gear	16
28	Walkie Talkie	1
29	Website	1

#### Support provided to Environment Protection Authority, Gilgit.

S/No	Description Of ITEMS	S.No	Qty
1	Dell Vostro 430 TN with 17" LCD Dell Processor Intl. Core GB RAM HDD 500GB	BGS X 62S	1
2	Dell Vostro 430 TN with 17" LCD Dell Processor Intl. Core GB RAM HDD 500GB	8CSX62S	1
3	UPS Riello DVT 200, @KVA 2000 VA/1350 W	ML33CLC1000	1
4	Medium and servers, Dell POWEREDGE R7 Rack mount Server-2-processor Intel, Xeron E5630 2.53GHz 1333 MHz, 1x6 backplane for 3.5 HDD with 17" LCD	JV2d82S	1
5	DELL OptiPlex d990 with dell LED 18.5 Intel core 15 processor 2400	9MPTCC2S	1

#### Equipment Provided to Glgit Baltistan Disaster Management Authority

S/No	Name Of ITEM, MODEL and SPECS	Unit
1	Desktop (latest version) OptiPlex desktop computer- Intel core i7 3.40Ghz-mini0-tower by Dell, along with genuine windows (Branded)	3
2	Laptop (HP) Intel Core i7-4702QM 2.2 Ghz Turbo boost up 3.2 Ghz (4Th generation)	1
3	Heavy duty printer HP laser jet Pro 400 m 40 IDN	1
4	Printer (Normal) office jet H470b	1
5	Multimedia Panasonic Pt-LX26EA (2600L)	1
6	Power generator Honda 5 to 8 kva electric gasoline power generator	1
7	Fax (Latest version) Panasonic kx-FT981	2
8	Rescue KITS (Higher Company) One bag, Hard helmet, Life jacket, Industrial equipment, Warning tap, Cloth gloves, Rubber glasses, Lather Cloves, Water proof glass, Rubber long shoe, First Aid box, Cutter plaus set, High density emergency roof	7
9	Hygiene KIT Face wash lotion, Bath soap 02 Nos, Tooth brush 02 Nos, Towel 1x small, Tooth paste, Comb, Tissue pocket pack (Packed in small bags)	100
10	Search/Flood light Search light (Re-chargeable battery along with electrical charger, mobile charger)	100
11	Walkie-talkie sets Motorola with base set and complete accessories	10
12	Refrigerator (Dawlance 91996R Reflection)	1
13	Emergency Lights (Phillips portable)	50
14	Digital Camera (DSC-Rx 100)	6

### Equipment provided to strengthen EWS in Sinakir of Bogrote Valley

S/No	Description	Specification	Unit
1	Generator	JD, Capacity 650, copper winding	1
2	Emergency light	Rechargeable China made	1
3	Tents	Half dome, 2 persons size 5'*3"*7', weight 3-2.5 kg	1
4	Walkie talkie	For communication during emergency	1
5	Field suiting / Gears	High Altitude Jacket, trouser, inner, sweater, gloves (rain & snow wear)	1
6	Wireless Phone	For communication and information sharing	1

### Equipment provided to strengthen EWS in Datuchi of Bogrote Valley

S/No	Description	Specification	Unit
1	Generator	JD, Capacity 650, copper winding	1
2	Emergency light	Rechargeable China made	1
3	Tents	Half dome, 2 persons size 5'*3"*7', weight 3-2.5 kg	1
4	Walkie talkie	For communication during emergency	1
5	Field suiting / Gears	High Altitude Jacket, trouser, inner, sweater, gloves (rain & snow wear)	1
6	Wireless Phone	For communication and information sharing	1

### Equipment support to Hamaran Village EWS

S/No	Description	Specification	Unit
1	Generator	JD, Capacity 650, copper winding	1
2	Emergency light	Rechargeable China made	1
3	Tents	Half dome, 2 persons size 5'*3"*7', weight 3-2.5 kg	1
4	Walkie talkie	For communication during emergency	1
5	Field suiting / Gears	High Altitude Jacket, trouser, inner, sweater, gloves (rain & snow wear)	1
6	Wireless Phone	For communication and information sharing	1

### Equipment support to Hoppai Village EWS

S/No	Description	Specification	Unit
1	Generator	JD, Capacity 650, copper winding	1
2	Emergency light	Rechargeable China made	1
3	Tents	Half dome, 2 persons size 5'*3"*7', weight 3-2.5 kg	1
4	Walkie talkie	For communication during emergency	1
5	Field suiting / Gears	High Altitude Jacket, trouser, inner, sweater, gloves (rain & snow wear)	1
6	Wireless Phone	For communication and information sharing	1

### Equipment support to Bulchi Village EWS

S/No	Description	Specification	Unit
1	Generator	JD, Capacity 650, copper winding	1
2	Emergency light	Rechargeable China made	1
3	Tents	Half dome, 2 persons size 5'*3"*7', weight 3-2.5 kg	1
4	Walkie talkie	For communication during emergency	1
5	Field suiting / Gears	High Altitude Jacket, trouser, inner, sweater, gloves (rain & snow wear)	1
6	Wireless Phone	For communication and information sharing	1

### Equipment support to Farfooh Village EWS

S/No	Description	Specification	Unit
1	Generator	JD, Capacity 650, copper winding	1
2	Emergency light	Rechargeable China made	1
3	Tents	Half dome, 2 persons size 5'*3"*7', weight 3-2.5 kg	1
4	Walkie talkie	For communication during emergency	1
5	Field suiting / Gears	High Altitude Jacket, trouser, inner, sweater, gloves (rain & snow wear)	1
6	Wireless Phone	For communication and information sharing	1

### Equipment support to Chira Village EWS

S/No	Description	Specification	Unit
1	Generator	JD, Capacity 650, copper winding	1
2	Emergency light	Rechargeable China made	1
3	Tents	Half dome, 2 persons size 5'3"*7', weight 3-2.5 kg	1
4	Walkie talkie	For communication during emergency	1
5	Field suiting / Gears	High Altitude Jacket, trouser, inner, sweater, gloves (rain & snow wear)	1
6	Wireless Phone	For communication and information sharing	1

### Equipment provided to Hazard Watch Group in Gircha Village of Bagrote Valley

S/No	Description	Specification	Unit
1	Liver	10 kg with 5 feet	4
2	Big Hammer	12 pound with handle	3
3	Bilcha with Handle	China made with handle	8
4	Kudal with handle	China made with handle	10
5	Generator	JD, capacity 650, copper made	1
6	Emergency Light	Rechargeable China made	4
7	First Aid Kits	Box with size 8*14" with medicine	4
8	Tents	Half Dome, 2 persons size 5*3*7', weight 3-2.5kg	3
9	Sleeping Bags	2 season mummy shape, size 5*9", weight 1.5kg	5
10	Field suiting/Gears	High altitude jacket, trouser, inner, sweater, gloves (rain & snow wear)	10

### Equipment provided to Hazard Watch Group in Darija Village of Bagrote valley

S/No	Description	Specification	Unit
1	Liver	10 kg with 5 feet	4
2	Big Hammer	12 pound with handle	3
3	Bilcha with Handle	China made with handle	8
4	Kudal with handle	China made with handle	10
5	Generator	JD, capacity 650, copper made	1
6	Emergency Light	Rechargeable China made	4
7	First Aid Kits	Box with size 8*14" with medicine	4
8	Tents	Half Dome, 2 persons size 5*3*7', weight 3-2.5kg	3
9	Sleeping Bags	2 season mummy shape, size 5*9", weight 1.5kg	5
10	Field suiting/Gears	High altitude jacket, trouser, inner, sweater, gloves (rain & snow wear)	10

### Equipment provided to Hazard Watch Group in Sat Village of Bagrote valley

S/No	Description	Specification	Unit
1	Liver	10 kg with 5 feet	4
2	Big Hammer	12 pound with handle	3
3	Bilcha with Handle	China made with handle	8
4	Kudal with handle	China made with handle	10
5	Generator	JD, capacity 650, copper made	1
6	Emergency Light	Rechargeable China made	4
7	First Aid Kits	Box with size 8*14" with medicine	4
8	Tents	Half Dome, 2 persons size 5*3*7', weight 3-2.5kg	3
9	Sleeping Bags	2 season mummy shape, size 5*9", weight 1.5kg	5
10	Field suiting/Gears	High altitude jacket, trouser, inner, sweater, gloves (rain & snow wear)	10

### Equipment provided to Hazard Watch Group in Ghosonar Village of Bagrote valley



S/No	Description	Specification	Unit
1	Liver	10 kg with 5 feet	4
2	Big Hammer	12 pound with handle	3
3	Bilcha with Handle	China made with handle	8
4	Kudal with handle	China made with handle	10
5	Generator	JD, capacity 650, copper made	1
6	Emergency Light	Rechargeable China made	4
7	First Aid Kits	Box with size 8*14" with medicine	4
8	Tents	Half Dome, 2 persons size 5*3*7', weight 3-2.5kg	3
9	Sleeping Bags	2 season mummy shape, size 5*9", weight 1.5kg	5
10	Field suiting/Gears	High altitude jacket, trouser, inner, sweater, gloves (rain & snow wear)	10

#### Equipment provided to Hazard Watch Group in Khama Village of Bagrote valley

S/No	Description	Specification	Unit
1	Liver	10 kg with 5 feet	4
2	Big Hammer	12 pound with handle	3
3	Bilcha with Handle	China made with handle	8
4	Kudal with handle	China made with handle	10
5	Generator	JD, capacity 650, copper made	1
6	Emergency Light	Rechargeable China made	4
7	First Aid Kits	Box with size 8*14" with medicine	4
8	Tents	Half Dome, 2 persons size 5*3*7', weight 3-2.5kg	3
9	Sleeping Bags	2 season mummy shape, size 5*9", weight 1.5kg	5
10	Field suiting/Gears	High altitude jacket, trouser, inner, sweater, gloves (rain & snow wear)	10

#### Equipment provided to Hazard Watch Group in Taisote Village of Bagrote valley

S/No	Description	Specification	Unit
1	Liver	10 kg with 5 feet	4
2	Big Hammer	12 pound with handle	3
3	Bilcha with Handle	China made with handle	8
4	Kudal with handle	China made with handle	10
5	Generator	JD, capacity 650, copper made	1
6	Emergency Light	Rechargeable China made	4
7	First Aid Kits	Box with size 8*14" with medicine	4
8	Tents	Half Dome, 2 persons size 5*3*7', weight 3-2.5kg	3
9	Sleeping Bags	2 season mummy shape, size 5*9", weight 1.5kg	5
10	Field suiting/Gears	High altitude jacket, trouser, inner, sweater, gloves (rain & snow wear)	10

#### Equipment provided to Hazard Watch Group in Bichar Village of Bagrote valley

S/No	Description	Specification	Unit
1	Liver	10 kg with 5 feet	4
2	Big Hammer	12 pound with handle	3
3	Bilcha with Handle	China made with handle	8
4	Kudal with handle	China made with handle	10
5	Generator	JD, capacity 650, copper made	1
6	Emergency Light	Rechargeable China made	4
7	First Aid Kits	Box with size 8*14" with medicine	4
8	Tents	Half Dome, 2 persons size 5*3*7', weight 3-2.5kg	3
9	Sleeping Bags	2 season mummy shape, size 5*9", weight 1.5kg	5
10	Field suiting/Gears	High altitude jacket, trouser, inner, sweater, gloves (rain & snow wear)	10

**List with equipment that were installed in the target valleys.**

**Automatic Weather Stations =5**

**Discharge Measuring Equipment =6**

**Automatic Rain Gauges = 5**

**Lake Level Monitoring Devices = 2**

**Automatic Cameras = 2**

**Auto Alert System = 1**

**List of the Equipment/Items/Software provided to PMD.**

- **Ground Penetrating Radar**
- **Ordinary and Differential GPS**
- **Ice Drill**
- **ArcGIS/ ArcInfo Software**
- **eCognition Developer Software**
- **Laptops**
- **PCs**
- **Printers**
- **Diesel Generator 601KVA**
- **Photocopier**
- **Servers/ Storage devices**
- **Personal Gears**
- **Digital Cameras (Video and Still)**
- **Flow meter**
- **Water Quality Probe**
- **Satellite Imagery**

## **Annex XI: List of References**

- AF Concept and/or Proposal. Project Document Revised Final Version April 26th 2011
- Inception Report, Report of the Inception Phase and Inception Workshop, organised on 15-17 September 2011.
- Annual Progress Report 2012
- Annual Progress Report 2013
- Annual Progress Report 2014
- Quarterly Report January-March 2013
- Quarterly Report April-June 2013
- Quarterly Report July-September 2013
- Quarterly Report October-December 2013
- Quarterly Report January-March 2014
- Quarterly Report April-June 2014
- Quarterly Report July-September 2014
- Quarterly Report October-December 2014
- Quarterly Report January-March 2015
- Annual Work Plans 2012, 2013, 2014 and 2015
- Minutes of the 1st, 2nd, 3rd and 4th PSC Meetings
- Mid-Term Review Report

## Annex XII: Evaluation Questions

Evaluation Criteria Questions	Indicators	Source	Methodology
<b>Relevance: How does the project relate to the main objectives of the AF focal area, and to the environment and development priorities at local, regional and national levels?</b>			
<ul style="list-style-type: none"> <li>• How have the project beneficiaries been satisfied with the project deliverables and outcomes?</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthened Institution capacities to implement policies, plans and investment that prevent human and material losses from GLOF events in vulnerable areas of Northern Pakistan.</li> <li>• Improved access of disaster management planers and policy makers to knowledge, information and research on GLOF risks.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-Term Evaluation Report</li> <li>• News Papers</li> </ul>	<ul style="list-style-type: none"> <li>• Individual interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> </ul>
<ul style="list-style-type: none"> <li>• How the target beneficiaries and environment benefited from the project deliverables? Is project relevant to UNDP/AF and Government of Pakistan policy and actions related to the climate change?</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced human and material losses in vulnerable communities in the Northern areas of Pakistan through GLOF early warning and other adaptation measures.</li> <li>• Activities relevant to UNDP/AF and Government Priorities.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-Term Evaluation Report</li> <li>• News Papers</li> <li>• UNDP/AF/Govt. policy documents.</li> </ul>	<ul style="list-style-type: none"> <li>• Individual interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> <li>• FGD's</li> </ul>
<b>Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?</b>			
<ul style="list-style-type: none"> <li>• Have the planned purpose and component objectives, outputs and activities been achieved?</li> <li>• What are the reported achievements and facts on the ground?</li> </ul>	<ul style="list-style-type: none"> <li>• Climate Change Adaptation and Mitigation Strategies and Action Plan Developed and piloted at local levels by federal and provincial governments, private sector, academia, and civil society women's groups involved in the project activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-Term Evaluation Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> <li>• FGD's</li> </ul>

Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
<ul style="list-style-type: none"> <li>• Has the project done what it was set for?</li> <li>• Were inputs (resources and time) used in the best possible way to achieve outcomes?</li> </ul>	<ul style="list-style-type: none"> <li>• Developed human and technical capacities of the public institutions to understand and address immediate GLOF risks for vulnerable communities in Northern Pakistan.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-Term Evaluation Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> <li>• FGD's</li> </ul>
<ul style="list-style-type: none"> <li>• How the realised outputs were delivered or why expected outputs failed in some cases?</li> <li>• Was there other option to perform differently to improve implementation and thereby maximise impact at an acceptable and sustainable cost?</li> <li>• What and why the proposed changes are needed?</li> </ul>	<ul style="list-style-type: none"> <li>• To enable vulnerable local communities in the Northern Area of Pakistan to better understand and respond to the GLOF risks and thereby adapt to the growing climate change pressures.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and quarterly Reports</li> <li>• Mid-term Evaluation Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> <li>• FGD's</li> </ul>
<ul style="list-style-type: none"> <li>• To what extent was the process cost-effective?</li> </ul>	<ul style="list-style-type: none"> <li>• Project was implemented efficiently following norms and standard.</li> </ul>	<ul style="list-style-type: none"> <li>• Audit report</li> <li>• Financial statement</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of financial reports and discussion with project team.</li> </ul>
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
<ul style="list-style-type: none"> <li>• What has been put in place to ensure continuity of the project (financial, institutional arrangements, socio-economic programs)?</li> </ul>	<ul style="list-style-type: none"> <li>• Human and technical capacities of the public institutions developed to understand and address immediate GLOF risks for vulnerable communities in Northern Pakistan.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-term Evaluation Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> <li>• FGD's</li> </ul>

<ul style="list-style-type: none"> <li>• What are the environmental risk assessments to sustain long term project results put in place to sustain the project in future?</li> </ul>	<ul style="list-style-type: none"> <li>• Vulnerable local communities in the Northern Areas of Pakistan were knowledgeable with better understanding to respond to the GLOF risks and thereby adapt to the growing climate change pressure.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-term Evaluation Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> <li>• FGD's</li> </ul>
<p>Impact: Are there indications that the project has contributed to, or enabled progress towards, reduced environmental stress and/or improved ecological status?</p>			
<ul style="list-style-type: none"> <li>• What difference has the project made to-date?</li> </ul>	<ul style="list-style-type: none"> <li>• Adaptive capacity enhanced to prevent climate change-induced GLOF disasters in Pakistan</li> </ul>	<ul style="list-style-type: none"> <li>• Annual and Quarterly Reports</li> <li>• Mid-term Evaluation Report</li> </ul>	<ul style="list-style-type: none"> <li>• Individual Interviews</li> <li>• Desk Reviews</li> <li>• Reports</li> <li>• FGD's</li> </ul>
<ul style="list-style-type: none"> <li>• What are the projected outcomes of the outputs registered?</li> </ul>	<ul style="list-style-type: none"> <li>• Expected outcomes of the outputs observed.</li> </ul>	<ul style="list-style-type: none"> <li>• Reports</li> <li>• Field observation</li> </ul>	<ul style="list-style-type: none"> <li>• FGD</li> <li>• Field observation</li> <li>• Individual Interviews</li> </ul>
<ul style="list-style-type: none"> <li>• How can the impact be improved?</li> </ul>	<ul style="list-style-type: none"> <li>• Shortcomings were identified for improvement and planned to replicate in other areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Reports</li> <li>• Field assessment for evidence</li> <li>• Talking to beneficiaries</li> </ul>	<ul style="list-style-type: none"> <li>• Focus group discussion</li> <li>• Field observations</li> <li>• Review of project reports and documents</li> </ul>
<ul style="list-style-type: none"> <li>• How effective was the communication so that other organisations interested are aware? (This helps to find interest for replication)</li> </ul>	<ul style="list-style-type: none"> <li>• Various organisations were aware of the system.</li> </ul>	<ul style="list-style-type: none"> <li>• Meeting with different relevant organisations.</li> <li>• Distribution of information material to different organisations.</li> </ul>	<ul style="list-style-type: none"> <li>• Meeting with various line agencies</li> </ul>

# Annex XIII: Evaluation Consultant Agreement Document

## ANNEX E: EVALUATION CONSULTANT CODE OF CONDUCT AND AGREEMENT FORM

### Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

<b>Evaluation Consultant Agreement Form<sup>1</sup></b>	
Agreement to abide by the Code of Conduct for Evaluation in the UN System	
Name of Consultant: <u>Arun Rijal</u>	
Name of Consultancy Organization (where relevant): _____	
I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.	
Signed at <u>placeonline</u>	Kathmandu, 15 November 2015
Signature: _____	



## EVALUATION CONSULTANT CODE OF CONDUCT AND FORM

### Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

<b>Evaluation Consultant Agreement Form<sup>1</sup></b>	
Agreement to abide by the Code of Conduct for Evaluation in the UN System	
Name of Consultant: <u>Jawad Ali</u>	
Name of Consultancy Organization (where relevant): _____	
I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.	
Signed at <u>placeonline</u>	Kathmandu, 15 November 2015
Signature: _____	

## Annex XIII: Evaluation Criteria

### i) Criteria used to evaluate the Project by the Final Evaluation Team

<b>Highly Satisfactory (HS)</b>	Project is expected to achieve or exceed <b>all</b> its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as “good practice”.
<b>Satisfactory (S)</b>	Project is expected to achieve <b>most</b> of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.
<b>Marginally Satisfactory (MS)</b>	Project is expected to achieve <b>most</b> of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve <b>some</b> of its major global environmental objectives or yield some of the expected global environment benefits.
<b>Marginally Unsatisfactory (MU)</b>	Project is expected to achieve <b>some</b> of its major global environmental objectives with major shortcomings or is expected to achieve only <b>some</b> of its major global environmental objectives.
<b>Unsatisfactory (U)</b>	Project is expected <b>not</b> to achieve <b>most</b> of its major global environment objectives or to yield any satisfactory global environmental benefits.
<b>Highly Unsatisfactory (U)</b>	The project has failed to achieve, and is <b>not</b> expected to achieve, <b>any</b> of its major global environment objectives with no worthwhile benefits.

### ii) Scale used to evaluate the sustainability of the Project

Likely (L)	There are no risks affecting this dimension of sustainability.
Moderately Likely (ML)	There are moderate risks that affect this dimension of sustainability.
Moderately Unlikely (MU)	There are significant risks that affect this dimension of sustainability.
Unlikely (U)	There are severe risks that affect this dimension of sustainability.

### iii) Rating scale for outcomes and progress towards “intermediate states”

<b>Outcome Rating</b>	<b>Rating on progress toward Intermediate States</b>
<b>D:</b> The project’s intended outcomes were not delivered	<b>D:</b> No measures taken to move towards intermediate states.
<b>C:</b> The project’s intended outcomes were delivered, but were not designed to feed into a continuing process after project funding	<b>C:</b> The measures designed to move towards intermediate states have started, but have not produced results.
<b>B:</b> The project’s intended outcomes were delivered, and were designed to feed into a continuing process, but with no prior allocation of responsibilities after project funding	<b>B:</b> The measures designed to move towards intermediate states have started and have produced results, which give no indication that they can progress towards the intended long term impact.
<b>A:</b> The project’s intended outcomes were delivered, and were designed to feed into a continuing process, with specific allocation of responsibilities after project funding.	<b>A:</b> The measures designed to move towards intermediate states have started and have produced results, which clearly indicate that they can progress towards the intended long term impact.

**NOTE:** If the outcomes above scored C or D, there is no need to continue forward to score intermediate stages given that achievement of such is then not possible.

### iv) Rating scale for the “overall likelihood of impact achievement”.

Highly Likely	Likely	Moderately Likely	Moderately Unlikely	Unlikely	Highly Unlikely
AA AB BA BB+	BB AC+ BC+	AC BC	AD+ BD+	AD BD C	D