



## PRE-CONCEPT FOR A REGIONAL PROJECT/PROGRAMME

### PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	<b>Reducing vulnerabilities of populations in Central Asia region from glacier lake outburst floods in a changing climate</b>
Countries:	Kyrgyzstan, Tajikistan, Uzbekistan
Thematic Focal Area <sup>1</sup> :	Disaster risk reduction and early warning systems
Type of Implementing Entity:	MIE
Implementing Entity:	UNESCO
Executing Entities:	National entities in charge of DRR in the countries
Amount of Financing Requested:	US\$ 5 M

#### Project / Programme Background and Context:

The project aims at the adaptation to climate change of Central Asian populations by reducing risks and vulnerabilities from glacier lake outburst floods (GLOFs) in the context of climate change. In line with the Sustainable Development Goals (SDG) under the UN 2030 Agenda for Sustainable Development, the project aims to address risks posed by GLOFs through strengthening the scientific and analytical capacities of institutions and government officials responsible for disaster risk reduction (DRR) and emergencies, through community-gender sensitive based approaches using participatory methods and public awareness campaigns to bring the attention of decision makers as well as the general public for the subject of risks associated with GLOFs. The project will encompass activities on potential outbursts for current critical glacier lakes and those that will become critical in near future in the light of changing climate.

#### Project / Programme Objectives:

The project will contribute to: 1) build capacities of responsible institutions/authorities to address immediate GLOF risks, apply advanced methods and technologies in glacier lake monitoring and early warning systems (EWS), as well as disseminate knowledge to populations at risk; 2) enhanced understanding of the formation, growth and dynamics of glacial lakes, projections of future changes and rate of glacial lake formation, glacial lake outburst risks, identification of populated areas vulnerable to flooding and assessment of the risk to the population, evaluation of potential losses due to flooding, 3) elaboration of EWS and introduction of adaptation strategies, which will enable local communities to better understand and respond to GLOF risks, thus adapting to climate change. In addition, the project will provide an opportunity for networking among practitioners from a range of disciplines, including climate change, DRR, environment and development planning to ensure more effective and enhanced knowledge sharing. Effective use of innovation and advances in scientific knowledge and techniques to build resilience to GLOFs hazards and encourage disaster preparedness will be pursued through the project activities. The wide-ranging objectives of this project directly address SDGs 11 and 13, which aim to take urgent action to combat climate change impacts, and ensure human settlements are safe, resilient and sustainable.

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<sup>1</sup> Thematic areas are: Food security; Disaster risk reduction and early warning systems; Transboundary water management; Innovation in adaptation finance.

## Project / Programme Components and Financing:

Project/Programme Components	Expected Outcomes	Expected Outputs	Countries	Amount (US\$)
1.Consolidating common knowledge and building capacities of responsible institutions/authorities to apply advanced methods and technologies in glacier lake monitoring and EWS	GLOFs risk addressed and resilience built in a collaborative fashion through application of new technologies in GLOFs monitoring and EWS.	Up to date database on glacier lakes in each country based on remote sensing data  Glacier lake monitoring programmes designed in each country  Indicators and criteria for GLOFs vulnerability elaborated in each country  Capacity built in each country for improved coordinated monitoring of glacier lakes and EWS predictions of future glacier lake formation and hazards	Kyrgyzstan, Tajikistan, Uzbekistan	550,000
2. Vulnerability and risk assessment and elaboration of policy recommendations for adaptation	Adaptation strategies to GLOF risks at national and regional level elaborated and introduced in a collaborative fashion	Risk and hazard maps for valleys with highest GLOF risk and exposure of communities and infrastructure  Vulnerability assessment for endangered populations, including gender specific analyses through regional and international workshops  Web-based platform on GLOFs available to the public and institutions	Kyrgyzstan, Tajikistan, Uzbekistan	1,275,000
3. Elaboration of the EWS technologies	Technological solutions for EWS and their application to the on-the-ground situation elaborated and applied in specific cases	Technology for the EWS for the glacier lakes available  Training of personnel responsible for the implementation and maintenance of the EWS  Simulations and drills on EWS for the local populations	Kyrgyzstan, Tajikistan, Uzbekistan	800,000
4. Targeted demonstration project to introduce technologies and best practices for EWS for glacier lakes	Innovative and replicable EWS for glacier lakes demonstrated and introduced	EWS technology solutions available to the responsible entities and communities at risk	Kyrgyzstan	1,000,000

5. Knowledge exchange, stakeholder engagement and communication strategies	Access of DRR stakeholders, policy makers and communities to knowledge, information and research on GLOFs improved	Local and international awareness of the economic and social costs of GLOFs increased through awareness campaigns, education, and stakeholder training programmes  Communities equipped with knowledge and capacity to use gender-sensitive community-based approaches for GLOF/DRR  Emergency preparedness and response activities at community level	Kyrgyzstan, Tajikistan, Uzbekistan	700,000
6. Project/Programme Execution cost				250,000
7. Total Project/Programme Cost				4,575,000
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable) – 8,5%				425,000
<b>Amount of Financing Requested</b>				<b>5,000,000</b>

**Project Duration:** *(In years and months) – 4 years (48 months)*

## PART II: PROJECT / PROGRAMME JUSTIFICATION

The Central Asian states are highly vulnerable to the impacts of climate change, yet they have a low capacity to cope with them. Global warming has led to an increase in the surface temperature in Central Asia (CA), but the most disturbing effect of global warming in CA is the melting of glaciers. Since about 1950, between 14% and 30% of the Tien Shan and Pamir glaciers have melted. Today's rate of glacier loss in CA is 0.2–1% per year in volume. Due to glacier melting there is an increased danger of GLOFs: the number of glacial lakes and incidences of failure has been increasing globally over the last 40 years. Additionally, increasing ground temperatures lead to permafrost degradation and consequently reducing slope stability. Disasters from glacial lake outbursts are increasing and can pose a threat to national and regional security. The GLOF in the Shakhimardan river catchment in 1999, for example, resulted in 100 fatalities in Uzbekistan, and the GLOF from the Zyndan glacial lake led to substantial economic losses in 2009. High temperatures and the rapid melting of snow and glacier ice in July 2015 triggered mudflows in the mountainous regions of Tajikistan. Meltwater outbursts from the Aksai glacier in northern Kyrgyzstan triggered a GLOF as a result of which houses and road infrastructure in villages down the valley have been damaged and the lake still poses a continuous threat to Bishkek city.

According to the latest inventory, there are more than 350 glacial lakes in Kyrgyzstan in danger of outburst. The complex topography of Tajikistan, its high rainfall levels and large number of glaciers mean that Tajikistan is highly exposed to flood hazards, largely caused by GLOFs, which store huge volumes of water behind unstable natural barriers. Very large floods and mudslides in Uzbekistan are generally caused by the outbreak of mountain lakes. Regional scientific studies suggest that glacier shrinkage is causing more frequent glacier hazards, including GLOFs.

Building resilience and reducing societal vulnerabilities to climate related disasters is clearly recognised as a key requirement for sustainable development. In fact the 2030 Agenda specifically pledges to reduce physical and economic losses caused from water-related disasters, with a focus on the most vulnerable communities, and furthermore highlights the need for improved education, awareness-raising, and capacity building in relation to climate change impacts and early warning

(2030 Agenda art 11.5 and 13.3). These are themes targeted specifically within this project design, and are in line also with requirements identified from various stakeholder events held in CA.

For example, the declaration of the International conference on water-related natural disaster reduction, held in 2008 in Dushanbe, stated that research on the impacts of climate variability and change on water related disasters should be increased, in particular with the aim to develop adaptation strategies and mitigation measures. Water scarcity coupled with climate change related disasters was also recognised as a critical challenge in CA region during the high level international conference on the implementation of the “Water for Life” decade, held in Dushanbe, Tajikistan in June 2015.

Similarly, during the international seminar co-organized by the UN Regional Centre for Preventive Diplomacy in Central Asia and UNESCO, *“The Impact of Glaciers Melting in Central Asia on National and Trans-Boundary Water Systems”* in Almaty, Kazakhstan, April 2013, it was highlighted that natural disasters like landslides and GLOFs will affect the socio-economic development of the region.

In a follow-up seminar, held in Dushanbe, Tajikistan in November 2014, with participation of delegations (national representatives) of five CA states and Afghanistan, a special action plan was designed on glacier monitoring and glacier-induced hazard risk reduction, in which the GLOFs were highlighted. The final outcome document of this seminar has been presented to the national government of each CA state for endorsement.

The project proposal has been prepared in accordance with prevailing National Development and Adaptation Plans (Priority directions for Adaptation to Climate Change in the Kyrgyz Republic; National Disaster Risk Management Strategy in Tajikistan; Strategy on Integration of Vulnerability and Adaptation to Climate Change into Sustainable Development Policy Planning and National Strategy of Sustainable Development in Uzbekistan. Currently, there are no specific projects and activities in CA addressing the GLOFs at a regional level. The FOCUS Disaster Response Team in Tajikistan implemented a remote geohazard capacity building and monitoring project through which it sought to foster resilience to the threats of GLOFs in 13 communities in Zaravshan Valley in Tajikistan. Linkages will be established with the FOCUS team as well as with two other ongoing UNESCO efforts at the global level: i) The impact of glacier retreat in the Andes: International Multidisciplinary Network for Adaptation Strategies, for exchange of information including links with the Snow Glacier Networks; and ii) Addressing Water Security: Climate Impacts and Adaptation responses in Africa, Asia and LAC, on knowledge management, as well as sharing the experiences of this project with other similar initiatives in participating countries, the wider region and the international community. In addition, this project's web site will serve as a workspace to be shared by experts and stakeholders involved in it. Awareness campaigns through social media to the public and available communication tools for reaching the most remote populations are planned.

Cooperation on monitoring of glacier lakes, EWS technology elaboration and other climate change adaptation initiatives will be strengthened by piloting on the ground robust approaches and technologies with innovative ICTs. Scientific and technological advances in modelling, monitoring and predicting capabilities would bring benefits to early warnings once science is translated into effective DRR actions. Bridging the gap between scientific research and decision making will make it possible to fully exploit capacities of EWS technologies for societal benefit. Therefore existing research networks will also be supported to allow for synergistic activities and interdisciplinary research. This will improve communication between scientists, and decision-makers, DRR experts, authorities in charge of emergencies and affected segments of the local population. Such coherent initiatives for collaborative action and adaptation to impacts of climate change in mountainous regions of CA, which are planned to be implemented in the project, are lacking in the region.

Usually in CA the ministries have disaster management departments at national as well as provincial level and, in some cases, district level. Disaster management is well institutionalized. However, a common problem is the general lack of equipment and finance available to these bodies. Furthermore, despite the large amount of information that is available to these agencies, resources and working practices are outdated. Another issue involves forecasting departments which although included within the ministries and possessing good technical understanding of disaster prevention and preparedness, lack a practical approach. In conjunction with greater regional cooperation in the

framework of this project, the strengthening of relevant institutions will take place, including for developing strategies towards hazards of a transboundary nature, such as GLOFs.

Since women and men are affected differently by disasters and climate change, their different vulnerabilities and capacities will be analyzed, and their gender-specific concerns and priorities will be addressed. Women will be recognized for their resilience in the face of disaster, and for the roles they play as active agents of change in helping communities to recover and adapt. The aim is that during the project cycle, the policy work contributes to gender equality by improving the balance of power between women and men in the CA region to improve adaptation and resilience to climate change. Special attention will be paid to the most vulnerable communities, namely, populations in mountainous areas.

Given unanimous requests from the countries for support in the field of DRR, UNESCO's high reputation and earned trust in CA, and the very positive response obtained during the various consultations on project design that took place during preparation of the present concept, there is great confidence in the potential success of this project. Institutional building and agreement among the countries on long term strategic actions to address risks and reduce vulnerabilities from GLOFs will contribute to sustainability, which is of high priority. Beneficiary institutions will be enabled to cope with GLOFs risks more effectively in the long run. Mitigation measures against unexpected circumstances (disasters, conflicts) will be considered in the full project design, which will be defined through an inception phase undertaken with all involved stakeholders.

### **PART III: IMPLEMENTATION ARRANGEMENTS**

UNESCO is initiating this project proposal as a specialized UN agency with a mandate to promote science for sustainable development to benefit society. UNESCO works to build the scientific knowledge base to help countries manage their water resources in a sustainable way through the International Hydrological Programme (UNESCO-IHP) together with UNESCO's affiliated Category II Centres (including one based in Almaty), and in close cooperation with scientists worldwide. The Organisation plays a vital role to establish a scientific and technological base for the sustainable management of water resources threatened by global climate change. The UNESCO-IHP strategy (Phase VIII, 2014-2020), "Water Security: Responses to Local, Regional and Global Challenges," among other themes is focusing on water-related disasters. UNESCO is coordinating projects and activities at global level on scientific collaboration particularly in monitoring glaciers, snow and permafrost conditions and evaluating the implications of climate change on water resources and will provide feedback to develop appropriate adaptive strategies that countries need. UNESCO is engaged in supporting capacity building activities in glacier monitoring. It has been co-organizing and co-sponsoring training for young specialists from the Central Asian and Andean regions in the methods of glaciological monitoring for determining the parameters of glacier mass balance. Most recently UNESCO co-sponsored the organization of a summer school on Mass Balance Measurements and Analysis in Bishkek, Kyrgyzstan.

It is foreseen that the project will likely involve the following main national stakeholders. In Kyrgyzstan: Ministry of Emergency Situations, Central Asian Institute for Applied Geosciences, State Agency on Environmental Protection; in Tajikistan: Committee of Emergency Situations and Civil Defence; Ministry on Water and Energy; Committee on Environmental protection, TajikHYDROMET, scientific institutions; in Uzbekistan: Ministry of Emergency Situations, State Committee for Environment, UzHYDROMET, climate analysis experts, and the National University of Uzbekistan. The regional stakeholders include the Central Asian Regional Glaciological Centre under the auspices of UNESCO in Almaty, Kazakhstan and the Central Asia Regional Environmental Centre. Certain elements of this project will be supported by the Research Group on Environment and Climate: Impacts, Risks and Adaptation, University of Zurich, which is experienced in GLOF hazard assessments, monitoring technologies, and EWS (along with other institutions for flood modelling and research on the social dimension).

This is an initial list of stakeholders that comprises all those involved directly or indirectly in DRR from GLOFs. However, during the full project preparation phase a detailed stakeholders' analysis will be made and the most appropriate stakeholders will be identified.



## PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

- A. Record of endorsement on behalf of the government<sup>2</sup>** *Provide the name and position of the government official and indicate date of endorsement for each country participating in the proposed project/programme. Add more lines as necessary. The endorsement letters should be attached as annexes to the project/programme proposal.*

Mr. Sabir Atadjanov, Director of State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic	Date: 1 February 2016
Mr. Khayrullo Ibodzoda, Chairman, Committee of Environmental Protection, Republic of Tajikistan	Date: 8 February 2016
Mr. Victor E. Chub, General Director, Minister, Uzhydromet, Republic of Uzbekistan	Date: 25 January 2016

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

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (Priority directions for Adaptation to Climate Change in the Kyrgyz Republic; National Disaster Risk Management Strategy in Tajikistan; Strategy on Integration of Vulnerability and Adaptation to Climate Change into Sustainable Development Policy Planning and National Strategy of Sustainable Development in Uzbekistan) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Name and signature of the Implementing Entity Coordinator:

**Andrei Chevelev,**  
OIC, UNESCO Cluster Office in Almaty

Date: 08.02.2016

Tel. and email: +7 7272 582643 ext. 1402;  
e-mail: [a.chevelev@unesco.org](mailto:a.chevelev@unesco.org)

Project/programme contact person:

**Kristine Tovmasyan,** Dr, Programme Specialist for Natural Sciences  
UNESCO Cluster Office in Almaty

Tel. and Email: +7 7272 582643 ext. 1414; e-mail: [k.tovmasyan@unesco.org](mailto:k.tovmasyan@unesco.org)



<sup>2</sup> Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government projects and programmes proposed by the implementing entities.



**THE STATE AGENCY  
ON ENVIRONMENT PROTECTION  
AND FORESTRY  
OF THE KYRGYZ REPUBLIC**



**КЫРГЫЗ РЕСПУБЛИКАСЫНЫН  
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КУРЧАП ТУРГАН ЧӨЙРӨНҮ КОРГОО  
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№ 07-01-28/11  
07.01.02 2016г.

**To: The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email: [Secretariat@Adaptation-Fund.org](mailto:Secretariat@Adaptation-Fund.org)  
Fax: 202 522 3240/5**

Subject: Endorsement for the project “Reducing vulnerabilities of populations in Central Asia region from glacier lake outburst floods in a changing climate”

In my capacity as designated authority for the Adaptation Fund in the Kyrgyz Republic, I confirm that the above regional project/programme proposal is in accordance with the government’s national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by UNESCO and executed by national agencies in Kyrgyzstan.

Sincerely,

Sabir Atadjanov

**Director of the State Agency on Environment  
Protection and Forestry under  
The Government of the Kyrgyz Republic,  
NFP AF**

КУМИТАИ  
ҲИФЗИ МУҲИТИ ЗИСТИ  
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COMMITTEE OF ENVIRONMENTAL PROTECTION  
UNDER THE GOVERNMENT OF THE REPUBLIC OF TAJIKISTAN

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№ 1/9-03-204 аз «08» 02 соли 2015  
Ба № \_\_\_\_\_ аз «\_\_\_» \_\_\_\_\_ соли 2015

To: The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat

Subject: Endorsement for the project “Reducing vulnerabilities of populations in Central Asia region from glacier lake outburst floods in changing climate”.

In my capacity as designated authority for the Adaptation Fund in the Republic of Tajikistan, I confirm that the above regional project/programme proposal is in accordance with the government’s national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by UNESCO and executed by relevant national agencies.

Sincerely,

Khayrullo Iboodzoda

Chairman



O'ZBEKISTON RESPUBLIKASI  
VAZIRLAR MAHKAMASI  
HUZURIDAGI  
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2016 yil 25.01 № 04-15-01

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c/o Adaptation Fund Board Secretariat  
Email: [Secretariat@Adaptation-Fund.org](mailto:Secretariat@Adaptation-Fund.org)  
Fax: 202 522 3240/5

### Letter of Endorsement by Government

Subject: Endorsement for the project "Reducing vulnerabilities of populations in Central Asia region from glacier lake outburst floods in a changing climate"

In my capacity as designated authority for the Adaptation Fund in the Republic of Uzbekistan, I confirm that the above regional project/programme proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by UNESCO and executed by national agencies and institutions.

Sincerely,

Prof. Victor E. Chub  
Minister,  
General Director of the Centre of  
Hydrometeorological Service  
at Cabinet of Ministers of  
the Republic of Uzbekistan  
(Uzhydromet)