

# Project Activity Summary Note

## National Platform Expert Group Field Trip

Drafted by C. Kelly, Risk Governance Consultant, and Khursheda Aknazarova, Programme Assistant, DRMP UNDP Tajikistan<sup>1</sup>

Introduction .....	1
Overview .....	1
Results.....	1
Transport Sector and Hazards.....	1
Rabot Tailings Dam .....	2
EU Watershed Management Projects.....	2
Water Sector Hazards .....	3
Meeting with the Deputy Governor, Sughd Province.....	3
Conclusions .....	3
Annex A – Aksu Flood Planning Workshop and National Platform Expert Group Field Trip .....	5
Annex B – Expert Group Participants.....	5
Annex C - Avalanche Risk Reduction – Plan “B” .....	5
Annex D – Aksu Flood Planning Workshop Report Extracts.....	7

### Introduction

This note provides a summary of activities and outcomes related to a field trip by members of the National Platform for DRR Expert Group from Dushanbe to Sughd Province on 12 to 14 September 2017. This trip was taken in conjunction with a flood planning workshop for the Aksu watershed, covers in a separate note.

### Overview

The field trip was planned as an opportunity to review and discuss hazard management challenges, including flooding, landslides and avalanches under field conditions. These issues had been raised with the Expert Group through two briefing notes, one on transport and hazard management and the other on water and hazard management (drafts available on request).

The trip also provided participating Expert Group members the opportunity to participate in a meeting on flood management for the Aksu watershed, discussed in a separate note. The plan for the field trip is provided in **Annex A** and the participants listed in **Annex B**.

### Results

#### Transport Sector and Hazards

Stops were made along the road from Mayhura to Aini to discuss specific hazard threats to the road. Two stops focused on the threat of avalanches and measures proposed to address this

---

<sup>1</sup> Emails” [havedisastercallkelly@gmail.com](mailto:havedisastercallkelly@gmail.com) and [khursheda.agnazarova@undp.org](mailto:khursheda.agnazarova@undp.org)

hazard. As a result of the conversations, it appears that technical designs to address the avalanche threat rest heavily on structural measures (e.g., new sheds, extending protective walls) and were not able to consider other options in depth because of limited experience and technical resources. A note on avalanche management options, based on the discussions, is attached as **Annex C**. It would appear that capacity to manage avalanches in Tajikistan should be expanded, and more direct management of the avalanche hazard extended to other parts of the country.



#### **Rabot Tailings Dam**

A stop was made at a tailings dam at Ravot on the Fondaryo river in Ayni District to discuss the dam construction and use, the expansion of coal mining in the area and issues related to safe operation of the dam and mines.

#### **EU Watershed Management Projects**

Meetings were held with the two NGO consortium involved in implementing river basin management projects in parts of the Zarafshan River, such as “Improving livelihoods and food security through sustainable Natural Resource Management” and “Enhancing Water and Natural Resource Management and Protection in upper catchments of Zarafshon Watershed”. Each project provided a briefing on their activities, covering their respective risk assessment processes, the selection of interventions, the links between the developmental approach to managing the watershed and disaster risk reduction and, in the case of the GAA-led project, their development of a locally managed flood warning system using cell phone notification. Points noted from the conversations were that (1) many of the program interventions are almost the same as for DRR projects, and (2) information from the projects (and from earlier work, such as the flood warning system) is not being circulated more widely to the Government and development and disaster risk reduction partners.



## **Water Sector Hazards**

A visit was made to the middle Aksu watershed in Langar Village of Tagoyak Jamoat of Spitamen District to discuss the operation and safety of a diversion dam<sup>2</sup> used to supply water to the Spitamen District irrigation system. Issues related to the construction, operation and safety of the diversion dam were discussed with the experts and insights were gained on challenges facing authorities in safe management of the drainage. One point noted was that gravel mining contractors working above the diversion dam were supposed to be responsible for maintenance of the diversion dam, but this work was not happening in a systematic manner.

## **Pilot Workshop on Flood Management Planning**

On the September 13<sup>th</sup>, 2017, a pilot Workshop on Flood Management Planning was held by UNDP Disaster Risk Management Programme, together with the SDC funded National Water Resource Management Project, implemented by the HELVETAS Consortium (Helvetas, ACTED, and GIZ) in Khujand.

Workshop attendees included members of the Aksu Watershed Dialogue, including land owners and businesses in the watershed, government officials from Spitamen and Devashtij Districts (bisected by the watershed) and the Sughd Province, NGO staff working in the watershed and members of the DRR NP Expert Group. Key results and conclusions from the workshop can be found in **Annex D**.

## **Meeting with the Deputy Governor, Sughd Province**

The Experts met with Anvar Yakubi, Deputy Governor, Sughd Province, to discuss the field trip, results and get the Deputy Governor's perspective on some of the issues noted. Among other points, the Deputy Governor noted that a specific problem noted in the Province was that many of the bridges were too small for the maximum flows carried by streams and rivers, leading to numerous wash-outs, and repetitive repair and replacement costs.

This observation<sup>3</sup> provides an opening to discuss:

1. The recurrent cost of disaster caused by poorly designed infrastructure and,
2. A need to do a better job at understanding hazards such as flooding in the design of infrastructure such as bridges, particularly when the design and construction is done without the benefit of river basin hydrologic modeling (as it the case for most bridge construction away from the main roads of Tajikistan, it appears).

## **Conclusions**

The trip provided an opportunity to discuss, on site, specific challenges facing water and climate-related hazard management in Tajikistan. A better understanding of the risk governance process was developed through the discussions about avalanches and flooding. Attention was also called to emerging hazards related to mining and increased coal production.

The discussions with the Deputy Governor highlighted the extent to which risk management issues are being recognized at the provincial level. The meetings with the Zarafshan EU projects highlighted the need to better share and coordinate DRR-related activities across the disaster-development divide.

---

<sup>2</sup> The diversion dam is not engineered in the normal sense, and is constructed through the piling of rock, sand and gravel to create a diversion of the Aksu river into the irrigation system intake.

<sup>3</sup> The GAA representative in Aini made the same observation.

Most of the stakeholders have weak understanding on which organizations are responsible for flood management activities at each stage of the management process.

CoES and IRS (Innovative Road Solutions) don't (yet) routinely develop a joint winter response plan. IRS is, legally, required to have a plan for disasters along the road, but CoES does not know if it exists. CoES' own rescue work is supposed to come after IRS takes initial actions to save lives (or presumably to prevent vehicles from traveling into dangerous areas). There is also an issue of whether IRS should rehabilitate facilities along the road as winter refuges as part of their emergency response obligations.

Government expertise have little experience in how to stabilize avalanche-prone shoots (a low cost "ecodrr" management approach, which the Swiss, Germans, Austrians and others are well versed in using).

Other outcomes of the mission including the raising of the issue of avalanche galleries during the DRR National Platform meeting on 29 September 2017, and discussion of Eco DRR methods took place during the week of EcoDRR and EbA-related events, held in Dushanbe from 9 to 14 September 2017 in association with the International Day for Disaster Reduction.

Additional field trips by the Expert Group will likely expand the understanding of risk governance challenges faced outside Dushanbe and improve coordination at the national level.

## **Annex A – Aksu Flood Planning Workshop and National Platform Expert Group Field Trip**

**12-14 September 2017**

### **12 September**

0730: Rendezvous of travelers at DRMP  
0800: Departure for Mayhura  
0910: Stop at Mayhura Toll Station  
1000: Stop at avalanche sites above Mayhura  
1200: Arrival in Ayni, Lunch  
1300: Meetings with EU project staff on river basin projects and DRR  
1430: Departure for Khujand  
1530: Stop at Aksu River/Highway Bridge crossing.  
1600: Departure for Khujand  
1700: Arrival Khujand

### **13 September**

0830: Arrival of participants, registration at workshop site.  
0900: Opening of workshop  
1230: Lunch  
1330: Workshop  
1630: Closure

### **14 September**

0900: Review Session with Expert Group @ UNDP Office in Khujand AO  
1030: Visit to Lower Aksu river  
1200: Lunch  
1300: Meeting with Deputy Governor – Anvar Yakubi  
1400: Departure for Dushanbe (NP EG by car)  
1900: Departure for Moscow (Kelly)

## **Annex B – Expert Group Participants**

1. Mr. Kamalov Jamshed, Head, Department for the Protection Territory and Population, Committee of Emergency Situations and Civil Defence,
2. Mr. Umed Yakubzoda, Head, Expedition Department, Hydro-physics and Glaciology Center, Agency of Hydrometeorology,
3. Mr. Kulmatov Safarali, Main Engineer, Agency for Land Reclamation and Irrigation,
4. Mr. Kholdorov Olimjon, Deputy Director, State Design Company, Ministry of Transportation,
5. Mr. Kholikov Musliddin, Specialist, Water Resources Management, Ministry of Energy and Water Recourses,
6. Mr. Charles Kelly, Disaster Risk Governance Consultant, DRMP, UNDP Tajikistan
7. Ms. Khursheda Aknazarova, Programme Assistant, DRMP, UNDP, Tajikistan.

## **Annex C - Avalanche Risk Reduction – Plan “B”<sup>4</sup>**

---

<sup>4</sup> Drafted by C. Kelly, [havedisastercallkelly@gmail.com](mailto:havedisastercallkelly@gmail.com)

## Introduction

This note reviews options to reduce the risks from avalanches to road travel in Tajikistan. While the scope of the note is countrywide, the focus is on the IRS Toll Road between Dushanbe and Khujand and specifically the section from the Mayhura toll collection booth to the “Anzob” tunnel (Tunnel).

## Options

There are three basic options to managing avalanche risk to roads in the country

1. 100% Physical Protection: This option involves the construction of physical protection from avalanches (“avalanche sheds”) at all locations assessed as at risk from these events. This option has an estimated direct cost of \$US 70 million for the section of road from the Mayhura toll booth to the “Anzob” tunnel.

Avalanche sheds would ensure a very low likelihood of any avalanche risk remaining once construction has been completed. This option would require an estimated five to six years to complete, including design, bidding and actual construction, for the Mayhura-Tunnel section.

2. No New Physical Protection but Road Closures: The option would involve no additional physical avalanche protection and rely on the closure of roads at risk of avalanches, with a quick clearing the road once avalanches were no longer a risk. The direct cost of this option is low and relates primarily to the additional cost of clearing the road in some years more than others, and setting up a road closure warning system for road users.

The indirect costs, mainly from damage to transport, fatalities and delayed deliveries during periods of severe avalanches, is, on average, low, but high during years of high avalanche threat. This option could be implemented in a matter of months, as most avalanche zones (shoots) are already mapped in the country.

3. Combination of Physical Protection and Avalanche Management: This option involves
  - Additional physical protection from avalanches in high risk (high frequency/high impact) locations,
  - Use of snow fences and other snow retention or diversion structures in high frequency/low impact and low frequency/high impact locations.
  - Use of explosives (placed before the avalanche season or projectiles) to trigger avalanches in a planned manner.
  - Improved avalanche forecasting.
  - Short (2-4 hr.) planned road closures to provide time to trigger and clear avalanches.

The advantages of Option 3 are that parts of the option could be operational in 3-5 months for the Mayhura-Tunnel section and have an immediate benefit in reducing avalanche threat through the combination of triggering avalanches, warning system and road closures. Constructions of additional sheds and changes to existing sheds would take an additional two years. The combination of approaches would be rolled out to other parts of the country based on a risk assessment.

Option 3 provides for an expected reduction of fatalities and loss of transport to close to zero, i.e., the same as for the Option 1. While de jure road closings would be higher than present for passenger vehicles, closure periods would be within the current road closure periods for truck transport, which are restricted from moving on parts of the road so that they don't enter Dushanbe before 1900 daily. Note that road closure requirements would be reduced as more

fences and sheds are constructed, leading to more periods of open road even as the number of avalanches remains the same or increases.

### **Implementing Option 3**

Implementing Option 3, a combination of additional physical protection and avalanche management, would involve the following steps:

1. Conduct an assessment of avalanche zones along roads in the country, considering the frequency, clearing requirements and road operation impact of avalanches at each identified location and adding considerations of a changing climate to identify priority actions (e.g., sheds, fences, etc.) and timeline for these actions.
2. Prioritize high risk locations for additional physical protection, fences, or diversions, and develop and implement corresponding construction plans.
3. Develop an avalanche management plan based on avalanche zoning to identify how and when avalanches can be triggered to minimize road clearance requirements. The plan would be based on a requirement that the road be closed for no more than 3 hrs. at any one time for clearance operations.
4. Provide training and equipment as required in the avalanche management plan.
5. Develop and implement a warning system to advise road users of potential avalanche threats, road closures and avalanche clearance plans.

Note that implementing steps 1, 3, 4, and 5 would reduce avalanche risk considerably even in the absence of the construction of new physical protection structures.

As the avalanche issue is one which threatens many roads in Tajikistan, but the Mayhura-Tunnel section is the more important, it is recommended that an avalanche management consultant be engaged to assess options on the Mayhura-Tunnel section and develop a plan for assessment work for the rest of the country. This assignment is expected to require 7 days in country.

## **Annex D – Aksu Flood Planning Workshop Report Extracts**

### **Results**

During the workshop, participants identified the organizations responsible for flood management across the preparedness, warning and evacuation, immediate relief, recovery and risk reduction stages. Participants discussed a range of flood management methods, from dams to improved early warning and insurance. Information on these methods was used to identify optimal interventions to improve flood management in the Aksu drainage.

### **Flood Guide Planning Approach**

The flood management planning approach used in the **Flood Green Guide** (<http://envirodm.org/flood-management>), developed by the World Wildlife Fund, appears to be adaptable to the Tajik context. Next steps include evolving the management approach to a document which can be used more widely in Tajikistan.

### **Unified Flood Risk Assessment**

Two flood risk management approaches were demonstrated during the workshop, one by ACTED focusing on using the state of natural resources to identify flood risk, and the other, by UNDP, focusing on flood threat to critical infrastructure. Both approaches provided critical information for flood management planning, but a unified approach is needed to ensure that risks are not missed or missed assessed.



### Identification of Responsible Parties

The following table summarized the understanding of five working groups as to responsibilities for different aspects of flood management in the Aksu watershed. Further details on the work done by the teams can be found in the presentations in **Annex C**.

The dominance of the Committee of Emergency Situations (CoES) in the allocation of responsibilities is noted (see **highlights** in the table below). With the exception of “Other Activities”, CoES was mentioned by at least one team for each activity, and in the case of warning, by all teams.

As CoES’ primary responsibilities are related to the “liquidation” of disasters, the broader expectations set out below may exceed CoES’ actual operational capacities (a point made by CoES Colonel Kamalov). Further, the distinction between District-level flood management responsibilities and the role of CoES in supporting the district government in a unified approach to flood management, is not clear.

Further efforts are needed to clarify the parties responsible for flood management and the role of CoES in this process. It is worth noting that teams, at times, referred to parts of the government using outdated titles (e.g., Ministry of Melioration and Irrigation). This may mean that some of the workshop participants may not have been up to date on changes relative to the water sector reform.

### Pilot Workshop on Flood Management – September 13, 2017, Khujand, Sughd Province, Tajikistan Group Work Result

Activity	Who?				
	Team 1	Team 2	Team 3	Team 4	Team 5
Planning for Floods	<b>COES</b>	Hydro meteorological Center	Government, Local Authorities, RBOs	<b>COES</b> and Local Authorities (According to the Programme on District Development Plans – section of Disaster Risk Reduction)	ES Commission in coordination with <b>Regional COES</b>
Preparedness - stockpiles, education, evacuation routes	<b>COES</b> , District Local Authorities (Hukumats); Organizations working in the field of ES.	Gov. Decree # 778 from December 29 <sup>th</sup> , 2006; Gov. Decree # 490	<b>COES</b>	Local Authorities, <b>COES</b> ,	<b>COES</b> , Regions and Districts at the basin level
Warning	Regional <b>COES</b> (Stabs) and Hydro Meteorological Services.	<b>COES</b> , ALRI, Hukumats and relevant Departments	<b>COES</b>	Hydro meteorological stations, <b>COES</b>	Hydro meteorological stations, <b>COES at regional level</b>



Evacuation	COES, Local Authorities, Jamoats	a) Population; b) Evacuation Commission	COES, Ministry of Transportation	Local Authorities, Regional COES, Commission	Regional Commission, Head of the Region
Immediate Rescue & Relief	COES and relevant Agencies, INGOs, NGOs and Volunteers	COES, Population and Subdivisions	COES, Ministry of Health	COES, Ministry of Health	Rescuers of National and Regional COES
Recovery and Repairs	Relevant Ministries and Agencies	Subdivisions, Organizations and Population	ALRI, Ministry of Transportation and COES	Road Department, ALRI, Ministry of Energy	Relevant Ministries and Agencies
Risk Reduction	COES, relevant agencies and INGOs	Gov. Decree # 778 from December 29th, 2006; Gov. Decree # 490	Ministry of Melioration and Irrigation, COES	COES together with population	COES with other relevant organizations.
Flood Protection Maintenance	Relevant road exploitation organizations, irrigation system, etc.	Relevant departments and agencies dealing with emergency situations	Ministry of Transportation, Ministry of Melioration, COES	Local Authorities, Infrastructure together with Government and International agencies	ALRI
Other activities?	Joint work and regular connection between Units	Neighborhood clean-up (Hashar); cleaning of drainage, canals and irrigation system.	Mutual understanding and cooperation	Conduction of trainings and intervention on DRR	N/A

### Flood Management Methods

Some of the flood management methods presented in the **Flood Green Guide** were familiar to most of the participants, but only a few participants were aware of all the methods (see the presentation for the methods). A diversity of flood management methods is an accepted key to effective flood management, and participants in the Aksu drainage flood management process should be better aware of the range of methods set out, and decision-making process for selecting these methods, which is set out in the **Flood Green Guide**.

### Conclusions

At the end of the workshop, the participants agreed to review the respective plans, including winter – spring plans, and to consider the issues of DRR and flood management.

The Aksu flood management workshop highlighted the need to:

1. Better understand the allocation of responsibilities for flood management in Tajikistan,
2. Create unified flood risk assessment for a watershed, and
3. Introduce a broader based to selecting and implementing flood management methods across organizations and locations within a watershed.