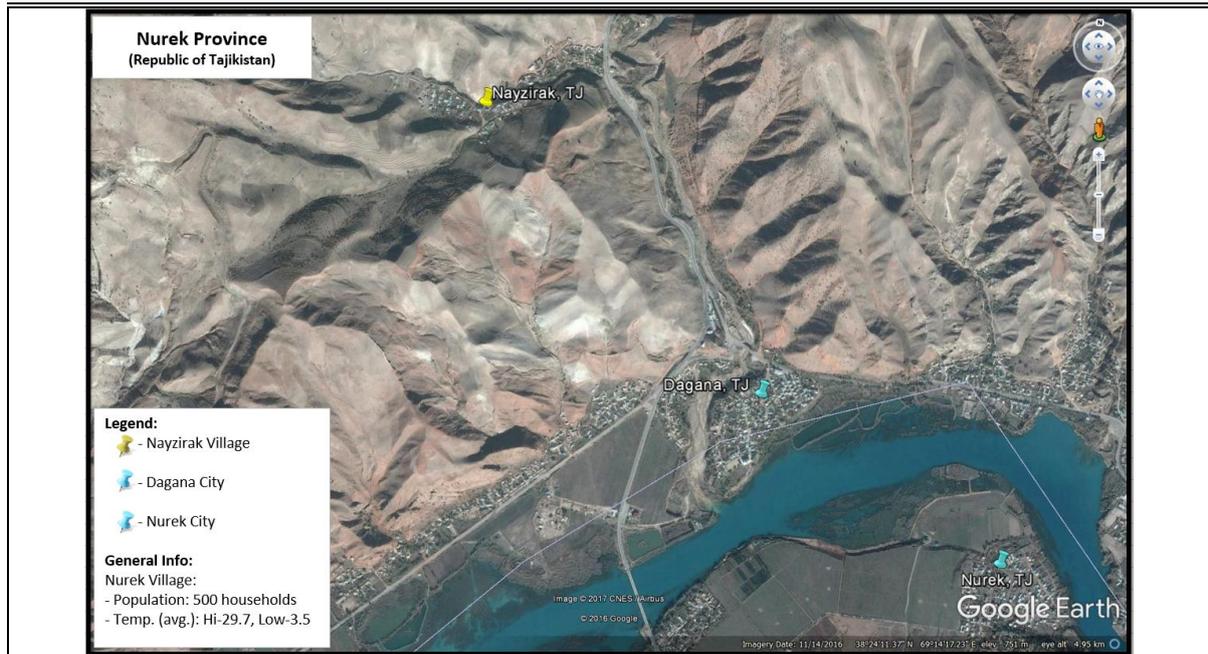


## WWCH 2017 PROBLEM DESCRIPTION

Problem Title	
<p>Topic 4: Smart Water Technologies            Implementation of integrated water resources management            Problem title: “Near the water, without water”</p>	
Contact Information	
Name	Iskandar Abdullaev
Country	Republic of Kazakhstan
1. Basic information	
<p><i>Describe basic information with characteristic of your region:</i></p> <ul style="list-style-type: none"> <li>- Republic of Tajikistan (pop. 8.5 million people), Khalton Province, Nurek region, Nayzirak village (pop. 4000 people).</li> <li>- <b>Geographic location:</b> 38°24'47"N, 69°13'55"E; <b>Elevation:</b> 1020-640 meters above sea level, <b>Primary activity:</b> sustenance farming.</li> <li>- <b>Climate:</b> Csa according to the Köppen-Geiger climate classification, <b>Precipitation:</b> 500mm/year (August is the driest month with 0-10mm in average), <b>Temperature:</b> Low avg.: +3.5°C and High avg.: +29.7°C, <b>Extreme temp.:</b> Low: -3°C and High: +45°C, <b>Water problem:</b> Village is 2.5 km uphill (elevation difference is more than 300 meters) from the Kyzylsu Reservoir but has no stable drinking or irrigation water supply.</li> </ul>	
 <p><b>Main mountain regions of Central Asia</b></p>	



## 2. Water Circumstances (Optional)

*Describe status of water circumstances. Considering your problems and topics you belong to, you could provide information below.*

- Nurek HPP (Nurek hydroelectric power plant, with the capacity of 3000 MW, the largest hydroelectric power plant of Central Asia) is only 10km upstream from Nayzirak;
- Population has no access to drinking water and sanitation.
- Water quality is low: water preservation and treatment equipment is absent.
- Mountain population is not aware of ecosystem preservation techniques and water saving technologies.

## 3. Problem description

*Problem must be strongly linked to issues that the world is facing today to solve or related to a reserved task that the world is willing to overcome.*

People living in the mountainous areas of Central Asia (CA) are among the poorest and least educated groups of the society. Out of five CA countries, Republic of Tajikistan and Kyrgyz Republic are the most dependent on the mountain ecosystems. According to the Sustainable Mountain Development Report by Institute of Central Asia, proportion of the mountain area by country is as follows: Kazakhstan (10%), Kyrgyz Republic (90%), Tajikistan (93%), Turkmenistan (5%) and Uzbekistan (20%).

Having no access to water, sanitation and lack of understanding of the utility the mountain ecosystem provides, increases the vulnerability of this group (KFRI 2007). Their close interaction with nature has an adverse impact on the ecosystem they live in and on the lives of population living in the lower reaches of the territory. The Human Right to Water and Sanitation (HRWS) was recognized as a basic human right by the United Nations (UN) General Assembly on 28 July 2010 and recently adapted Sustainable Development Goal 6 aims to “Ensure availability and sustainable management of water and sanitation for all”. However, this basic right is jeopardized as many of those vulnerable groups despite living near the water have no access to drinking and often irrigation water.

While many international organizations have been addressing only one problem of “bringing” water to each household in the CA region, other issues have often been omitted. Without “Smart Solution”, capacity building of the mountain settlers on how to utilize water resources, society has faced other multiple pressing issues, including soil degradation, downstream water turbidity, mudflows, unsustainable agriculture, waterborne diseases and many others. The impact has often been even more exacerbated on the downstream population.

The effects of unsustainable water practices are vivid from the example of Nayzirak village in Tajikistan, inhabited by 500 households with the total population of about 4000 people. In recent years, the installation of 10km water pipe has provided the village with stable irrigation water to support livelihoods, stopping environmental migration from the village. However, constant need for increased productivity, driven by growing market prices, has led to an intensification of agricultural practices, with a range of negative effects, including increased soil erosion and risk of mudflows from upstream Nayzirak to the downstream Dagana and Nurek cities along the Kyzylsu River. Due to the use of the “deforestation for-cash crops” practices the erosion problems persist and the sedimentation results in siltation of Kunduz Reservoir, affecting the downstream population. Due to unstable drinking water supply in the area, local population started using irrigation water for household needs, which puts at stake people’s health by increasing the risk of waterborne disease outbreak.

People of Nayzirak village are fully dependent on the ecosystem and driven primarily by economic gains hardly consider environmental effects and adverse impacts on the downstream population and continue unsustainable use of water resources. This will further exacerbate the problem of clean water supply to downstream cities due to siltation of the reservoir.

To address the issue of water supply to mountain areas, people must be provided with Smart Solutions to address the problem so that it does not escalate into a natural catastrophe for both the upstream and the downstream populations. One of the proven approaches is the use of Basin Planning for water management issues, which provides technical solution, consideration for ecosystem services and capacity building of the population. Only integrated approach with participation of all affected stakeholders can effectively solve the pressing issues and ensure that ecosystem services are taken into consideration. CAREC has an extensive experience in implementing Basin Planning approaches with capacity building in all countries of Central Asia. The Korea International Water Week could become an apt platform to address the important water challenge of upstream versus downstream water use. Despite living close to the water source, none can enjoy water resources at its fullest with the upstream population having no access to clean drinking water and those in the downstream affected by polluted water due to siltation. To be longer-term and more strategic the solution for the issues such as this has to be sought with a somewhat broader view in mind considering important implications on national economy, stability of social system and health of population around the world.

*References:*

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