Aquanova Nyzhniy Bystryi small hydropower plant project non-technical summary

1 Introduction

This document provides a non-technical overview of Aquanova Development Nyzhniy Bystryi Hydropower Plant project to construct a small hydropower plant (SHPP) in Nyzhniy Bystryi village of Khust District, Transcarpathian Oblast of Ukraine.

It also presents a summary of potential environmental and social impacts and other environmental and social issues relevant to the project activities. Appropriate measures to mitigate key adverse environmental and social effects that may arise during project construction and operation are also provided in Table 1 at the end of this document.

This Non-Technical Summary (NTS) document will be placed in the locations shown below for public disclosure. Environmental and social documents will be available for review during normal business hours at the following locations:

- Aquanova Developement LLC company offices
  Address: 01133, Kyiv, 32 A Shchorsa Street, office 1 Phone: +38 044 569 17 70/75

- Nyzhniy Bystryi Village Council: Stepan Brutvak, Head of Council
  Address: 904420, Nyzhniy Bystriy Village 406, Khust District
  Transcarpatian Oblast Phone: +38 050 020 71 44

- Khust District Administration
  Address: 90400, Khust, 21 Carpathian Sich Street Phone: +38 031425-21-75

For further information on this project, or to provide comments on the project or the environmental and social documentation, please contact:

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2 Description of the Proposed Development

The project will construct a small hydropower plant with 2 MW electric output capacity and approximately 9.9 GW/h electricity generation annually, which will be sold to the grid at the "green tariff".

The plant will be located in Nyzhniy Bystryi village, which has a population of 1195 people. It will chiefly consist of a river dam, a water reservoir, a water derivation channel, a powerhouse, and associated transmission lines. A concrete river dam (97m length, 2m height and 9.5m width) will be

supplemented with an inflatable dam (82m length and 2m height) on top of it. A concrete water derivation channel (approximately 270m) will be fully covered, and mostly invisible once completed. The powerhouse will accommodate two Kaplan type turbines.

The water reservoir between the dam and up to 1,200m upstream will cover approximately 5.6ha of land (including 4ha of the current river surface).

The grid connection is planned to an existing aerial transmission line located close-by (approximately 100m) and therefore the transmission line will be short. There will also be underground electric cables onsite. The site already has an existing access road.

The land area allocated to the project is 1.15 hectares, which covers the needs of siting the river dam (0.7ha), diversion channel (0.3ha), and the power plant (0.15ha).

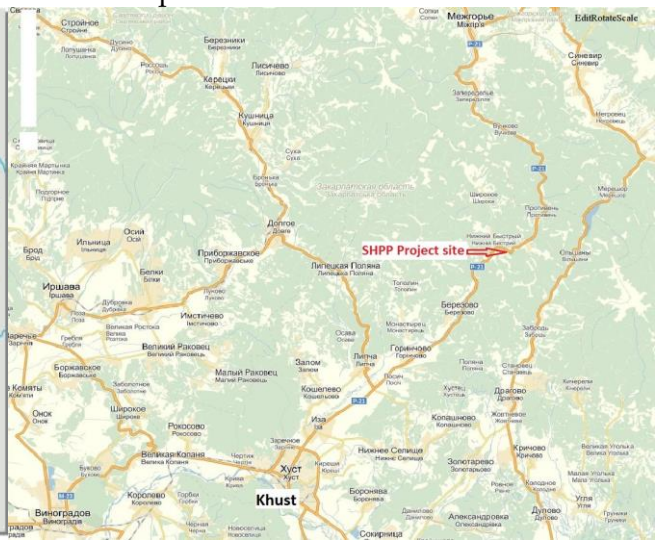
By using the renewable hydropower, the project will have tangible environmental benefits over other types of energy generation, such as those utilising fossil fuels (gas, coal) or nuclear. It will contribute to the reduction of emissions of greenhouse gases and flood control on the river, create new jobs and improve security of energy supply in the area.

The project is owned by Aquanova Development LLC, which is a joint establishment of a group of Ukrainian businessmen and an alliance of Italian investors. The company was established for the development and implementation of small hydropower plant projects. Figure 1 below shows the location of the site for the project.

Figure 1: Location of the project site

General map view

Close-in map



3 Environmental, Health, Safety and Social Review

3.1 Project studies and documents

Several documents collectively make up the environmental and social documentation for this project. In addition to this Non-Technical Summary, the other materials include the following documents.

Local Environmental Impact Assessment (EIA/OVNS)

To meet the Ukrainian national regulatory requirements, an Environmental Impact Assessment (EIA/OVNS) of the project was carried out in 2014 byan appropriately licensed project design contractor, private company "Nordik" from Lviv. The Developer has successfully obtained a positive conclusion of the state ecological expertise/review issued by the Ministry of ecology and natural resources in Sep 2014.

Additional studies

An additional terrestrial fauna and flora study of the project area was carried out, and its results were integrated into the EIA/OVNS report.

An additional study of aquatic fauna/fish population of Rika River in the project vicinity was carried out by Center Ltd in spring/summer season of 2014, with particular focus on protected and vulnerable species. The study contains recommendations on mitigation measures and improvements to the provisional design of the fish passage. Also, a separate study to determine a suitable design of the fish passage was carried out in early 2014 by the Italian counterpart of the project, Ovadaprogetty S.a.s.

Environmental and Social Action Plan (ESAP)

As part of the environmental and social due diligence evaluation, a review of environmental, health, safety and social management issues was conducted. From the overall review, an Environmental and Social Action Plan (ESAP) has been developed. This document identifies mitigation measures to avoid, reduce or control potential adverse impacts of the project on the environment and the people. Key mitigation measures proposed in the ESAP are summarised in Table 1 at the end of this document.

Stakeholder Engagement Plan (SEP)

A Stakeholder Engagement Plant (SEP) has been developed to describe how Aquanova Development LLC will communicate with people and institutions who may be affected by, or interested in the project, at various stages of project preparation and implementation. The developer will assign a social liaison officer, who will be responsible for keeping open dialogue with stakeholder groups and local public. At any time before and during construction and operation, any stakeholder will be able to raise concerns, provide comments and feedback about the project. All such comments and grievances from people will be accepted, processed and answered by the developer in a timely manner.

3.2 Sensitive locations

The project area is considered to have medium environmental sensitivity due to the presence of valuable biodiversity habitats and protected species, but no protected areas in the immediate vicinity and no known sites of archeological or cultural heritage on the land allocated to the project.

The project will be constructed on Rika River, which is a medium sized mountain river with relatively fast current, and a home to several protected species of fish. Rika River is a part of Danube basin, and currently has no hydropower plants located on its river bed.

A local school and nearest residential properties are located at approximately 50m from the site. However, the noise and vibration levels generated by the turbines are expected to fully comply with applicable sanitary norms.

3.3 Project impacts and their mitigation

An evaluation of potential environmental and social impacts determined that, in addition to its benefits, the project could have potential negative impacts on the environment and people, if not managed carefully. Therefore, the project developer will be required to implement certain actions (called “mitigation measures”) to prevent, reduce, or mitigate negative impacts of this project. A summary of key impacts and mitigation measures that have been identified, is provided in Table 1 below.

Table 1 Overview of Key Potential Project Impacts and Their Mitigation

No	Issue	Potential impact	Mitigation measures
1	General construction activites	Impacts during construction of the main (dam, diversion channel, powerhouse) and associated project facilities, such as land excavation, dust, noise, air emissions from vehicles involved, increased road traffic and impacts on road condition, etc	- Prepare and implement construction management plan to reduce and mitigate general construction impacts, including noise, air emissions, waste generation and disposal, increased road traffic; - Continuously monitor impacts to comply with appropriate national environmental standards and EBRD requirements.
2	Protected species, sensitive habitats and biodiversity	Impacts on river hydrology and water ecosystem, leading to habitat fragmentation and potential changes in numbers and composition of aquatic species, chiefly fish	- Undertake pre-construction ecological surveys and associated assessments of the project footprints to establish a robust baseline; - Develop and intergrate effective fish protection and passage facilities (such as fish ladder) into the project design; - Develop and implement requirements for controls on the timing of operations (e.g. during spawning period).
3	Water quality	Impacts on water quality and watershed	- Ensure that the facility does not contribute to deterioration of water quality and watershed either upstream or downstream of the facility; - Monitor water quality upstream and downstream, before the project construction and during operation by specially appointed independent experts.
4	Water availability and maintenance of a minimum constant flow throughout the year	Impact on the volume of water in the river available for ecological and social needs	- Carry out dedicated water assessment studies and integrate their results into the project engineering design; - Maintain the minimum ecological water flow in the river throughout the year that is adequate to support the existing wildlife species at pre-facility ranges, as well as social and recreational needs of the populaton; - Monitor the water levels in the river throughout the year.
5	Energencies: floods, land erosion and earthquakes	Impacts of the project on the magnitude and mitigation of floods, land slides and other potential emergencies	- Plan and implement preventative and avoidance techniques to minimise the exacerbation of effects caused by landslides or erosion, which could arise from land use changes due to project activities; - Develop appropriate emergency plans and maintain high level of staff preparedness for emergencies.