

Derivative Types of (Run-of-River) Hydro Power Plants (HPPs) in Georgia – Current Practices and Challenges

Outcomes of the public discussion held on December 18, 2012

Association Green Alternative initiated a public discussion “Derivative types (Run-of- River) of Hydro Power Plants (HPPs) in Georgia – Current Practices and Challenges” that was held at a hotel Vere Palace on December 18, 2012. The key objective of the meeting was to discuss the problems related to the ongoing and planned derivative types of hydro power plant projects (HPPs). The representatives of the Ministry of Environment, the Ministry of Energy and Natural Resources, non-governmental, international and consultancy organizations, as well as other interested stakeholders participated in the discussion (see list of participants).

The Essence of the Problem

Over the past years over 40 memoranda of understanding and/or agreements have been signed between Government of Georgia and Georgian or foreign companies on the construction of small, medium and large hydro power plants. The construction of some HPPs has already been launched, while most of them are at various stages of planning. Most of them are run-of- river (derivative type) hydro power plants¹. The run-of- - river HPPs pose less environmental, social and economic risks compared to hydropower plants with dams; however, taking into account the number of planned derivative types of HPPs, their geographical location and what is most important, project design, they may not appear less dangerous/destructive than large HPPs with dams.

The thing is that the following approach is used in design of all derivative type of hydropower plants: only 10% of average annual flow of the river is left in the river (95% provision²), while 90% is diverted to turbines through derivation pipes, channels and tunnels for electricity generation. As a rule, Environmental Impact Assessment (EIA) reports of the HPPs note that according to the Soviet-old practices, 10% of average annual flow is the target level of sanitary water flow. Sometimes, it is also noted that such rule of sanitary water flow is in line with the “European norms”. The Ministry of Environment, which is responsible for examining the EIA reports prepared by investors and issuing state ecological expertise conclusion (permit documents), as a rule, agrees with such postulates and issues positive conclusions.

Quite frequently decisions are made on the construction of hydropower plants in virgin ecosystems that further aggravates the negative impacts of the projects on biodiversity.

Frequently the HPPs are planned on the existing and/or planned protected areas (or in their close vicinity), which are created to conserve unique nature in its primary form (Khde Gorge, Tergi Gorge, Machakhela Gorge, Paravani Gorge, Kintrishi Gorge, etc.).

It is also noteworthy to mention the recent practice of concluding an agreement on the hydropower plant projects on Build, Own, Operate (BOO) basis – as a rule, before starting environmental impact assessment process of the project and issuing a state ecological expertise conclusion and construction permit, the investor company and the Ministry of Energy and Natural Resources (on behalf of the Georgian Government)

¹ Run-of -river (derivative type) hydropower plant, which operates with a small dam or without it; a part of the river downstream is directed to turbines through a pipe or a channel for electricity generation.

² 95% of a year, or 347 days, is meant.

sign an agreement or a memorandum, where the parameters of a planned HPP, as well as beginning and ending dates of the construction are already defined. This circumstance actually makes EIA process senseless and disrupts any possibilities of discussing environmentally acceptable alternatives.

It should be also noted that long-term energy planning, energy policy and strategic development plan of energy sector are not carried out in Georgia. Since 2001 even energy balance of the country has not been created and the widespread opinion about the tendency of increased internal demand for electricity is quite doubtful too as it is not confirmed by the official data of ESCO³. All these hamper the process of making an optimal decision in the energy sector.

The following issues were highlighted during the discussion:

1. The so called 10% threshold for sanitary flow was not used in construction of any derivative types of HPPs during the Soviet period. It should be emphasized that such thresholds does not exist either in European countries or in the United States. Examination of such practice has started in Georgia since 2011 and even in this case we face wrong interpretation of “the Tennant Method” (the same “Montana Method”)⁴. According to this assessment method, in case of leaving only 10% of water in the river, the state of fish habitat will be “bad or minimal.” Thus, the claims of EIA reports of the HPP projects prepared in Georgia recently, that investor companies follow universally recognized practices and/or the practice existing in Georgia, does not correspond the truth. The same can be said about the claims of the EIA reports that say that in case of such project solution, environmental impact will be “minimal” and “insignificant.”
2. During the last decades no hydrological monitoring of rivers has been carried out in Georgia. For the planning of HPP projects along with the other information, the data of multiyear observations over the changes of water flow and sediments in the rivers are needed; Such data either do not exist at all or they are outdated (They were collected 25-30 years ago). Respectively, there is no reliable information about an optimal amount of water from environmental and energetic points of view. Despite the abovementioned facts, the memorandums and agreements signed between the investor and the government of Georgia define the capacity and other parameters of hydropower plants without research.
3. No biodiversity monitoring has ever been conducted in Georgia to ascertain the impact of existing HPPs on biodiversity, in terms of habitat degradation and fragmentation.
4. Regular monitoring of the rivers is the most important issue. It concerns not only to the issue of determining the amount of water in the rivers, but also monitoring the state of biodiversity in the downstream part of the rivers too. The Georgian legislation does not define maximum allowable amount of water intake. The participants of the discussion noted that this issue was not regulated by the Soviet legislation either. The current Georgian legislation does not define either the methodology of monitoring the background situation of the environment, or the monitoring of the

³ Electricity System Commercial Operator (ESCO), <http://www.esco.ge>

⁴The Tennant method (1975) is a very simple-to-use and cheap hydrological assessment instrument, which under existence of certain (established and studied) hydrological and ecological parameters/data, can be used well for determining the allowable limits of changing the natural hydrological regime of the river and assessing the state of fish habitats (in certain regions). The Tennant method (Tennant table) provides a correlation between various sanitary flows and the state of fish habitats.

state of fulfillment of environmental commitments undertaken in frames of energy projects. It is essential to define these two issues by a normative act and to prepare relevant guidelines.

5. Additional energy capacities will be needed in the near future. In order to receive new hydrological data about the rivers, it is necessary to carry out long-term (at least 10-year) monitoring (for example, to define an optimal ecological cost, etc.). Suspension of all energy projects for such a period is unrealistic. At the same time, due to the absence of data, against the background of neglecting the environmental issues, the construction of planned HPPs may cause an irreversible damage to various ecosystem services that will ultimately appear economically unprofitable for the country. Thus, an optimal solution to overcome the deadlock would be creation of the so called “no go zones”. It means imposing a moratorium on the construction on all types of hydropower plants in the river basins distinguished by biodiversity and diverse ecosystem services, until the sufficient and reliable information is collected, which will enable the country to implement particular projects without aggravating the natural and social situation. The criteria for selecting these “no go zones” should be defined additionally.
6. It is essential to change the sequence of preparation and implementation of hydro energy projects immediately. Before completing environmental impact assessments and issuing state ecological expertise conclusions, the state and the investor should not sign such memorandums/agreements, which include the key parameters of the project, as well as starting and ending dates of the construction.