

# Policy Paper

## *Khudoni Hydro Power Plant*

Giorgi sakhokia



13 November, 2016

Dear Mr. Ilia Beroshvili

First of all, congratulations on your appointment as Minister of Energy of Georgia, considering the great importance of energy sector for the state, I hope your term will be successful in every aspect.

In this letter, I would like to introduce my Policy paper about Khudoni Hydro Power Plant. With this Policy paper, I want to deliver current issues related to Khudoni HPP project. Also, I want to introduce recommendations of our organization and offer alternatives and solutions. We hope our suggestions will be taken into consideration in project implementation process.



Respectfully,  
Giorgi Sakhokia  
*G. Sakhokia*

“Georgian Green Heritage”

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# The Executive Summary

This paper argues that the Khudoni Hydro Power Plant is not a decent solution for the Georgian energy sector, through an examination of alternatives, considering the various impacts of dam construction on the environment, local people and cultural heritage.

Our organizational goal is to secure environment of Georgia, as well as, cultural heritage and social development. This projected dam poses threats to the environment, can cause social dangers, also destroys a lot of cultural monuments. For these and other reasons we would like to introduce you to our policy paper which defines threats, outline the problems and discuss solutions and alternatives.

I want to offer other projects which can be supplementary and doesn't have same adverse consequences, for example, Khaishi HPP, Tobarı HPP, and Pari HPP. These and other alternatives should be considered as a substitute for Khudoni HPP.

Depending on the research, I suggest canceling the contract, Because the company (LTD "Trans Electrica Georgia") is not fulfilling its obligations, and there are a lot of law related issues. Georgian Government should stop Khudoni HPP project because there are a lot of internal and external risks. Also, we have to take into the consideration that flood of 500 hectares of sub-alpine forests will dramatically change the climate in East Georgia, as well as in the whole country. Besides the destruction of the flora, there will be the massive loss of the fauna of this region and it will negatively affect the country's environment. First and the foremost, we recommend to cancel the project, consider alternatives to this project, and to provide high involvement of the local population and non-governmental organizations in the decision-making process. 

## Introduction and Background

Water and water resources are the one of the biggest among the natural riches of Georgia. The hydro-energetic potential of Georgia (rivers, lakes, water reservoirs, ices, underground waters) is on one of the first places in the world<sup>1</sup>. Nowadays Hydro Power Plants provides nearly 80 percent of all Georgia's electricity, which is only 25 percent of country's Hydropower potential. Georgia can't produce a sufficient amount of electricity, especially in winter, and has to buy natural gas from neighbors. Energy dependence on Russia was a bad experience for the country, in 2007, they cut the supply of gas in winter and country had literally frozen. Meanwhile, Azerbaijan is reliable partner and supplier, but it is better to ensure energy security with own resources. Considering that in Georgia there is no oil and gas production, the primary source of electricity is Hydroelectric power stations. The Georgian government is planning to construct 35 Hydro Power plants in Upper Svaneti to gain energy independence.



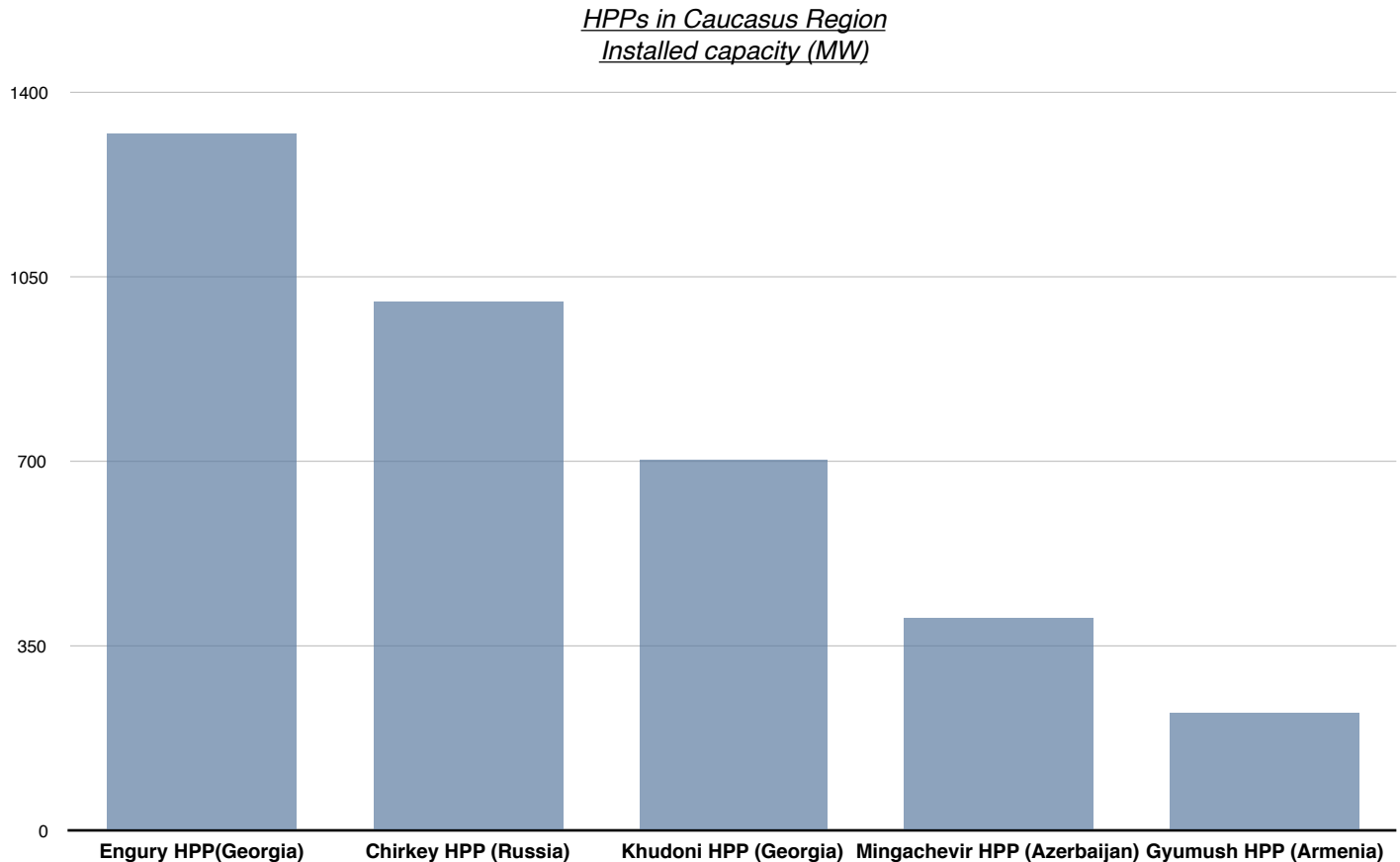
### \*Enguri Hydro Power Plant Cascade System Project

On 29 June 2007, was signed a Memorandum of understanding between the Government of Georgia and the Continental Energy LTD.  
On April 2011, was signed an Agreement between the Government of Georgia, "Trans Electrica Limited," "Trans Electrica Georgia," LTD "Energotrans" and LTD "Electricity

<sup>1</sup> [http://www.energy.gov.ge/energy.php?lang=eng&id\\_pages=54](http://www.energy.gov.ge/energy.php?lang=eng&id_pages=54)

System Commercial Operator" on the necessary future stage of the implementation of the activities of the project.<sup>2</sup>

Khudoni HPP is the biggest project and most complaining one in the Enguri Cascade System, because it is located in Upper Svaneti national park . Also, there are many other controversial issues related to this project. Khudoni Hydro Power Plant should be the second biggest HPP in Georgia, with power of 702 MW (estimated annual generation of 1,500 million kW) and the third largest HPP in region followed by Engird HPP(Georgia) and Chirkey HPP (Russian Federation)



<sup>2</sup> <http://www.energy.gov.ge/projects/pdf/pages/Khudonis%20Hidroelektrosadguri%2043%20geo.pdf>



### *Major parameters of Khudoni HPP<sup>3</sup>*

Total volume of water reservoir	230mln m3
Useful volume of water reservoir	89 mln m3
Height of the dam	170 m
Area of water table	24 km
Area of catchments basin	2800 km2
Length of hydro meteorological observation	48 years
Average annual ware flow	4100 m3
With (90 percent) provision	3600 m3
Average annual water discharge	130 m3/sec
Maximum discharge	850m3/ sec
Maximum discharge with 0,01 provision	2030m3 /sec
Maximum discharge with 1,0 provision	1030 m3/sec
Minimum discharge	14 m3/sec
Estimate discharge of the HPP	490 m3/sec
Estimated pressure of the HPP	143,8 m
Standard level of flooding	700 m
Depth of exploitation of the reservoir	55 m
Installed capacity	638 MW
Average annual generation	1,445 TWh
Hours of capacity usage	2400 h
Capital investments necessary for construction works	USD 660m
Cost of work to be done	USD 500m

### ***Purpose of paper and Roadmap***

HydroEnergy is a substantial topic for Georgia, On the one hand, we have to ensure energy security of the state, and the government decided that this project was the right solution. On the other hand, this Hydro Power Plant project is the very controversial topic, and it is associated with many important issues. The aim of the Policy Paper is to identify threats and opportunities, to determine advantages and disadvantages of Khudoni HPP project and analyze current issues from multiple perspective.

In my Policy Paper, I would like to introduce you to the most important issues around this project. Firstly, I will overview current issues(environmental, cultural, social) relating to the construction of the Khudoni HPP; Secondly, I will examine project implementation problems, law-related problems; then I will offer some alternatives of Khudoni HPP and talk about solutions and recommendations.

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<sup>3</sup> [http://bankwatch.org/documents/khudoni\\_dam\\_study.pdf](http://bankwatch.org/documents/khudoni_dam_study.pdf)

## **Problem Description/Analysis**

Nowadays Khudoni project is one of the main topic of discussion in Georgia. It is associated with a number of controversial issues and attracts public attention. The rush to build hydropower plants in Georgia is understandable for our organization, it is an issue of National Energy Security, and country want to ensure it with its resources, but unfortunately this project is not backed by any energy strategy and without regard for environmental consequences, social and cultural impacts. Khudoni HPP project is related to resettlement of 2000 inhabitants, requires flooding of a number of unique villages, will negatively impact on the environment and destroy a lot of cultural monuments, furthermore, there is no final version of Environmental Impact Assessment, as well as resettlement plan.

### **Current Issues overview**

#### **Environmental impact**

Environmental costs of Khudoni HPP is very high. Projected dam in the Upper Svaneti region will cause a lot of negative impact on the environment. Cutting and flooding of vast forests, where there are many unique species of animals, will lead to change climate and cause a lot of environmental problems. 

#### **Social issues**

Khudoni HPP Project will cause a high impact on the population, during the project implementation, the village of Khaishi and a number of other small settlements would be forced to resettle. In total, about 2000 people (up to 256 households) are expected to be relocated. This process will notably reduce the population of Upper Svaneti region. That is a significant number for the region with the population of 11000 people. The re-settlement is painful and unacceptable for local villagers; People from around villages and from the whole region are against of the Khudoni HPP and resettlement of local residents.

#### **Cultural Heritage**

Zemo Svaneti is one of the most beautiful parts of Georgia, where is preserved ancient traditions and culture. There are a lot of cultural monuments and historical museums, Upper Svaneti is very rich with cultural heritage, with centuries old Georgian type houses it represents the history of Georgia. Upper Svaneti region is one of the most attractive place for tourists, with its sightseeings, a lot of nature reserve and protected areas with rich wildlife, flora and fauna. Khudoni Hydro Power Plant will flood significant part of Zemo svaneti, which has been a UNESCO World Heritage Site area since 1996.<sup>4</sup>

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<sup>4</sup> <http://whc.unesco.org/en/list/709>



## **Threats**

The projected Khudoni HPP is located in an active seismic area and earthquakes with magnitudes from 5 to 7 have been recorded many times. Considering that into couple hundreds of meters downstream there is Enguri HPP (biggest HPP in Georgia), some unexpected event can cause serious problems for Western Georgia.

Beside internal risks, there are some external threats. Khudoni HPP is located very closely to the occupation line, as well as to the border of Russian Federation



Georgia is in a state of war with Russia, and the Autonomous Republic of Abkhazia is occupied by Russia, there are a lot of possibility of terrorist attacks to damage Khudoni dam, which will cause a lot of danger for the state. Same risks were during the August war in 2008 when Russia invaded in Samegrelo and Upper Svaneti Region.

## **Decision-making procedure**

Georgian government allowed to build Khudoni Power plant, but it is not backed up by any energy strategy. The document does not provide requirements of the local population and is maximally adjusted on the company needs, but they are not fulfilling their obligations. The Georgian Government changed a contract twice for further adjustment on the company requirements and extended deadlines. This approach leads to a reasonable suspicion in society; they see elements of corruption and doubt transparency and fairness of the decision-making process. Also, the biggest concern of the local people of Upper Svaneti is, that they did not participate in the discussions about Khudoni HPP project.

## **Problems with the implementation of the project**

Initially, the agreement (28.04.2011), the company should have started construction within 12 months from the signing of the contract, that is, on April 28, 2012<sup>5</sup>. However, Because the company failed to fulfill the promise, on 23 May 2012 by the amendment to the agreement, the deadline has been postponed until September 1, 2012. The final date of the construction starts was postponed again by new amendment on May 28, 2013; The company was obliged to take up the construction permit until March 1, 2014. The company failed again; they couldn't even pass early stages for getting the construction permit, determined by law.

The company still has not published resettlement plan or resettlement policy framework, which was obliged by agreement.

## **Law related issues**

First of all, this project in its initial stage was illegal<sup>6</sup>. According to the order of the President of Georgia, on 11 January 2012, a purchase agreement was concluded between the Ministry of Environment and Natural Resources Protection of Georgia and Ltd. Trans Electrica Georgia. According to mentioned agreement, "Project Development Company gained the ownership the property (141 sites, in total 11 940 529 m2) in

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<sup>5</sup> <http://www.energy.gov.ge/projects/pdf/pages/Tsvlileba%2028052013%2046%20geo.pdf>

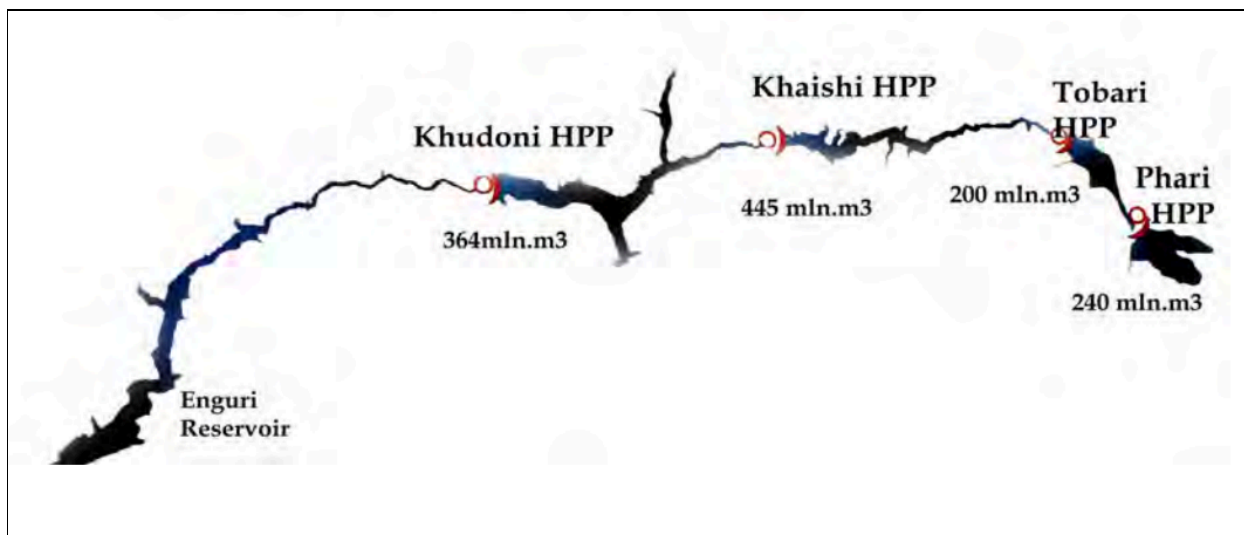
<sup>6</sup> According to the article 4.15 of the agreement concluded between the investor and the Government of Georgia, if the "government" or a relevant State Office receives a capital of the "Project Performance Company" in possession by expropriation, nationalization or other mandatory means, the actives of the company implementing the project shall be refunded totally or partially, according to the present market value. <http://www.ombudsman.ge/en/recommendations-Proposal/rekomendaciebi/xudonhesis-msheneblobis-kanoniereba.page>

Mestia Registration zone for symbolic one US dollar”<sup>7</sup>. This territory includes more than 250 houses of local people, and the decision was made without their involvement in the decision-making process.

Secondly, with the agreement (28.04.2011) State is obliged to purchase electricity during the winter season from Ltd. “Trans Electrica Georgia”(5.84 US cents per 1 kW/h). This statement is against the requirements of European Energy Union. Georgia has already taken this obligations with the signature of European Union Association Agreement. The main requirements of European Energy legislation are market de-monopolization, based on fair competition and transparent market principles and to eliminate opportunities for corruption.

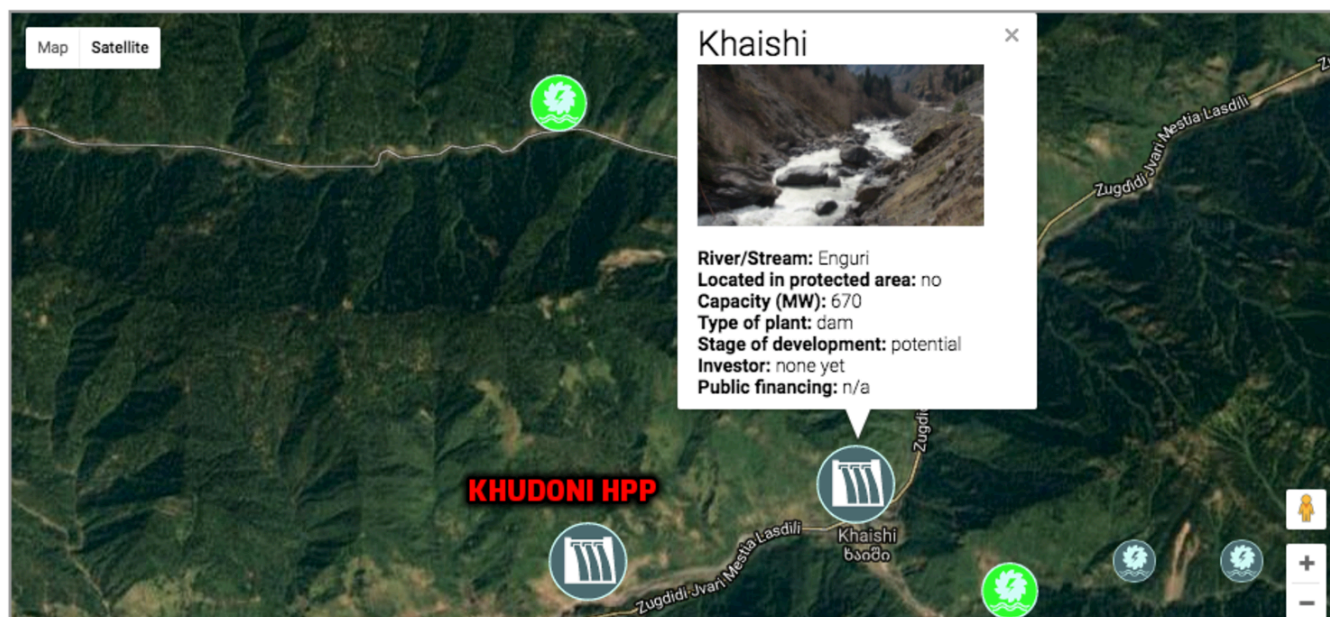
## **Alternatives**

Potential HydroEnergy recourses of River Enguri considered as 21,000 million kW. Nowadays, only 5,500 million kW/H is produced by Enguri HPP and Vardnili HPP cascades. There are many other alternatives of Khudoni in the Upper Svaneti region, which doesn't have a same negative outcome and can produce almost same electricity(more in the combine). Especially upstream of Khudony HPP, there are a lot of locations for potential HPP\_s which can supply a lot of energy and can help Georgia to ensure energy security without expensive costs.



<sup>7</sup> <http://www.ombudsman.ge/en/recommendations-Proposal/rekomendaciebi/xudonhesis-msheneblobis-kanoniereba.page>

Khaisi HPP is one of the best alternatives for Khudoni HPP; it is projected to locate just above of Khudoni HPP, which should have installed capacity of 670 MW, and can be the substitute of Khudoni HPP, considering that this project is not related the same amount of issues. Estimated annual generation of Khaishi HPP should be 1,450 million kW(Khudoni HPP 1,500 Million kW).



Tobari Hydro Power Plant project with the 173-meter high arch dam, in Upper Svaneti region, should have installed capacity of 250 MW and estimated annual generation of 1,450 million kW(Khudoni HPP 1,500 M/kW). Tobari HPP can be a good project, considering that it requires to flood much less territory and doesn't require resettlement of local people.

Tobari HPP alongside with Pari HPP, with projected 230 MW (in total 480 MW) will fill 20% gap, and Georgia should be producing 100% of electricity by HydroEnergy Sources and will ensure Energy Independence without expensive environmental costs. HydroEnergy potential of Georgia is enormous. Khudoni HPP can be substituted by other small Hydro Power Plants. There are number of alternatives in different parts of Georgia (Especially in Racha-Lechkhumi Region<sup>8</sup>) which should be examined and considered.

Also, I must mention that in Georgia, other Renewable resources are not used to produce energy. In consideration that renewable energy market is growing very fast, I suggest, that Georgian Government should examine the opportunities of other renewable sources. Georgian government should invest in other renewable resources (solar, wind).

<sup>8</sup> <http://www.energy.gov.ge/projects/pdf/pages/Brdzaneba%2096%2015092014%20Sakartveloshi%20Asashenebeli%20Potentsiuri%20Elektrosadgurebis%20Nuskhis%20Damtkitsebis%20Taobaze%201055%20geo.pdf>

## recommendations

- Government should start process of agreement cancellation, based on the fact that Company (“Trans Electrica Georgia”) isn’t fulfilling its obligations; also agreement contains a lot of controversies to European Energy Law.
- Order of the President of Georgia, (11 January 2012) should be revoked, As it is inconsistent with the legislation of Georgia.
- Georgian government should develop energy security strategy
- The government should be abandon the Khudoni HPP project because it contains a lot of risks, and issues negative impact on environment, social and cultural heritage.
- Ministry of Energy of Georgia should examine alternatives
- NGOs and local people should be involved in decision-making process

### Conclusion

Khudoni Hydro Power Plant is one of the biggest projects in the Caucasus Region. It can bring a lot of profit for the country, can produce a lot of electricity, especially during winter. Khudoni HPP should ensure energy stability and energy independence for Georgia. Georgian Government considers this project as crucial and believes that it is the right choice. They allowed project company to start building of Khudoni HPP, but

To sum up, our position is that we understand that country needs to create new power plants and has to use its energy potential, but we want to take into consideration environmental, social, cultural aspects.

Our recommendation is to abandon the project, Firstly, because of legislative issues. Secondly, this project does have expensive environmental, social and cultural costs. Thirdly, We want to find and discuss other alternatives which are not as harmful and produces same capacity provided by Georgias Hydropower potential and will ensure energy security of Georgia.



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