



Բաց Չասարակության Հիմնադրամներ - Հայաստան

OPEN SOCIETY FOUNDATIONS ARMENIA
SHPP SOCIO-ENVIRONMENTAL IMPACT ANALYSIS

Authors – Victoria Burnazyan, Tatevik Grigoryan, Monica Yeritsyan
Expert – Inga Zarafyan

This material was made possible with the full support of Open Society Foundations – Armenia’s Policy Fellowship Program Initiative, grant number 18571. Ideas, thoughts, and arguments presented in the paper are the sole expression of the author’s views and do not reflect those of Open Society Assistance Foundations – Armenia.

Summary

In parallel with small hydropower plant (SHPP) development scheme implementation problems have arisen in Armenia in regard with overexploitation of water resources, river ecosystems, biodiversity, specially protected areas, landscapes, social welfare of people and life quality.

Different studies on SHPPs are available, which present the perspectives of SHPP development, funding sources, legal aspects of water and land use, development of small hydropower directed at energetic security, environmental risks connected with the loss of biodiversity, deterioration of river ecosystems etc. Nevertheless, the existing data are fragmental and don't enable to have thorough idea about the impact of SHPPs on environment, river ecosystems and communities, as well as to study the compliance of their construction and operation with domestic and international legislation and policy. Taking into consideration the aforementioned, SHPP impact was assessed in this study from several viewpoints. The load of 100 SHPPs on 47 rivers was studied using "Ecological Risk Model" tool developed by "EcoLur" Informational NGO¹. The EIAs of 25 SHPP projects were analyzed in parallel with their compliance with the UN Framework Convention on Climate Change, the UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention), RA Codes on Water and Forest, RA Laws "On Environmental Impact Expert Assessment", "Specially Protected Areas of Nature", "On Flora", "On Fauna", "On Lake Sevan".

Sociological surveys were conducted in 12 communities exposed to SHPP impact. The transparency and accountability of the activities of governmental bodies in the field of SHPPs were studied. The extent of SHPP compliance with the social and environmental policy of international financial institutions was found out via correspondence.

Main Outcomes

- The SHPP load on 28 rivers out of 47 is within standards, 16 are in critical and 3 in disastrous condition.
- The analysis of project EIAs shows that the projects don't comply with the requirements of RA Law "On Environmental Impact Expert Assessment", as well as they violate the environmental legislation - RA Codes on Water and Forest, RA Laws "On Environmental Impact Expert Assessment", "Specially Protected Areas of Nature", "On Flora", "On Fauna", "On Lake Sevan".
- The public hearings have imitation nature, the opinions of community residents are not taken into consideration in decision-making, public hearings are held in violation of the provisions of RA Law "On Environmental Impact Expert Assessment" and the Aarhus Convention.
- "Environmental Expertise" SNCO of Nature Protection Ministry works non-transparently: it refuses to provide the minutes of the public hearings, opinions and environmental expertise conclusions.

¹ Interactive Model for Environmental Risk Analysis, See <http://www.ecolur.org/hy/an/?Page=1>

The dialogue with international financial institutions showed that they are interested in 100% loan repayment and not in protection of environment and improvement of social welfare.

Proposals

1. To amend RA governmental resolution no. 927-N dated on 30 June 2011 on environmental flow (not less than 50%) to conserve river ecosystem.
2. To annul RA governmental resolution no. 1300–A dated on 8 September 2011 “On Proposal to Set Maximum Capacity for Small Hydropower Plants”, where the capacity of SHPPs was increased from 10 to 30 MW.
3. To determine zones where SHPPs are prohibited, which include specially protected areas, forest areas, landslide zones and vulnerable hydrological areas.
4. To ban the construction of new SHPPs and not to renew the licenses of constructed SHPPs on the rivers in critical and disastrous condition because of overexploitation.
5. To set a clear procedure, which will enable taking into consideration the opinion of the project affected community in the SHPP construction.
6. International financial institutions together with other stakeholders - Nature Protection Ministry, Energy and Natural Resources Ministry together with the Public Services Regulatory Committee shall bear responsibility for the adversary environmental and social consequences arising from the SHPP operation and violations of the domestic and international legislation.
7. To free the rivers flowing into Lake Sevan from SHPPs, to ban the construction of new SHPPs, to dismantle illegal SHPPs and not to renew the licenses of operating SHPPs.
8. To publicise all the official documents regarding to SHPPs – projects, minutes of public hearings, environmental expertise conclusions.

CONTENT

General Data	5
Climate Change and CDM Sponsored SHPPs	6
River Load	7
SHPP Risks	15
Environmental Flow	15
Forest Felling	18
Landslide	19
Loss in Biodiversity	19
Loss in Tourism Areas	21
Social Tension	21
Sociological Surveys in Communities	22
Non-transparency of decision-making process: Environmental expertise	25
Proposals	27
Used Sources	28

General Data

The construction of small hydropower plants (SHPP) is considered a priority in developing renewable energy.

The SHPP construction is carried out under “SHPP Development Scheme” approved on 22 January 2009 with the adoption of protocol resolution № 3 of the Armenian Government. The Scheme plans construction of 115 SHPPs.

Table²

Name of River Basins	Number of SHPP-s in Basin	Total installed capacity of the capacity MW	Average production Mln.kWh	annual Number working hours hour/year	of SHPP factor %
Debed	33	25	91	3670	42
Aghstev	23	34	130	3843	44
Akhuryan	4	11	28	2521	29
Kasakh	4	3	12	3570	41
Hrazdan	4	4	13	3089	35
Lake Sevan	11	10	43	4466	51
Azat & Vedi	5	5	19	3728	43
Arpa	4	12	35	2908	33
Vorotan	5	10	43	4131	47
Voghji	14	20	76	4009	46
Meghri	8	13	50	3724	4
Total	115	147	540	3677	42.

As of 1 January 2014, the Public Services Regulatory Committee issued licenses for the construction and electricity production of 150 SHPPs³.

² Official website of Armenia Renewable Resources and Energy Efficiency Fund - www.re2e2.am

³ See Appendix 2

Under the data of Energy and Natural Resources Ministry, 8,036,200,000 kW/h electricity was produced in Armenia in 2013, out of which 570,000,000 kW/h (6.5%) was SHPP share.

SHPP operation license is valid for 15 years. The producer sells the electricity to “Armenian Electrical Networks” CJSC at clearly determined price. The price for SHPPs constructed on natural flows makes up 20 AMD/kWh (US\$4.9), 13.5 AMD/kWh (US\$3.3) on irrigation systems and 9 AMD/kWh (US\$2.3) on drinking water stations.

Under RA governmental resolution no. 1300–A dated on 8 September 2011 “On Proposal to Set Maximum Capacity for Small Hydropower Plants” the capacity of SHPPs was increased from 10 to 30 MW.⁴

Thus, the increase both in the number of SHPPs and their capacities are observed.

Climate Change and CDM Sponsored SHPPs

In the frames of the Clean Development Mechanism (CDM) of Kyoto Protocol to the UN Framework Convention on Climate Change it’s encouraged to construct SHPPs, as they don’t emit greenhouse gases into environment.

The Clean Development Mechanism (CDM) is a project-based mechanism designed to promote investment in projects that reduce or sequester emissions of greenhouse gases in developing countries. The CDM objectives are to contribute to the ultimate objective of the Convention on Climate Change to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system and to assist Parties in achieving compliance with their quantified emission limitation and reduction commitments under Article 3 of the Kyoto Protocol.”⁵

“Kyoto Protocol and Clean Development Mechanisms (CDM) is an ecological umbrella. Developing countries like Armenia sell quotes for CO₂ emission in international market at the expense of so-called “clean” energy produced at SHPPs, for which Emissions Reduction Purchase Agreement - ERPA is concluded. It’s profitable business as the quotes are resold in the international market through the intermediaries founded by the same international financial institutions.”⁶

The funding of SHPPs is also attractive in this regard, as it ensures 100% loan repayment, no competition in electricity consumption market, its operation has continuous nature and electricity is sold at high price. In Armenia the following institutions provide loans for SHPPs: The European Bank for Reconstruction and Development (EBRD), German Development Bank (KfW), World Bank and International Finance Corporation (IFC). EBRD provided US\$ 7 million loan through Cascade Bank for 24 SHPPs, World Bank - US\$5 million. In 2010 the International Finance Corporation provided a loan of US\$ 15 million

⁴ Official website of RA Government, <https://www.e-gov.am/gov-decrees/item/20207/>.

⁵ Official Website of Climate Change Information Center of Armenia: <http://www.nature-ic.am/hy/%D5%B4%D5%A6%D5%B4-%D5%AB-%D5%B6%D5%BA%D5%A1%D5%BF%D5%A1%D5%AF%D5%A8/>

⁶ Report “SHPPs Under Umbrella of International Financial Institutions”, EcoLur, Yerevan 2013

through Ameriabank for 12 SHPPs. In 2004 KfW Bank provided 6 million Euros for SHPPs, 18 million Euros in 2010 and 40 million Euros in 2012. KfW Bank funded 23 SHPP projects.

The Climate Change Convention encourages SHPP construction, while, as a matter of fact, the SHPPs in Armenia promote the acceleration of adversary processes in climate change, violation of ecosystem balance, loss in forests, water resources, activation of landslide processes and extinction of biodiversity. “Global climate change and internal micro-climatic changes on the territory of Armenia might have the following consequences:

Increase in climate aridity and intensification of desertification processes can be expected under the projected increase of temperature and precipitation reduction.

- In case of the accepted scenario of climate change, reduction of annual river flow by 15 %, and increase of evaporation from the surface of Lake Sevan by 13-14 % is expected...”⁷

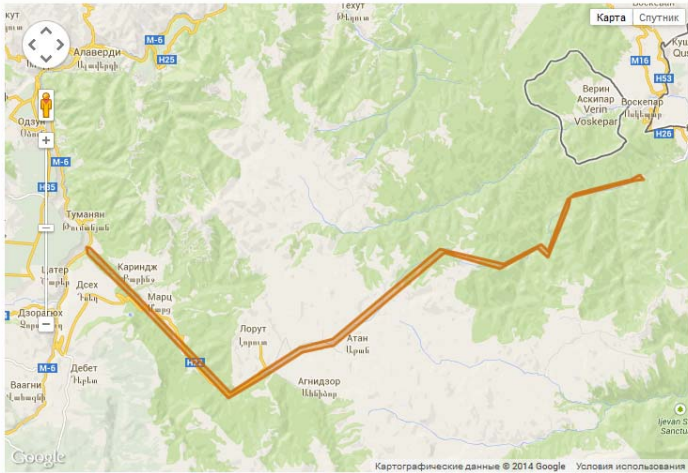
Under the official website of Climate Change Information Center of Armenia, the CDM Board has registered in Armenia “Argitchi”, “Yeghegis”, “Jradzor” SHPP projects. The National Authority for the CDM – Nature Protection Ministry has approved “Yeghvard-2”, “Hanqavan-1”, “Saravan” and “Her-Her”, “Gegharot” SHPP projects, Amberd Cascade project, which includes the construction of “Amberd1,2,3” SHPPs, Cascade Credit Small Scale Hydro Bundled Project, which constructed “Aygedzor-2”, “Ayri”, “Aygezard”, “Agstev-1”, “Lernapat”, “Vahagni”, “Chanakhcni”, “Ler Ex Cascade” (1,3,4,5,6), “Bovadzor”, “Apres” SHPPs, Energocor Small-Scale Hydro Bundled Project, which constructed “Ayrq-1”, “Ayrq-2”, “Avazan”, “Eric”, “Jermuk-2” SHPPs. “Sedvi 1” and “Sedvi 2” SHPP projects are in approval procedure, which will be constructed on Katchatchkut River flowing in Lori Region.

River Load

RA governmental resolution no. 927-M dated on 30.06.2011 allows taking over 90% of the river water into SHPP derivation pipes. However, under the environmental standards, water intake over 20% leads to the critical condition of the river, while 40% leads to the disastrous condition. Given this, we can determine the condition of the river by calculating the percentage of the river length taken into SHPP pipes.

⁷ Official Website of Climate Change Information Center of Armenia: <http://www.nature-ic.am/hy/%D5%B0%D5%B6%D5%A1%D6%80%D5%A1%D5%BE%D5%B8%D6%80-h%D5%A5%D5%BF%D6%87%D5%A1%D5%B6%D6%84%D5%B6%D5%A5%D6%80%D5%A8-%D5%B0%D5%A1%D5%B5%D5%A1%D5%BD%D5%BF%D5%A1%D5%B6%D5%AB-h%D5%A1%D5%B4%D5%A1%D6%80/>

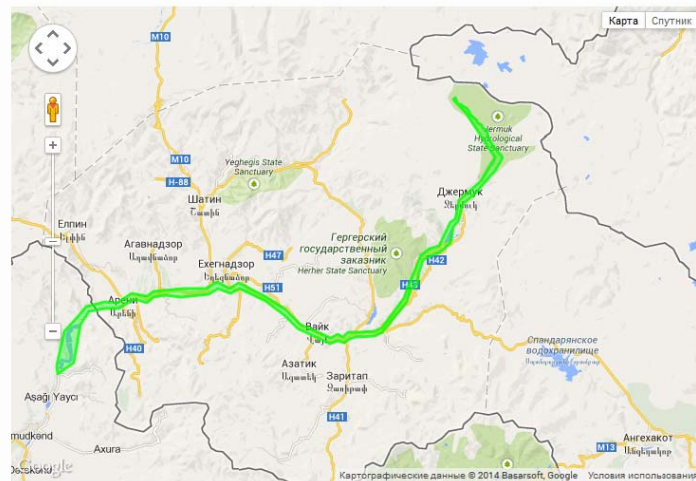
EcoLur’s Interactive Model for Environmental Risk analysis determined the impact of 100 SHPPs on 45 rivers.⁸ As a result, it was found out that the SHPP load on 26 rivers is within standards, 12 are in critical and 3 in disastrous condition.



■ Աղետալի վիճակ ■ Ճգնաժամային վիճակ ■ Նորմալ վիճակ



■ Աղետալի վիճակ ■ Ճգնաժամային վիճակ ■ Նորմալ վիճակ



■ Աղետալի վիճակ ■ Ճգնաժամային վիճակ ■ Նորմալ վիճակ

As of 1 January 2013, under the construction licenses issued by Public Service Regulatory Committee, if these SHPPs are constructed, 5 rivers will be in critical, two in disastrous condition and two will be within standards.

Five Rivers Within Standards Close to Critical Condition

1. “Artavan-1” SHPP is constructed on **Artavan** river (length – 19 km) with EBRD funding, derivation length – 3721.5 meters, which makes up 19.59% of the river.
2. “Khachardzan” SHPP is constructed on **Khachardzan** river (length – 18 km), derivation length - 2*1740 meters, which makes up 19.33% of the river.
3. “Tsav” SHPP is constructed on **Tsav** river (length – 27 km) with German KfW funding, derivation length – 4765 meters, which makes up 17.65% of the river.

⁸ Interactive Model for Environmental Risk Analysis <http://www.ecolor.org/hy/an/?Page=1>

4. “Argitchi” SHPP is constructed on **Argitchi** river (length – 51 km) with German KfW funding, derivation length - 9527 meters, which makes up 18.68% of the river.



Case Studies - “Argitchi” SHPP

“Argitchi” SHPP project on the largest river flowing into Lake Sevan, Argitchi River, was approved by the Authorized Authority for the CDM - Nature Protection Ministry on 23 November 2003 and the CDM Executive Board registered it on 24 February 2008. The project EIA was accomplished on 7 July 2006. While undergoing permit issuing process, “Argitchi” SHPP project was submitted for EBRD funding, nevertheless, the SHPP was not constructed for some reasons and EBRD didn’t provide a loan. In 2012 “Hydrocorporation” Company constructed the SHPP with the old project and the funding was provided by German KfW bank through German-Armenian Fund. The bank has clear eligibility criteria for SHPP project selection, “The SHPPs must comply with applicable laws and regulations, including environmental and social issues.”⁹ “Argitchi” SHPP project was constructed with expired document, except CDM permit, which is unlimited and is not a mandatory document among SHPP construction permit list, thus Articles 11(4) and 12 of RA Law “On Environmental Impact Expert assessment” were violated.

Under specialist in water ecosystems Seyran Minasyan, “The chemical composition of water doesn’t change, it changes the hydromorphology and hydrobiology of the whole river system. In this regard, SHPPs naturally have huge adversary impact”¹⁰. Thus, the construction of “Argitchi” SHPP violated Article 8 of RA Law “On Lake Sevan”, “Immediate impact zone includes Lake Sevan basin up to watershed. Any activities which would directly or indirectly affect on Lake Sevan, hydrophysical, hydrochemical, hydrobiological, sanitary-technological, hygienic and other qualitative and quantitative indicators of the rivers, flowing into Lake Sevan, is banned.”¹¹

Red-listed summer trout and other endemic fish species spawn in Argitchi river, thus “Argitchi” SHPP violated the provisions of two laws.

⁹ Official website of German-Armenian Fund (GAF) <http://gaf-re-shpp.am/index.php?id=9&L=1>

¹⁰ “Hydromorphology and Hydrobiology of River Ecosystems Changing Because of SHPPs: Expert Seyran Minasyan” <http://ecolur.org/hy/news/water/hydromorphology-and-hydrobiology-of-river-ecosystems-changing-because-of-shpps-expert-syran-minasyan/5956/>

¹¹ RA Law “On Lake Sevan”

Article 18 (b) of RA Law “On Fauna”: “Any activity, which will lead to the reduction of the number of red-listed animal species and deterioration of their habitats in the Republic of Armenia is banned.”

- Article 10 (1) of RA Law “On Lake Sevan”, “Any activities having adverse impact on Lake Sevan ecosystem are banned in the central zone, in zones of direct and indirect impact.”
- Article 11 of RA Law “On Lake Sevan”, which lays down the priority of biodiversity.

“Argitchi” SHPP has been constructed in the catchment area of Sevan National Park, thus violating Article 17 (3) of RA Law “On Specially Protected Areas of Nature”: “In the economic zone of the national parks it’s banned a) any activity violating the water regime of the park...”

“EcoLur” Informational NGO informed German KfW Bank about the legal violations of “Argitchi” SHPP and demanded to stop the SHPP funding. In reply KfW informed, “The technical consultant has re-examined the documents for Argitchi SHPP and confirmed the validity of all necessary permissions, including the environmental expert assessment quoted by you.”¹²

It should be mentioned that the derivation pipeline of “Argitchi” SHPP is the longest among SHPP pipelines operating in Armenia. According to the certificate on operating and being constructed SHPPs issued by Public Services Regulatory Committee on 1 January 2014, the derivation length of “Argitchi” SHPP is 9527 meters, which makes up 18.68% of the river. It means that water absence in about 10-kilometer-long section will lead to the destruction of the local ecosystem and biodiversity, extinction of the fish in the river, as the locals witness.

The illegal construction of “Argitchi” SHPP was supported by the Armenian Government. At the meeting on 17 October 2013 the Armenian Government reached a decision to give privileges to “Hydrocorporation” CJSC for the construction of “Argitchi” SHPP for three years extending the custom treatment for importing goods exceeding 300 million AMD to import pipes for the SHPP by 13 July 2016.

The substantiation of the decision is noteworthy, where it says, ““Argitchi” SHPP with 11 MW capacity is being constructed using the natural flow of the Argitchi River in Gegharkounik Region.”¹³ While the official website of German-Armenian Fund (through which German KfW Bank allotted funding to “Argitchi” SHPP) says the permissible standards posed to projects, the capacity of the SHPP shall be lower than 10 MW.¹⁴ It should be mentioned that “Argitchi” SHPP project submitted for the CDM approval says its capacity is 8.56 MW.¹⁵ It turns out that the capacity of the SHPP was enhanced after being granted the loan.

¹² German KfW Bank replied to the letter by EcoLur Informational NGO, which was published on www.ecolur.org website: <http://ecolur.org/hy/news/water/german-kfw-development-bank-replied-on-argitchi-shpp-problem/5559/>

¹³ Point 3, Agenda of Armenian Government meeting, 2014, <https://www.e-gov.am/sessions/archive/2013/10/17/>

¹⁴ Official website of German-Armenian Fund (GAF), <http://gaf-re-shpp.am/index.php?id=9&L=1>

¹⁵ Official Website of Climate Change Information Center of Armenia: <http://www.nature-ic.am/hy/%D5%A1%D6%80%D5%A3%D5%AB%D5%B3%D5%AB-%D6%83%D5%B8%D6%84%D6%80->

Rivers in Critical Situation

1. “Amberd SHPP-1” SHPP, derivation length – 2300 meters, “Amberd SHPP-2”, derivation length – 4218 meters and “Amberd SHPP-3”, derivation length –2835.1 meters are constructed on **Amberd** river (length – 36km). “Amberd -1”, “Amberd -2”, “Amberd -3” SHPPs are constructed with German KfW bank funding. The SHPPs pipe a total of 9353.1 meters, which makes up 25.98% of the river. Under EcoLur’s Ecological Risk Model, it causes critical situation for the river.

“Amberd 1, 2, 3” SHPP projects are approved National Authority for the CDM– Nature Protection Ministry.

Case Studies - Amberd 1, 2, 3 SHPPs

“The construction of the hydro power plants will not affect the quality of the river water, as well as the well-being of the local population. Moreover, the project activity will have a positive impact on the environment as it will displace part of electricity generated by the conventional power plants in the national grid, thus avoid environmental pollution caused by the burning of fossil fuel and lead to an increased sustainability in the power generation sector.” Amberd Cascade CDM project says. As a result of the construction of these SHPPs, “Ujan, Kosh and Avan communities, Aragatsotn Region, drastically experience lack of water. The water amount and quality have deteriorated and the five communities in this region face water deprivation. As it’s known, the main source of income in these regions is agriculture and livestock breeding. Because of adversary impact of HPPs the water-deprived communities will face not having daily bread¹⁶.”

2. “Saravan” SHPP is constructed on **Darb** River (length – 22 km), derivation length – 3978.0, 433.2 meters, which makes up 20.05% of the river. Under EcoLur’s Ecological Risk Model, It causes critical situation for the river.

“Saravan” SHPP project was approved by the National Authority for the CDM – Nature Protection Ministry.

3. “Vararakn” SHPP, derivation length – 2263 meters, “Qarahunj” SHPP, derivation length – 1740.0 meters, 1224.0 meters, “V.A.L.” SHPP, derivation length – 580.7 meters are constructed on **Vararak** river, which makes up 20.03% of the river. Under EcoLur’s Ecological Risk Model, this indicator shows that it causes critical situation for the river.

4. “Arjut-2” SHPP, derivation length – 1880 meters, “Spitak HPP-1” SHPP, derivation length – 2685 meters, “Vahagni” SHPP, derivation length – 6200 meters are constructed on **Pambak** River (length-86km). The SHPPs pipe a total river area of 20765 meters, which makes up

%D5%B0%D5%A7%D5%AF-%D5%AB-%D5%B4%D5%A6%D5%B4-%D5%A8-
%D5%B6%D5%A1%D5%AD%D5%A1%D5%A3%D5%AB%D5%AE/

¹⁶ SHPPs Endanger Community Security, <http://www.hraparak.am/news/view/33203.html>

24.14% of the river. Under EcoLur's Ecological Risk Model, this indicator is critical for the river. "Spitak HPP-1" SHPP and "Vahagni" SHPP are constructed with EBRD funding. The projects of these SHPPS are approved by the National Authority for the CDM – Nature Protection Ministry.

5. "Aragats-1" SHPP, derivation length – 2350 meters, and "Gegharot" SHPP, derivation length – 4640 meters are constructed on **Gegharot** River, which makes up 27.96% of the river. Under EcoLur's Ecological Risk Model, this indicator is critical for the river.

As of 1 January 2013, under the licenses issued by Public Services Regulatory Committee, the construction licenses were issued for "Alpiakan-1" SHPP, derivation length – 3300 meters, and "Lusarpi" SHPP, derivation length – 1120 meters. If these SHPPs are constructed, they will pipe a total of 11410 meters, which makes up 45.64% of the river. EcoLur's Ecological Risk Model, this indicator is critical for the river.

Case Studies – "Gegharot" SHPP

Only "Gegharot" SHPP pipes 18.56% of the river, which is constructed with the funds of German KfW Bank and is included into the official website of German-Armenian Fund (GAF) as "Success Story". It should be mentioned under the Public Services Regulatory Committee, the license for "Aragats" SHPP was issued in 2009, while the license for "Gegharot" SHPP was issued in 2010, which shows that Gegharot River found itself in critical condition after the SHPP construction.

6. "Meghri" SHPP, derivation length – 135*2 meters (270 meters), "Nzhdeh" SHPP, derivation length – 2020 meters, "Kantegh" SHPP, derivation length – 1090.0 and 3280.0 meters are constructed on **Meghri** river (length – 32 km), which makes up 20.81% of the river. Under EcoLur's Ecological Risk Model, this indicator is critical for the river.

Case Studies – Meghri River

In 2011 World Wildlife Fund (WWF) Armenia Director Karen Manvelyan informed the mass media that 9 HPPs are planned to be constructed on Meghri River: two HPPs already in progress.¹⁷

"Each SHP takes water from the river, on average, in a distance of 4 km. Taking into consideration the interim distance, the river basin of the Meghri in a distance of 38 km is exposed to the impact of SHPPs. In this way, the landscape of Arevik Park, the territory of which is partially included in the basin of the Meghri River, will be destroyed. But this time it's not the end.

"I know that 9 SHPPs should be constructed on the Meghri River. I do think this will have disastrous consequences. The water will get into the pipes in a distance of 38 km. There

¹⁷ Environmentalist Beating Alarm: 9 HPPs Planned to Be Constructed on Meghri River

, <http://ecolur.org/hy/news/sos/9-hpps-planned-to-be-constructed-on-meghri-river/3210/>

won't be any water left in the river and our lands will become deserted...We will also experience problems with bees. Our fruit trees are pollinated by bees, but bees don't fly where tension is high. We will stay without bees and our gardens will dry out," said one of Meghri activists.¹⁸

It's obvious that the construction of 9 more SHPPs will lead Meghri River from critical to disastrous condition.

7. "Benzar Energy" SHPP, derivation length – 640 meters, "Zor-Zor1" SHPP, derivation length – 1365 meters, and "Zor-Zor2" SHPP, derivation length – 400, 350, 350 meters (1100 meters) are constructed on **Vaghut** river (length-12km), which makes up 25.87% of the river. Under EcoLur's Ecological Risk Model, this indicator is critical for the river.

8. "Darbas SHPP-2", derivation length – 2858, "Hoctember" SHPP, derivation length – 520 meters, "Lor SHPP-1" SHPP, derivation length – 2400 meters, and "Lernashen-1" SHPP, derivation length – 2083 meters are constructed on **Loradzor** river (length - 23 km).The SHPPs pipe a total river area of 7861 meters, which makes up 34.17% of the river. Under EcoLur's Ecological Risk Model, this indicator is critical for the river. "Darbas SHPP-2" is constructed with the funds provided by German KfW Bank.

9. "Daranak" SHPP is being constructed on **Daranak** river (length – 6.5 km) by "Vardenis Regional Union of Agroservice" CJSC, under the project its derivation length will be 1729.90 meters. Thus, the SHPP will pipe a total river area of 1729.90 meters, which will make up 26.61% of the river. Under EcoLur's Ecological Risk Model, it will cause critical situation for the river. "Daranak" SHPP has been submitted for KfW Bank funding.

10. "Arevis-1" SHPP is being constructed on **Gizhget** river (length – 8.5 km), under the project its derivation length will be 2478 meters, which will make up 29.1529412% of the river. Under EcoLur's Ecological Risk Model, it will cause critical situation for the river.

11. "Ayri" SHPP is constructed on **Ayri** river, derivation length-4284 meters. "Dastakert" SHPP is being constructed on the Ayri River, under the project, the derivation length of the pipeline is 1920 meters, thus the SHPPs will pipe a total of 6204 meters, which makes up 25.82% of the river. Under EcoLur's Ecological Risk Model, it will cause a critical condition for the river.

"Ayri" SHPP is approved by the National Authority for the CDM – Nature Protection Ministry and constructed by EBRD funding.

12. "Khachaghbyur HPP-1" SHPP is constructed on **Paghjur** river (length – 31 km), derivation length - 2*1800 meters. "Khachaghbyur-2" SHPP is being constructed on Paghjur

¹⁸ 'SHPPs on Meghri River May Lead to Destruction of Bees and Orchards'

, <http://www.ecolur.org/hy/news/sos/shps-on-meghri-river-may-lead-to-destruction-of-bees-and-orchards/4360/>

river, the length of pressure pipeline is 3400 meters. Thus, SHPPs pipe a total river area of 7000 meters, which makes up 22.58% of the river. Under EcoLur's Ecological Risk Model, this indicator causes critical situation for the river.

The construction of "Khachaghbyur HPP-1" SHPP is funded by EBRD.

13. Karakaya River is one of the right-wing tributaries to the Yeghegis River. The length of Yeghegis River is 47 km. "Karakaya" SHPP, derivation length – 1200.0 and 3127.0 meters, "SUNRISE" SHPP, derivation length – 2268 meters, and "Vardahovit" SHPP, derivation length – 3570 meters, are constructed on Karakaya river. The SHPPs pipe a total river area of 10165 meters. If Karakaya had the same length as the Yeghegis river, under EcoLur's Ecological Risk Model, the river is in the critical situation, as the SHPPs pipe 21.62% of the river.

The construction of "Karakaya" SHPP is funded by German KfW Bank, "Vardahovit" SHPP has been submitted to German KfW Bank for funding.

14. "Goght-1" SHPP, derivation length – 3850 meters, and "Goght-2" SHPP, derivation length – 2050meters are constructed on **Goght** River (length – 16 km). The SHPPs pipe a total river area of 5900 meters, which makes up 36.875% of the river. Under EcoLur's Ecological Risk Model, this indicator shows that the river is in critical situation. "Goght-1" and "Goght-2" SHPPs are constructed with EBRD funding.

15. "Erik" SHPP, derivation length – 200 meters, 1850 meters (2050 meters), "Getik-1" SHPP, derivation length – 6200 meters, and "Getik-4" SHPP, derivation length – 5200 meters, are constructed on **Getik** river (length – 48km). The SHPPs pipe a total river area of 13450 meters, which makes up 28.02% of the river. Under EcoLur's Ecological Risk Model, this indicator is critical for the river.

The construction of "Getik-4" SHPP is funded by German KfW Bank, "Erik" SHPP approved by the National Authority for the CDM – Nature Protection Ministry.

16. "Martziget-2" SHPP is constructed on **Martz** river (length – 27 km), derivation length – 2818 and 2962 meters, which makes up 19.93% of the river. "Martzenenergy" Company plans to construct "Martziget-1" SHPP, the derivation length of which is 4750 meters. If the SHPP is constructed, a total of 10,530 meters from the river area will be taken into pipes, which will make up 36.31% of the river. Under EcoLur's Ecological Risk Model, it will be critical for the river.



Three Rivers in Disastrous Condition

1. “Haghpat-1” and “Haghpat-2” SHPPs are constructed on **Kistum** river (length-13km), derivation length of “Haghpat-1” – 300+280, 1350 meters, that of “Haghpat-2” – 4535 meters. Thus, SHPPs pipe a total river area of 6465 meters, which makes up 49.73% of the river. Under EcoLur’s Ecological Risk Model, it causes disastrous situation of the river.

2. “Hermon” SHPP is constructed on **Aysas** river, derivation length -3720 meters. The SHPP pipes a total river area of 3270 meters, which makes up over half of the river - 27.25%. “AratesEnergy” LLC is constructing “Nane” SHPP on Aysas River with derivation length of 2726 meters, as the project for “Nane” SHPP says. Thus, SHPPs pipe a total area of 5996 meters, which makes up 49.96% of the river; it is disastrous for the river

“Nane” SHPP is submitted for the funding of KfW Bank.

3. “Yeghegis” SHPP, derivation length is missing, “Surb Aghbyur” SHPP, derivation length – 1536 meters, “Yeghegnadzor” SHPP, derivation length – 3250.54 meters, “Yeghegnadzor SHPP-1” SHPP, derivation length – 2650 meters, “Yeghegis-1” SHPP, derivation length – 1394 meters, “Yeghegis-2” SHPP, derivation length – 2050 meters, “Yeghegis-1” SHPP, derivation length – 4000 meters, and “Goghtanik” SHPP, derivation length – 1760 meters are constructed of **Yeghegis (Elegis)** river.

As of 1 January 2013, under the licenses issued by Public Services Regulatory Committee, the construction licenses were issued for “Tigran Mets” SHPP on Yeghegis River, derivation length - 2*2950 meters, and “Alnars” SHPP, derivation length - 2300 meters. Thus, SHPPs pipe a total area of 24894 meters not taking into consideration “Yeghegis” SHPP, as its derivation length is missing, which makes up 52.96% of the river. Under EcoLur's Ecological Risk Model it's disastrous for the river.

“Under the data of Environmental Impact Monitoring Center of Nature Protection Ministry, water temperature in the river has risen by 1°C from 2009 to 2011. Its transparency decreased by 3 cm, oxygen content by 2 mg/l, which already had its impact on fish reserves. River trout, endemic species, has already disappeared in the lower section of rivers. This is due to the pressure exercised by SHPPs.”¹⁹

“Surb Aghbyur” SHPP is constructed with EBRD funding, “Yegheg” SHPP – KfW funds. “Yeghegis-2”, “Yeghegis-3”, “Yeghegnadzor-1”, “Alnars” SHPPs have been submitted for the funding of KfW Bank.



¹⁹ Yeghegis River Changes its Composition for Three Years

Forecasts

1. Under SHPP construction licenses issued by Public Services Regulatory Committee as of 1 January 2013, “Sedvi Energo” LLC was issued construction licenses to construct “Sedvi-1” (derivation length – 970 meters) and “Sedvi-2” SHPPs (derivation length – 2515 meters) on Katchatchkut River (length -11km). Licenses for both SHPPs expire on 6/15/2014. “VAN AL EN K” LLC was issued a license to construct “Katchatchkut” SHPP on the same river (derivation length – 2710 meters). In case these SHPPs are constructed, Katchatchkut River will be piped for a total area of 6195 meters, which makes up 56.3181818% of the river. Under EcoLur’s Ecological Risk Model, it will be a disaster for the river.

“Sedvi-1” and “Sedvi-2” SHPPs are submitted for the approval of the National Authority for the CDM – Nature Protection Ministry. “Sedvi 1” and “Sedvi-2” SHPPs only will pipe a total of 3485 meters of area, which makes up 31.6818182% of the Katchatchkut River. Under EcoLur’s Ecological Risk Model, it will cause disastrous situation for the river. In this case, it’s unclear how the construction of SHPPS promotes mitigation of climate change, as the absence of water for kilometers won’t lead to anything positive.

“Sedvi 1”, “Sedvi-2” and “Katchatchkut” SHPPs have been submitted for KfW funding.

2. Under SHPP construction licenses issued by Public Services Regulatory Committee as of 1 January, construction licenses for “Stepanavan-2” SHPP, derivation length – 1700 meters, “Sahakyan SHPP-1”, derivation length – 1210 meters, and “Sahakyan SHPP-2”, derivation length – 5560 meters are issued for **Chqnagh** River (length-28 km).

As a result, a total of 8470 meters of river area will be piped, which makes up 30.25% of the river. Under EcoLur’s Ecological Risk Model, it will be critical for the river.

3. “Sisakan-1” SHPP is constructed on Dali river (length – 26km), derivation length – 2196 meters. Under SHPP construction licenses issued by Public Services Regulatory Committee as of 1 January 213, the construction license for “Dali” SHPP was issued, derivation length – 6074 meters. If this SHPP is constructed, SHPPs will pipe a total of 8270 meters of the Dali River area, which makes up 31.80% of Dali River. Under EcoLur’s Ecological Risk Model, it will be critical for the river.

4. Under SHPP construction licenses issued by Public Services Regulatory Committee as of 1 January 2013, the construction licenses for “Geghi-1” SHPP, derivation length – 6500 meters and “Geghi-2”, derivation length – 2640 meters were issued for Geghi river (length – 30 km). Thus, the SHPPs will pipe a total of 9140 meters of Geghi River area, which makes up 30.46% of the Geghi River. Under EcoLur’s Ecological Risk Model, it will be critical for the river.

SHPP Risks

Environmental Flow

Governmental resolution № 927 dated on 30.06.2011 prescribes that the environmental flow is determined with the minimum water course within selected 10 days of the driest year.²⁰ This means, if the river experienced a drought, and zero water course was fixed in a randomly selected year within any ten days, the environmental flow can be estimated 0 cubic meters per second. While under the definition of RA Code on Water, environmental flow ensures the ecological balance of the water resource and its self-recovery. For example, the environmental flow for “Ijevan-1” SHPP will make up 0.75 m³/sec²¹, “Arpa-3” SHPP - 0.64 m³/sec²², “Khachaghbyur-2” SHPP - 0.08 SHPP m³/sec²³, “Kosh” SHPP - 0.37 m³/sec²⁴, “Gndevanq” SHPP - 0.05 m³/sec²⁵. Among the studied SHPP projects “Daranak” SHPP has the lowest environmental flow, “Sanitary yields are needed for the environmental balance of Daranak and left-wing rivers - 0.008 m³/sec and 0.004 m³/sec, respectively.”²⁶

In such case, when based on a governmental resolution over 90% of rivers is taken into pipes, the water resource gets depleted, the ecological balance of the water resource is not preserved, and the local biodiversity gets destroyed. The water regime of the river is violated even if the environmental flow laid down in the project is sufficient, as projected conditions are not maintained during SHPP operation. Thus, the requirements of RA Code on Water are not complied with.

Article 98 and Article 99 (5) of RA Code on Water require that if ecosystems and landscapes are used, the protection of water resources must maintain the balance in the given ecosystem²⁷, while Article 99 (5) of RA Code on Water says that water resources shall be subject to protection from pollution, littering, infection and depletion. RA Code on Water defines depletion of water resource as follows: “Shortening of water volume or flow, and (or) change of quality, which results in disbalance of ecological state of a water resource.”²⁸

Case Studies

In 2013 the Nature Protection Ministry detected “the environmental flow of the water intake station of “Kurtan” SHPP owned by “Tirakal” LLC, Lori Region, was incomparably lower the set standards. While the examinations of the water intake station of “Griar” SHPP in Gegharkounik Region showed that the environmental flow of the station constructed on the Getik River is almost zero, which is a gross violation of environmental legislation and standards. The same examination was carried out in “Erik” SHPP, Gegharkounik Region²⁹.”

“Jermuk Hydrotech” CJSC operating “Jermuk 2” SHPP, doesn’t ensure needed water flow for the fish pass. The company not only doesn’t take into consideration the defined rules and

²⁰ http://www.e-gov.am/u_files/file/decrees/kar/2011/06/11_0927.pdf

²¹ ‘Ijevan-1’ SHPP project

²² ‘Ijevan-1’ SHPP project

²³ ‘Khachaghbyur-2 SHPP project for 2014

²⁴ ‘Kosh’ SHPP project

²⁵ ‘Gndevanq’ SHPP project

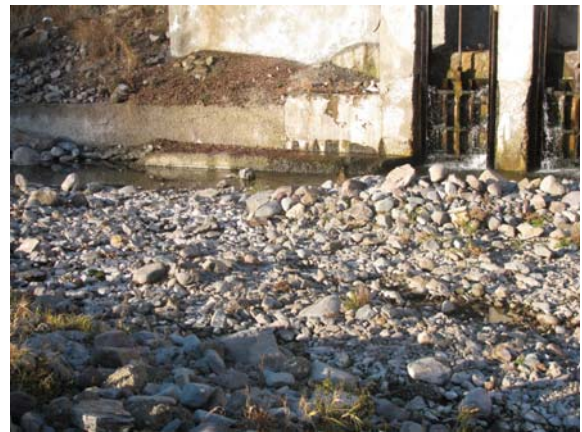
²⁶ ‘Daranak’ SHPP Project

²⁷ RA Code on Water

²⁸ RA Code on Water

²⁹ Official website of Nature Protection Ministry, <http://www.mnp.am/?aid=2117>

standards, but it also blocks the way to the fish spawning site. The land area is completely dried out, not already speaking about the fish...³⁰



In 2012 Trchkan civic initiative beat an alarm signal that because of the operation of two SHPPs on Her-Her tributary to the Arpa River, the riverbed and one of the waterfalls had already dried out, while the second waterfall had little water in it.”³¹

³⁰ Fish Should First Jump over Stones, Then Walk Upwards To Get To Spawning Site, <http://ecolor.org/hy/news/water/fish-should-first-jump-over-stones-then-walk-upwards-to-get-to-spawning-site/5551/>

³¹ Waterfall Dried out Because of SHPP, <http://ecolor.org/hy/news/water/waterfall-dried-out-because-of-small-hpp/4017/>

Forest Felling

SHPPs are often constructed in forest territories. The forests in Armenia are protected with RA Code on Forests. Under Article 20(1) of RA Code on Forests, construction and explosion works, mining, laying cables, pipelines and other communications, drilling and other works in state forest areas not connected with forest economy and forest management are carried out based on the permit issued by a competent governmental body. The permit is issued based on the positive opinion of environmental expertise.

Case Studies

The construction of 'Jermuk-1' SHPP had been launched months before issuing the opinion of the environmental expertise. During SHPP public hearings it was found out that the water pipeline feeding 'Jermuk-1' SHPP constructed by 'Jermuk Turboshin' LLC lays in the territory of 11th square of Jermuk forestry enterprise of 'Vayots Dzor Forestry Enterprise', while 'ArmForest' SNCO was not informed and didn't issue any proper permit. Despite this, Nature Protection Ministry issued a positive opinion with a back date to the SHPP project, where 200-500 trees will be cut down during implementation. It should be mentioned that Article 26 (3) of RA Code on Forests says that forest officials must prevent violations of forest legislation within their competencies. Nevertheless, in this case 'ArmForest' SNCO didn't take any measures.

For the construction of "Arpa-3" SHPP 442 trees and bushes will be cut down in Jermuk forestry enterprise. The trees will be cut down at a distance of 2650 meters and a diameter of 1220 mm to lay a pipeline³². The SHPP project doesn't say that 'ArmForest' SNCO has permitted forest felling. The representative of 'ArmForest' SNCO didn't attend SHPP public hearings.



Dozens of trees were felled down during the construction of "Khachaghbyur-2" SHPP, when the SHPP final project was not approved. In 2014 the construction project of "Khachaghbyur-2" SHPP again underwent expertise, when damage caused to nature was significant. "Laying 2.8 km pipeline will be impossible without forest felling, which the

³² "Arpa-3" SHPP project,

environmentalists have already witnessed,” “Trchkan” civic initiative letter addressed to Nature Protection Ministry says³³. The construction project of “Khachaghbyur-2” SHPP for 2014 says, “191 area-specific trees and bushes will be cut down during SHPP construction.”³⁴ In this case, the project doesn't say anything about the permit from 'ArmForest' SNCO either.

Landslide

The construction of SHPPs is carried out without taking into consideration landslide processes and land looseness. Landslide process activate after intensive construction works, explosions, laying pipes and roads.

Case Studies

Under the official information of the Ministry for Emergency States, on 29 July 2013, the land slides for 200 meters and filled into Yeghegis River because of laying pipes. It turned out that the slide surface in the land area next to 3, Street 6, Shatin Village made up 400 m³ (8x15), which resulted in four hazelnut trees to find themselves in Yeghegis river³⁵.



“Khachaghbyur-2” SHPP is being constructed in landslide zone, which caused an accident in the construction area with human loss.

“We have studied Aghstev Valley and it has all the prerequisites needed for landslide formation: inclines of slopes, fissure zones, precipitation etc, which all cause landslides... Who has issued permit for this HPP? Who has issued geoprosecting opinion? If these documents are missing, the site developer shall be brought to justice. How can be people be sacrificed without stopping it?” hydrogeologist Ruben Yadoyan said³⁶.

³³ Environmental Expertise Didn't Notice that “Khachaghbyur-2” SHP Being Constructed on Specially Protected Area <http://ecolur.org/hy/news/water/environmental-expertise-didnt-notice-that-vkhachaghbyur2v-shp-being-constructed-on-specially-protected-area/4240/>

³⁴ “Khachaghbyur-2” SHPP project for 2014

³⁵ Pipes Causing Landslide, <http://mes.am/am/news/accidents/35-2012-02-20-09-58-42/2303-2013-07-29-17-06-09>

³⁶ Khachaghbyur-2 SHPP Being Constructed in Landslip Zone, <http://ecolur.org/hy/news/sos/vkhachaghbyur2v-shhp-being-constructed-in-landslip-zone/4933/>

Loss in Biodiversity

The local biodiversity incurs losses during SHPP construction: during operation SHPPs can't ensure normal environmental flow and the fish disappear. For example, the trout can't flow up the rivers for spawning because of SHPPs constructed on the rivers flowing into Lake Sevan. Red-listed flora and fauna species are endangered.

Case Studies

“Arpa-3” SHPP construction project says the area of the construction works includes the habitat of a red-listed species - European otter (*Lutra lutra* L.). Article 18 (b) of RA Law “On Fauna” bans any activity, which will lead to the reduction of the number of red-listed animal species and deterioration of their habitats in the Republic of Armenia. While “Arpa-3” SHPP construction project says, “During construction works the nesting and spawning spots can be endangered, migration and water drinking corridors for animals are disturbed. The noise coming from the operation of heavy mechanisms will generate fear factor, which will make the animals change their habitat.”

Bees get extinct because of SHPP operation: Meghri residents beat an alarm signal, where 9 SHPPs are planned to be constructed on Meghri river. “We will also experience problems with bees. Our fruit trees are pollinated by bees, but bees don't fly where tension is high. We will stay without bees and our gardens will dry out...”³⁷

The location biodiversity is not studied when drawing up SHPP projects. For example, “Kara-Kaya” SHPP re-equipment project doesn't describe the flora and fauna of the area, while “Gndevanq” SHPP construction project uses only literary sources. Many projects mention in their literature list the Red Books of Armenia published in 1987 and 1989, while in 2010 New Red Books were published with more variety of plants and animals on the verge of extinction. Among the projects we studied, “Kara-Kaya” SHPP, “Gndevanq” SHPP, “Stepanavan-2” SHPP, and “Tavush” SHPP projects mention the Red Books of Armenia published in 1987 and 1989 in their literature lists.

SHPPs are constructed in specially protected areas, which contradict to the environmental legislation of Armenia.

Case Studies

The first project for “Arpa-3” SHPP submitted by “Jinj Arpa” Company said, “The projected area of SHPP is included in the territory of “Jermuk” hydrological reserve established for the preservation of mineral springs.” When people expressed their discontent and complaint in this regard, “Jinj Arpa” Company submitted a new project for expertise, which says the SHPP is located beyond the borders of the reserve. While the Pan-Armenian Environmental Front insists the opposite, “We studied the location of the reserve, its charter and border

³⁷ SHPPs on Meghri River May Lead to Destruction of Bees and Orchards, <http://www.ecolur.org/hy/news/sos/shps-on-meghri-river-may-lead-to-destruction-of-bees-and-orchards/4360/>

description and compared them with the location of planned SHPP structures. As it turns out, “Jermuk Hydrological” State Reserve is located 2100-2470 meters above sea level within the ranges of Arpa river upper reach catchment area. While Clause 6 of the reserve charter clearly says, that the construction of new hydropower plants and intake from rivers are forbidden in this area. As “Arpa-3” SHPP is planned to be constructed on the Arpa River 2146-2287 meters above sea level, it’s clear that the SHPP can’t be located beyond reserve territory. Consequently, the Nature Protection Ministry should definitely issue a negative opinion of environmental impact expert assessment.”³⁸

“Khachaghbyur” SHPP is being constructed in the territory of “Ijevan” state reserve. The Pan-Armenian Environmental Front says in its letter addressed to Nature Protection Ministry, “.... In its letter dated on 25.12.2012 the Bioresource Management Agency of Nature Protection Ministry as represented by Staff Head Edgar Pirumyan informs, the comparison of the head knob of “Khachaghbyur” SHPP and coordinate data of the building construction shows that it is located within the borders of “Ijevan” state reserve, so the requirements of Articles 18 and 20 of RA Law “On Specially Protected Areas of Nature” shall be guided with. Taking it into consideration Agency Head A. Ziroyan found “Khachaghbyur” SHPP project contradicts to the requirements of the Armenian legislation.”³⁹

Arpi Lake is getting empty because of SHPPs, as Gyumri Aarhus Center Coordinator Gevorg Petrosyan beat an alarm signal. “In summer months we saw how the lake almost completely got empty, because SHPPs were constructed on the Akhuryan River. The water was let out in the periods, when no serious agricultural problem actually existed. The water was let out in the fall as if for watering the plough lands, which is ridiculous, as we have steady rain precipitation from the late September. So there was no need for water outlet for irrigation purposes, i.e. whatever happened to Sevan, the same thing is happening to Lake Arpi,” Gevorg Petrosyan said. Lake Arpi is included in “Arpi Litch” National Park, which was founded in 2009.⁴⁰ Thus, Article 17 of RA Law “On Specially Protected Areas” is violated, which bans any activity violating the water regime in the territory of the national park.

Thus, these two projects contradict to Article 18 of RA Law “On Nature Protection”: “Any activity in the territory of the state reserve in the Republic of Armenia is banned, if it violates the stability of reserve ecosystems or threatens the preservation of ecosystems, flora and fauna species, scientific, cultural and historical objects needing special protection.”

Loss in Tourism Areas

For SHPP construction the government changes the category of the land areas, which are considered resort or tourism zones. The permit of “Stepanavan-2” SHPP is issued for an area,

³⁸ PEF: "Arpa-3" and "Khachaghbyur" SHPP Projects To Be Issued Negative Conclusions: <http://ecolor.org/hy/news/water/pef-quotarpa3quot-and-quotkhachaghbyurquot-shpp-projects-to-be-issued-negative-conclusions/5935/>

³⁹ PEF: "Arpa-3" and "Khachaghbyur" SHPP Projects To Be Issued Negative Conclusions: <http://ecolor.org/hy/news/water/pef-quotarpa3quot-and-quotkhachaghbyurquot-shpp-projects-to-be-issued-negative-conclusions/5935/>

⁴⁰ Lake Arpi Getting Empty Because of SHPPs, <http://ecolor.org/hy/news/water/lake-arpi-getting-empty-because-of-shpps/5238/>

which is considered to be a tourism zone. But the SHPP developer insists that the category of these land areas were changed to land areas of energetic significance in line with the governmental resolution no. 1523 dated on 1 September 2005. “Stepanavan-2” SHPP is being constructed on Chqnağh river, a tributary to Dzoraget river.⁴¹

“Sahakyan SHPP-1”, “Sahakyan SHPP-2”, “Stepanavan-2” SHPPs also have construction licenses on Chqnağh. Under the official website of Lori Region, “Sahakyan SHPP-1”, “Sahakyan SHPP-2”, “Stepanavan-2” SHPPs will be operated in 2014.⁴²



SHPPs impact on the condition on the social conditions of communities

Social Tension

SHPPs cause high tension in communities, as they leave communities without irrigation and drinking water, which results in the reduction of agrofood and people's income. The sanitary condition of the community deteriorates, SHPP noise impact is observed, people are deprived of resort zones, life quality deteriorates, while they don't get any compensation and don't have any interests.

Sociological Surveys in Communities

Sociological surveys were conducted with 107 residents in 12 communities. The surveys were conducted based on multi-level cluster selection⁴³.

Sociological surveys conducted on “**Argitchi**” SHPP in Verin Getashen, Nerqin Getashen and Madina communities showed that 16 out of the surveyed said their life quality didn't change for the better after SHPP construction, while 6 mentioned it deteriorated. 14 people said that fish reserves in the river reduced because of the SHPP. 10 people were sure that the sanitary state of the Argitchi River would change for the worse because of the SHPP. 13 people noted the SHPP impacted their water supply. In reply to the question on the promises given by SHPP developers, 13 people said they were not given any promises. Three people mentioned

⁴¹ Demanding to Annul Hearings Due to Pressure Exercised on Participants of Stepanavan-2 SHP Public Hearings, <http://www.ecolur.org/hy/news/dialog-with-officials/demanding-to-annul-hearings-due-to-pressure-exercised-on-participants-of-stepanavan2-shp-public-hearings/4657/>

⁴² Expected Outcomes in Industry - <http://lori.gov.am/files/docs/4226.pdf>

⁴³ See questionnaire in Appendix 1

they were promised to construct roads, but the promise was not kept. Nine residents opposed to the SHPP, two people were for it and 5 people refused to give any answer.

In Martz Village 8 out of 15 surveyed on **“Martziget-1” SHPP** opposed to it, “They will steal Martziget...Several times the community opposed to this SHPP...It will help only a couple of people get richer...The whole youth is against it...A couple of people who will benefit from it speak on the behalf of the village, but it's not true...”.

Two people were for the SHPP, as they were convinced they will be employed there. Five people didn't want to answer this question. In reply to the question how the SHPP will affect on the living of the villagers, 13 people, except two people, replied that the SHPP will affect negatively and their life quality will change for the worse, “So many SHPPs are constructed, but we don't even have regular supply of electricity, we have power cut off...The price has gone up.” In reply to the question whether they took part in the public hearings, 6 people out of the surveyed replied they had, but their opinions were not taken into consideration.

Sociological surveys conducted on **“Tjevan-1” SHPP** showed that 7 people surveyed said they opposed to the SHPP construction, while 2 people backed it. 7 people said that the SHPP would affect on the water supply. In reply to EcoLur’s question on fish reserves, 4 surveyed mentioned fish reserve reduction has been observed, three people didn’t fix such problems. Four people noted that the sanitary state of the river will change for the worse after the SHPP construction. Five people think that SHPP won’t improve their life quality, it will stay the same. Two people think it will improve.

Sociological surveys conducted on **“Vahagni” SHPP** showed that 5 people out of 6 people surveyed said they supported the SHPP construction and noted the SHPP doesn’t harm them and doesn’t affect on water supply, besides it ensures employment for villagers. Only 1 person opposed to it, whose house was located directly next to the SHPP building. The villager noted that the noise of the SHPP hugely disturbs him and his family.

What about the public hearings, two people out of the surveyed took part in it, while four surveyed were not aware. What about the questions on the change in the river sanitary situation, reduction of the fish reserves, increase in emigration, the answers were not definite: 2 people thought the river condition will deteriorate, two people thought it will improve taking into consideration the company promises in regard with cleaning the canal, two people found these questions difficult to answer.

In reply to EcoLur’s question on changes in life quality after the SHPP construction, 4 surveyed mentioned it didn’t change, 2 noted it changed for the better, but they didn’t detail how.

During surveys it was found out that the community doesn’t use the river either for drinking water or irrigation. Moreover, the community doesn’t need irrigation, as it doesn’t have either orchards, or cultivated land areas.

Sociological surveys conducted on **“Khachaghbyur-2” SHPP** showed that all 10 surveyed supported the SHPP construction. Meanwhile none of them is sure that the SHPP won’t affect on their water supply. Eight people think, if the SHPP doesn’t operate in the irrigation season, it won’t affect on agroproduct. In reply to the question whether they noticed reduction in fish reserves, six people said “no”, two people noted the river already didn’t have any fish in.

Five people out of the surveyed think if the company works reasonably, their quality life will change for the better, as the company promised the villagers to create working places, to solve the problem of lighting and to provide aid. Five people out of the surveyed think if they work well, their life quality will change for the better, 2 people mentioned the SHPP won't affect in their living style, 3 people found it difficult to answer this question. In reply to the question whether the SHPP construction will affect on emigration, four people answered, if they are employed, they won't leave, two people said that time will show, 4 people found it difficult to answer this question.

At the public hearings on the SHPP held on 17 February 2013, 1100 villagers out of 2000 in Getahovit opposed to the SHPP construction.

In Kosh Community 8 out of 12 surveyed on “**Kosh**” SHPP supported the SHPP construction, four people were not even aware of either the SHPP or the hearings. The villagers found it difficult to assess the SHPP impact on water supply, agrofood, fish reserves after the SHPP construction. In most cases the answer was “I don't know”. 1-2 people answered doubtfully that the SHPP may have adversary impact – reduction in water and fish reserves. In reply to the question whether they life quality will improve after SHPP construction, 5 people out of the surveyed noted their life quality will improve, if promises are kept – irrigation water in season and cleaning of the canal.

At the public hearings on “**Arpa-3**” SHPP on 14 November at Jermuk Municipality only 1 resident out of 5394 Jermuk residents attended the hearings, other participants were from Yerevan and Yeghegnadzor. Five people out of six surveyed in Jermuk Town were completely unaware of the hearings. Though four people think that SHPP construction will affect on their water supply, reduction in fish reserves will be observed, they noted the SHPP construction won't change their life quality. Three people out of six surveyed supported the SHPP construction, one was against, two people were indifferent.

In Daranak Community 10 out of 15 surveyed on “**Daranak**” SHPP opposed the SHPP construction, five people backed it. Seven people were convinced that SHPP operation will affect on their water supply and they will experience problems with irrigation water. Five people didn't exclude adversary impact, three people noted that such problems won't arise if SHPP is operated within standards. None of the surveyed thought the SHPP will affect positively on the water: four people were convinced that water quality will deteriorate, 6 think water quality deterioration is possible. None of the surveyed was sure that their harvest won't harm from the SHPP construction, while 10 people were convinced that they will face serious problems. In reply to the question on fish reserve reduction, 6 people replied there is no fish in the river, 4 people were convinced it will reduce, 5 people found it difficult to answer. During the survey it was found out that 8 people were promised to be employed, 3 people had no idea who the site developer is. Only 2 surveyed had positive expectations from SHPP construction and thought their life quality will improve. 10 people were convinced SHPP construction will cause new emigration.



In Ohanavan community 19 out of 20 surveyed on “Shamiram-1” SHPP opposed to SHPP construction and only one person backed it – Aragatsotn Regional Head. 19 surveyed were convinced that they won't have water for agriculture after SHPP construction, thus they will be deprived of their orchards – the only source of income. In reply to the question whether SHPP construction will promote emigration, all 19 surveyed definitely said that seven villages will emigrate.

Thus, the sociological surveys conducted in 12 communities showed that people mainly don't have any expectations from the operation of SHPPs, except one or two communities. The residents supported SHPP construction mainly because of the pressure exercised by SHPP owners, community heads and locals 'authorities' or if they don't have any irrigable land areas. The people opposing to SHPPs mentioned the following reasons: deterioration of water supply and life quality, forced migration and loss of fish reserves.

Case Studies

The villagers of 7 villages, Aragatsotn Region, walked out to protest against the construction of “Shamiram-1” SHPP on Arzni-Shamiram dotation canal by “GAHA Energy” LLC. They were convinced that they won't have any water for their orchards after SHPP construction. “But the damage has already been caused: it's a year since the trees have turned out to be under ground and nobody's opinion was asked for. Three or four people are constructing this SHPP for their own benefit and nobody cares that 3000 household enterprises will be destroyed. We are creating nature, while they are destroying it.”⁴⁴ On 6 and 19 March 2014 the residents of Ushi, Ohanavan, Artashavan, Karbi, Saghmosavan, Yerznka, and Yeghvard villages blocked Yerevan-Aparan road demanding not to construct the SHPP. Only after President Serzh Sargsyan's interference, “GAHA Energy” stopped construction works.

Martz Village walked out against the construction of “Martziget-1” complaining there were deprived of the river⁴⁵. “Martzenergy” LLC, which intends to construct the SHPP, threatened the villagers who had collected 320 signatures against the SHPP and sent it to Nature Protection Ministry. On 6 November 2013 Martz villagers together with environmental activists blocked the road running to Georgia as a protest sign⁴⁶.

⁴⁴ Karbi and Ohanavan Villagers Don't Intend to Give Up: SHPP Won't Be Constructed, <http://ecolor.org/hy/news/water/karbi-and-ohanavan-villagers-donvt-intend-to-give-up-shpp-wonvt-be-constructed/5886/>

⁴⁵ Martz Village Schoolchildren: WE OPPOSE TO SHPP, <http://www.ecolor.org/hy/news/water/martz-village-schoolchildren-we-oppose-to-shp/4659/>

46 Officials Bearing Responsibility For Conflict in Martz Village, <http://ecolor.org/hy/news/biodiversity/officials-bearing-responsibility-for-conflict-in-martz-village/5534/>



Non-transparency of decision-making process: Environmental expertise


Under Article 8 of the Aarhus Convention and RA Law “On Environmental Impact Expert Assessment”, public is entitled to participate in decision-making process on SHPPs. Nevertheless, the Armenian government hasn’t set any procedure for holding public hearings. The official website of Nature Protection Ministry doesn’t notify about the public hearings properly either. As a result, the public hearings are held as it may, and decisions are reached arbitrarily. Frequently, SHPP projects are not displayed on the official website of Nature Protection Ministry or are displayed after holding public hearings.

Case Studies


www.mnp.am/?p=315

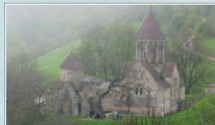
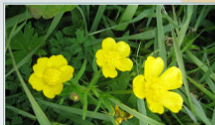

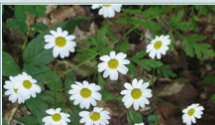
13.12.2013 ԿՈՇ ՓՅԷԿ ԱՐՉՆԻ-ՇԱՄԻՐԱՄ ԶՐԱՆՑՔԻ ԿՈՇ ԾՅՈՒՐԻ ԱՐԱՊԱՅՈՍԻ ՎՐԱ
Բանվորական նախագիծ
[ԲՆԱԴԱՅՊԱՆԱԿԱՆ ՀԻՄՆԱԿՈՐԿՄ](#)

www.mnp.am/?aid=2341



ՀԱՅԱՍՏԱՆԻ ՀԱՆՐԱՊԵՏՈՒԹՅԱՆ ԲՆԱԴԱՅՊԱՆՈՒԹՅԱՆ ՆԱԽԱՐԱՐՈՒԹՅՈՒՆ



Վիճակոր
Մեր մասին
Բնապահպանություն
Է-կառավարում
Գրադարան
Հղումներ
Պատկերասրահ

Ս.թ. ղեկավարների 6-ին տեղի կունենան «Կոշ» ՓՅԷԿ-ի կառուցման վերաբերյալ հասարակական լսումներ

27.11.2013

«Շրջակա միջավայրի վրա ազդեցության փորձաքննության մասին» ՀՀ օրենքի 8 հոդվածով սահմանված կարգով 2013 թվականի ղեկավարների 6-ին ժամը 12.00-ին ՀՀ Արագածոտնի մարզի Կոշի գյուղապետարանում, տեղի կունենան «ԷՅ ԶԵՑ ԶԻ» ՍՊԸ-ի կողմից ներկայացված «Կոշ» ՓՅԷԿ-ի կառուցման նախագծի շրջակա միջավայրի վրա ազդեցության վերաբերյալ հասարակական լսումներ:

Տեղեկատվության և նախագծային փաստաթղթերին ծանոթանալու համար դիմել՝ ք. Երևան, Կոմիտասի 29, Կոշի գյուղապետարան, /հեռ. 22-02-18, 22-14-85, 22-15-68, 54-01-20/:

Լուրեր

27.03.14
Լրացուցիչ տեղեկատվություն «Պատասխանատու հանքարդյունաբերություն» համաժողովում ՀՀ բնապահպանության նախարար Արամ Հարությունյանի՝ լրագրողներին տված պատասխանների վերաբերյալ

26.03.14
Անցկացվել է խորհրդակցություն ՀՀ բնապահպանության նախարարության տնայնական գործառույթների իրականացման արդյունավետությունը բարձրացնելու խնդիրներով

The public hearings on “Kosh” SHPP were appointed on 6 December 2013, but the project was displayed on the official website of Nature Protection Ministry on 13 December. Thus, Article 6 (3) and (4) of RA Law “On Environmental Impact Expert Assessment” are violated, which clearly says “after notification the competent body informs the project affected community heads and public about the planned event within 7 days” (point 3). “Within 15 days after receiving the notification, the project affected community heads and the initiator organize public hearings on the planned activity (its procedure is laid down by the Armenian Government) informing about the venue and time of the planned activity through the mass media” (point 3). “Kosh” SHPP project has been submitted for KfW Bank funding.

Sensational “Jermuk-1” SHPP project wasn’t displayed on the official website of Nature Protection Ministry at all. Moreover, public hearings were held only over 3 months after the SHPP construction.⁴⁷ It should be mentioned that this project has been submitted for KfW Bank funding. The construction project of number nine SHPPs on Yeghegis River, “Tigran Mets” SHPP, was also not displayed on the ministry website. The construction works of “Gomq” SHPP in Gomq Village, Vayots Dzor Region, were launched without holding public hearings. “We didn’t even know a SHPP is going to be constructed, when we learn it, they had already launched construction works,” the villagers said. “No public hearings were held as such to inform the people what is taking place. They didn’t gather the people and didn’t present anything,” the villagers were complaining⁴⁸. “Gomq” SHPP project has been submitted for KfW Bank funding.



“GAHA Energy” Company has initiated the construction of “Shamiram-1” SHPP on Arzni-Shamiram dotation canal, and heavy machinery was introduced into the SHPP construction spot. The company was explaining its actions with the need for rehabilitation works, so as to “implement proper renewable energy project” after holding public hearings. Nevertheless, neither rehabilitation nor SHPP project has undergone environmental expertise. Territorial Administration Ministry Ad Hoc Committee member Inga Zarafyan expressed her opinion in the studies of this case, “The fact is this construction has been launched illegally. “GAHA

⁴⁷ Jermuk Residents: Whether It Is Possible Not To Love Your Country and Your Nature, <http://www.ecolur.org/hy/news/water/jermuk-residents-whether-it-is-possible-not-to-love-your-country-and-your-nature/4238/>

⁴⁸ General Thought Like That: To Construct SHPP, <http://ecolur.org/hy/news/water/general-thought-like-that-to-construct-shpp/5428/>

Energy” Company doesn’t have permitting documents for SHPP construction, for example, the license issued by Public Service Regulatory Committee with the technical specifications of the SHPP or the environmental expertise conclusion from Nature Protection Ministry. The documents cited by the company have zero value. The construction permit has been issued by Ohanavan Village head. But in this case “Sevan-Hrazdan Water Intake” CJSC Director Samvel Hovhannisyan’s statement about not having new construction, just rehabilitation of another canal sounds senseless. The water usage permit issued by Nature Protection Ministry is available, but nobody shows it, as the license says the aim of water usage. If the permit says “for energetic needs”, the statement about the rehabilitation of irrigation system is a lie. If the document doesn’t say anything, it’s invalid.”

“Environmental Expertise” SNCO of Nature Protection Ministry studies only the documents submitted for expertise under the list. During the public hearings on “Kosh” SHPP the Nature Protection Ministry expert learnt there are two other project affected communities, besides Kosh, but the project didn’t say anything about it.⁴⁹

The opinion of the project affected community is not taken into consideration when issuing an EIA opinion. On 13 March 2013 Martz Village opposed to the construction of “Martziget-1” SHPP with 320 signatures at the public hearings. Nevertheless, the Nature Protection Ministry issued a positive opinion to the SHPP project based on the fake minutes of the public hearings⁵⁰.

Pressure was exercised on the participants of the public hearings. On 10 April 2014 the public hearings were attended only by the friends of the site developer, who hindered the professional activities of the journalists and didn't allow asking questions the site developer. Without proper discussions the friends of the site developer voted for the project, while the vote of the only person against wasn't counted it. The journalists were not allowed to read the minutes of the hearings. Nature Protection Ministry Expert Nazik Mkrtychyan noted that the public hearings were held one-sided and they may be annulled.⁵¹

Nature Protection Ministry refuses to provide minutes of public hearings, expert opinions and environmental expertise conclusions.

Thus, the sociological surveys conducted in 12 communities showed that people mainly don't have any expectations from the operation of SHPPs, except one or two communities. The residents supported SHPP construction mainly because of the pressure exercised by SHPP owners, community heads and locals 'authorities' or if they don't have any irrigable land

⁴⁹ Unaware Communities, Neglected Residents: Another SHPP, <http://www.ecolur.org/hy/news/water/unaware-communities-neglected-residents-another-shpp/5613/>

⁵⁰ Martz Village Head Signed Protocol notwithstanding Villagers' Opinions <http://www.ecolur.org/hy/news/water/martz-village-head-signed-protocol-notwithstanding-villagers-opinions/4745/>

⁵¹ EcoLur Demanding to Annul Public Hearings of “Ijevan-1” SHPP <http://www.ecolur.org/hy/news/water/ecolur-demanding-to-annul-public-hearings-of-vijevan1v-shpp/6065/>

areas. The people opposing to SHPPs mentioned the following reasons: deterioration of water supply and life quality, forced migration and loss of fish reserves.

Thus, the studies show that SHPP operation doesn't comply with the standards developed by international development banks – standards on environmental and social risk and impact assessment and management, rational use and environmental pollution prevention, biodiversity preservation and natural resources management. The banks don't exercise control in the SHPPs constructed with their funds, don't assess socio-environmental risks and when granting a loan the main risk they look at is guarantee for loan repayment, which is 100% in case of SHPPs.

SHPP operation violated the environmental legislation of Armenia - RA Codes on Water and Forests, RA Laws 'On Environmental Impact Expert Assessment', 'Specially Protected Areas of Nature', 'On Flora', 'On Fauna' and 'On Lake Sevan'.

Proposals

1. To amend RA governmental resolution no. 927-N dated on 30 June 2011 on environmental flow (not less than 50%) to conserve river ecosystem.
2. To annul RA governmental resolution no. 1300–A dated on 8 September 2011 “On Proposal to Set Maximum Capacity for Small Hydropower Plants”, where the capacity of SHPPs was increased from 10 to 30 MW.
3. To determine zones where SHPPs are prohibited, which include specially protected areas, forest areas, landslide zones and vulnerable hydrological areas.
4. To ban the construction of new SHPPs and not to renew the licenses of constructed SHPPs on those rivers, which are in critical and disastrous condition because of overexploitation.
5. To set a clear procedure, which will enable taking into consideration the opinion of the project affected community in the SHPP construction.
6. International financial institutions together with other stakeholders - Nature Protection Ministry, Energy and Natural Resources Ministry together with the Public Services Regulatory Committee shall bear responsibility for the adversary environmental and social consequences arising from the SHPP operation and violations of the domestic and international legislation.
7. To free the rivers flowing into Lake Sevan from SHPPs, to ban the construction of new SHPPs, to dismantle illegal SHPPs and not to renew the licenses of operating SHPPs.
8. To publicise all the official documents regarding to SHPPs – projects, minutes of public hearings, environmental expertise conclusions.

USED SOURCES

1. Official website of RA Nature Protection Ministry - www.mnp.am
2. Official website of RA Energy and Natural Resources Ministry - www.minenergy.am
3. Official website of RA Ministry of Emergency States - www.mes.am
4. Official website of RA Public Service Regulatory Committee - www.psrc.am
5. Official website of Armenian Renewable Resources and Energy Efficiency Fund - www.r2e2.am
6. Official website of RA Government - www.e.gov.am
7. Official website of 'EcoLur' Informational NGO - www.ecolur.org
8. Official Website of Climate Change Information Center of Armenia - <http://www.nature-ic.am>
9. Report “SHPPs Under Umbrella of International Financial Institutions”, EcoLur, Yerevan 2013
10. www.hraparak.am
11. Official Website of Lori Regional Municipality - www.ori.gov.am
12. Official website of German-Armenian Fund (GAF) - <http://gaf-re-shpp.am/>
13. RA State Committee of Real Estate, Brief Reference Dictionary of Geographical Objects, (Center for Land Surveying and Mapping, SNCO, Yerevan, 2007)
14. “Ijevan-1” SHPP project
15. “Arpa-3” SHPP project
16. “Khachaghbyur-2” SHPP projects
17. “Kosh” SHPP project
18. “Arevis-1” SHPP project
19. “Dastakert” SHPP project
20. “Nane” SHPP project
21. “Tavush” SHPP project
22. “Kara-Kaya” SHPP re-equipment project
23. “Gndasar” SHPP project
24. “Daranak” SHPP projects
25. “Martziget-1” SHPP project
26. “Spitakjur” SHPP project
27. “Stepanavan-2” SHPP project
28. “Gndevanq” SHPP project
29. “Jermuk-1” SHPP project
30. “Yeghegis” SHPP CDM project
31. “Argitchi” SHPP CDM project
32. “Sedvi-1”, “Sedvi-2” SHPP projects
33. “Saravan” SHPP CDM project
34. “Her-Her” SHPP CDM project
35. “Amberd Cascade” CDM project
36. Cascade Credit SHPPs CDM project
37. Strategic Development Project of Hydropower in Republic of Armenia
38. RA Law “On Environmental Impact Expert Assessment”

39. RA Law “On Specially Protected Areas of Nature”
40. RA Code on Water
41. RA Law “On Lake Sevan”
42. RA Law “On Fauna”
43. RA Law “On Flora”
44. RA Red Book for 2010