

Environmental & Socio-Economic Challenges of Hydropower in Europe: the Experience of Non-Governmental Organisations

Conclusions from the Roundtable Event:
19th January 2021



Date: February 2021
Document No: WP2-Rp-51
Version: V3.1
Status: Restricted
Deliverable No: N/A
Task Leader: EASE



The HYDROPOWER EUROPE Forum is supported by a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 826010

DOCUMENT INFORMATION

Title	Environmental & Socio-Economic Challenges of Hydropower in Europe: the Experience of Non-Governmental Organisations
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Distribution	Restricted
Document Number	WP2-Rp-51

DOCUMENT HISTORY

Date	Revision	Prepared by	Approved by	Description & status
12/02/21	V1_0	Martin Bracken		Initial draft
20/02/21	V2_0	Sabrina Hastings Mela	PMgT	Draft review revisions
23/02/21	V2_1_SH	Sabrina Hastings Mela		Draft format check; draft for NGO review
26/03/21	V3_0	Anton Schleiss	PMgT	Final Version including received feedback
12/04/21	V3_1_AS	Anton Schleiss	PMgT	Final Version including received feedback and minor editorial revisions

ACKNOWLEDGEMENT



The HYDROPOWER EUROPE Forum is supported by a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 826010.

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EXECUTIVE SUMMARY

This report provides a summary of the feedback received from NGOs on their single experiences and opinions shared during the event “HYDROPOWER EUROPE NGOs Roundtable” on Tuesday 19 January 2021.

The objective of this roundtable was to listen to and enable discussion between NGOs concerning their issues with hydropower. In light of the recent “No more Hydropower” manifesto, the partners of HYDROPOWER EUROPE believed that an interaction between the platform and regional players was essential to obtain a holistic view on the social acceptance of hydropower in Europe. Additionally, the event was an opportunity to further this exchange with civil society by encouraging the present entities to register to the HYDROPOWER EUROPE Platform, in order to become a consistent contributor and stakeholder of the project.

It needs to be highlighted that the topics and discussions were dominated by problems with some rogue and irresponsible hydropower development in non-EU countries of the Western Balkans where foreign investors profit from the absence of strict environmental legislation and lack of enforcement measures by authorities. Hydropower plants in EU and EFTA countries must comply with the provisions of the Water Framework Directive and plant owners have to and are continuously investing in environmental mitigation measures.

The feedback received will inspire the main documents being drafted by the project, namely the Research and Innovation Agenda and the Strategic Industry Roadmap.

The attendees list can be found in Appendix B.

1 Roundtable Event

The event was split into a morning part from 9.00 to 12.00 and an afternoon part from 14.00 to 17.00 on Tuesday 19 January 2020. The event was organised by Sabrina Hastings Mela, supported by Elina Cirule (EASE). The spectator count reached a total of 48 participants, distributed between the two sessions. See Appendix B for a complete list of participants.

1.1 Roundtable Event - Structure

The event comprised of 6 blocks of sessions evenly spread out in the two slots in the same day. Each session grouped presentations from a certain topic or geographical region of Europe, in order to focus on one aspect of the presence of hydropower in Europe and ease the discussion between participants. See Appendix A for a detailed agenda.

2 Summary of Event

2.1 Opening

Anton Schleiss (ICOLD) welcomed the participants connected online. After playing a short video on HYDROPOWER EUROPE Forum, he briefly gave an overview on the involved partners and the objectives of the forum. The forum will produce a synthesis of expected research developments and research needs for the coming decades in a Strategic Industrial Roadmap (SIR) and Research and Innovation Agenda (RIA) in the hydropower sector, targeting an energy system with high flexibility and renewable share, which can be a catalyst for the energy transition in Europe.

Anton Schleiss highlighted that hydropower is the leading renewable energy source in Europe with very high flexibility. In order to make sure it can be a catalyst of the energy transition in the long run, all of its stakeholders must be heard. Therefore, the forum appreciates, he said, that many NGOs accepted the invitation to share their expertise and experience on environmental and socioeconomic challenges related to hydropower from their region and country. The information received during the roundtable will be helpful for the main documents being drafted by the project, namely the Research and Innovation Agenda and the Strategic Industry Roadmap.

2.2 Session 1 Geographical Regions

Session 1 of the roundtable was grouped by geographical regions. The session was moderated by Consortium member **Jean Jacques Fry (ICOLD)** and introduced the issues caused by the installation of the hydropower plants in Kosovo and in the Baltic region.

Egzona Shala, from **EcoZ**, started the event with a presentation titled “Rivers and renewable energy in Kosovo”. According to her, hydropower has to be more seen as a problem than as a solution in Kosovo; due to the lack of information and effective procedures through these five to six last years, Kosovo was facing a lot of challenges.

According to the Energy Strategy for Kosovo, it was foreseen that up to 25% of energy will be from renewable sources, with the major part on hydropower 240 MW, compared to wind 150 MW, biomass 14 MW and solar 10 MW. Moreover, the ambitious 25% RES share target was voluntarily raised to 29% (part of criteria for Kosovo to join the European Union). Those targets were based on 1994 data without updating surveys. Those targets were set without knowing the challenges. Kosovo was not ready for deploying such a new technology; this is the main cause of the problem that Kosovo is facing now, she said.

During implementation, bureaucratic delays for licensing or for other procedures were cumulating while the lack of transparency, information and progress in environmental protection and water for communities was often reported and has been highlighted in the EC Progress Report for Kosovo (2018-2019), in such a way that investors and NGO were fighting each other.

She mentioned, that the policy of the government of the Kosovo encouraged the construction of small hydropower, with investments from the private sector. According to KOSTT, Kosovo has an installed capacity of 95,7 MW for hydropower and expects to add 78,8 MW produced by 20 small hydropower plants, the majority of which are located in national parks or very close to them. Moreover, she added, pre-feasibility studies identified 77 other sites for new small hydropower with a capacity of about 128 GW and an annual production of 621 GWh. Due to lack of information, Kosovo is losing biodiversity: for example, the eel population quite dense in the river Drii I Bardhë is declining due to the construction of the dam on the Albanian side as well as due to climate change, she mentioned. Animals drinking water from the river, like eagles and lynx are declining also.

Case study. Kelkosi is the name of company operating for Kelag Energie in Kosovo, one of the largest investors in East of Europe, coming with promises of large job employment, investments and economic benefits for the country. Kelkosi completed the construction of the plants in 2015 and started operating without the environmental permit, required by ERO for obtaining the operating license. Although operating illegally and facing environmental challenges, Kelkosi received around 5 million € per year from taxes as an incentive fee! This

occurred, because Kosovo has weak institutions and corruption. For example, during construction 2 out of the 6 springs supplying villages were destroyed and lost 30% of drinking water, without compensation and penalty for that and without opposition from the Ministry of Environment. In conclusion, there is no enforcement in Kosovo, consequently hydropower plants have proved they deeply damage biodiversity, if they don't follow strictly environmental laws. This is the reason why you have seen in 2020 Kosovo communities fighting and protesting against large investors.

Does Kosovo need so much hydropower? Under Ms. Egzona Shala opinion, this is not the case. Kosovo is one of the poorest countries in terms of water resources available (1600 m³/capita/year), meaning that without enough rain or snow in winter, water is missing, while solar energy could be generated during 2000 hours of sunshine and 278 days.

“Hydropower is renewable but non-ecological” was the title of the presentation given by **Ewa Leś, Coalition Clean Baltic** and **Prof. Roman Żurek, Polish Academy of Science**.

Rivers cannot continue to meet society's needs, or the needs of living things, if humans continue to regard river management as a purely political or engineering challenge (Karr J.R. & Chu E.W. 2000).

Only few unaffected tributaries and very few free-flowing rivers are left in the European continent. For illustrating this situation, Ewa reported that Sweden is among the world's top five countries in terms of developed hydropower resources per capita. She recalls (1) the manifesto signed in October 2020 by 150 NGOs calling on the EU to end support for new hydropower projects in Europe and (2) the news released on 17-12-2020 by the Parliament demanding that EU water legislation be respected. Parliament adopted a resolution on implementation of EU water legislation: “while MEPs agree with the Commission's assessment that the Water Framework Directive (WFD) is an adequate governance framework for managing water and no revision is needed, they strongly regret that half of the bodies of water in the EU are still not in good condition and that the objectives of the WFD have not yet been reached. This is mainly due to inadequate funding, particularly slow implementation, and insufficient enforcement. The precautionary and polluter-pays principles are not being implemented properly, and many members states are using exemptions too broadly... The resolution underlines that the WFD objectives need to be better integrated into sectorial policies, particularly in agriculture, transport and energy... Additional action regarding... hydropower is needed.”

Professor R. Żurek recalls that according to the WFD hydropower is possible on condition of Article 4.7. He concludes that hydropower does not meet this requirement; we have better energy sources, he said, e.g., photovoltaics and renewable energy is not necessarily electricity! Under his opinion the European nature protection goals and legal acts do not mention hydropower because, as he says, hydropower is non-ecological. In his opinion, there are no ecological hydroelectric plants. He continued: “Construction of new hydroelectric plant

is ECOCIDE! Aquatic ecosystems are complex, susceptible to interference and any interference is harmful. Consequently, we liquidated rivers and changed them in running water channels with 1,4 million barriers (see Amber map)”.

Professor R. Żurek underlined that in Poland, the theoretical hydropower generation potential is 23 TWh/year, the economic potential is 8 TWh/year, and the 2017 production is 2,6 TWh. He calculates, that this is 1,6% of the total production and then states that this could be considered as negligible compared to natural losses.

The impact of hydropeaking and thermopeaking is assessed comparing flow rate, river elevation and temperature regime charts versus time with threshold values required for spawning and breeding of sensitive species of fishes living in the river. The change of macro-invertebrate fauna has to be monitored also.

He considers that those who are interested will defend the hydropower industry at all costs and that greed and the interests of a handful of the rich remain more important than the welfare of society. “Greed is killing everything today. We've lost all our wisdom somewhere. We only care about profit, Jane Goodall pointed out. Pretending otherwise in the long term would be not only ecological suicide, but also economic.”

Finally, Prof. R. Żurek listed the environmental effects of river regulation and invited to take a glance to the website of Coalition Clean Baltic (CCB) (<https://ccb.se/wp-content/uploads/2014/06/TheBiologicalCostofHydropower.pdf>). His concerns regarding environmental effects he summarized as follows:

- Most river systems are already affected by dams, implying that new dams would destroy unique environments.
- The effects of dams and flow regulation on species richness vary with the spatial scale considered and are most severe at the scale of river reaches and smaller scales.
- River regulation reduces numbers of riparian-plant species. About one third of the species per 200-m-stretch of river margin along storage reservoirs, and one fourth of the species along run-of-river impoundments are lost. River regulation also changes the species composition and richness of macroinvertebrates, such as aquatic insects.
- Populations of salmonid fish species are reduced or destroyed, and lake-inhabiting species such as perch and pike take over.
- Dams are barriers to the movement of organisms (e.g., fish and plants) and transport of organic matter and sediment. This impedes the formation of new habitat, which is necessary for maintaining biodiversity, and reduces ecosystem productivity.
- The effects of river regulation on the diversity of riverine species are not transient but remain after 70 years and appear to be permanent.
- The damage per capita energy produced caused by small power plants is as bad or may even be more severe compared to large power plants.

- Although hydropower is considered not to emit any pollutants, it may under certain circumstances lead to considerable emissions of the greenhouse gases carbon dioxide and methane, and lead to accumulation of toxic methyl mercury in the food chain.
- Hydropower cannot be considered a sustainable means of power production since (1) it leads to large changes in the environment of rivers, (2) the changes remain as long as power continue to be produced, and (3) restoration would be extremely difficult and expensive.

2.3 Session 2 Ecosystems

Session 2 of the roundtable was grouped by its emphasis on ecosystems. The session was moderated by Consortium member **Hendrik Multhaupt, VGB** and comprised of two presentations, namely:

- “Multiplication of hydroelectric dams projects in French mountainous areas” by **Philippe Garcia**, President of the **Defense des Milieux Aquatiques (DMA)** in France
- “Hydropower sustainability: is it possible?” by **Pierlisa di Felice**, Vice President of the **Federazione Nazionale Pro Natura** in Italy.

In the first presentation, Mr. Garcia showed a video about the multiplication of hydroelectric dam projects in the French mountainous area which the DMA describes as an “alarming boom”. These are described as small projects (< 10 MW) and are said to be mostly carried out by one-person or family companies with the driving force of profit for the promoter and the municipal authority. Additionally, he states that the projects are often used as financial opportunities since non profitable dams would be supported by French public aids and that mayors would be promised tax benefits in areas that are in economic difficulty despite the disadvantages on the environment. While all over France hydroelectricity projects are said to be highlighted in energy climate plans, the National Committee for the Protection of Nature is said to often question the acceptability of the projects. The public on the other hand, would see the benefits of hydroelectricity as a green energy. The DMA therefore wishes to stop European grants for small hydropower projects with overweighing negative effects and a better engagement with the public to educate on the drawbacks of bad implementation of small hydropower up to 10 MW.

In the second presentation, Ms. Di Felice reported on a collaboration between the Abruzzo National Park and Enel, showing how such a cooperation can be successful and certainly represents a means of reconciling hydroelectric power and sustainability. She reports on an artificial lake (Barrea Lake) in the National Park of Abruzzo, Lazio and Molise, built in 1951 on the Sangro river. Here, many issues emerged due to the barrage at the Sangro River downstream of the lake: the minimum outflow of water was not guaranteed, and the hydropeaking phenomenon was strong. However, four years ago the Park activated a

collaboration with Enel, the company that manages the barrier, to modify the fluctuation of the waters of the basin, in order to improve the biodiversity levels of the lake. Following the agreement between the Park and Enel, in the last four years the changes in the level of the lake have been taking place in the autumn period alone and within a maximum of 7 meters. An initial assessment of the effects of the new management was carried out by botanists from University of Tuscia and Basilicata: in the course of the study, seabeds were sampled at various depths. Studies have found nine species of macrophytes while only mud was expected to be found. Between 2 and 4 meters deep compared to the summer water level there are real submerged grasslands of *Chara vulgaris*, protected by the Habitat Directive of the European Union.

2.4 Session 3 Fauna and Biodiversity

Session 3 “Fauna and Biodiversity” was moderated by Consortium member **Andrej Mišech (EUREC)** as part of the HPE team and comprised of presentations by **Polona Pengal**, Scientific Director at **Revivo Slovenia**; **Jelka Crnobrnja-Isailović** from the Conservation Committee of the **Societas Europaea Herpetologica (SEH)**; and **Verena Bax** – a policy officer at **BirdLife Germany**. Their talks covered negative effects of small, run-off-river hydropower plants on the river ecosystems in South-eastern Europe and beyond. Subsequently, the speakers brought up the following **key points**:

- 1) Hydropower would be a renewable source only if the water continues flowing. From the ecological perspective, hydropower negatively transformed river ecosystem and destroyed the functions of these river ecosystem.*
- 2) Further proliferation of SHPPs in the SE Europe and Greece would negatively impact local herpetofauna. Existing policies and regulations appeared to underestimate these impacts, but scientific interest and issue of non-sustainability of (ROR) SHPPs increased, as they said. According to the speakers, the amount of energy produced by these SHPPs was negligible.*
- 3) Relative risks and trade-offs for new water infrastructure including alternative energy options and options for increasing energy efficiency need to be assessed; HP facilities to be modernised; 2030 EU biodiversity strategy to be implemented using a basin-wide planning guide, which should recognize the importance of freshwater connectivity; construction support (subsidize) of new HP plants should be stopped.*

During the discussion, one participant claimed that the EU was not properly considering issues like river ecology and restoration. According to him/her, there would be a need to remove the old and obsolete river barriers, while modernising those still under operation (e.g., with fish passes).

Another participant mentioned the positive subsidy measures related to the electricity from the SHPP in Germany. According to him, the environmental damage was much larger than the renewable energy gains. Hence, financial incentives to support them did not make sense to him. There is public interest for energy, but also for the Water Framework Directive. According to the participant, it was difficult to see the public interest in small HPPs of less than 50kW. In like manner, he proposed to take a holistic perspective on what we are doing in terms of the Biodiversity Strategy 2030: “if we remove dams in some areas, but install new ones in other regions, it does not make sense”, he said.

Another participant presented a position that it was impossible to mitigate the ecological effects on a river both upstream and downstream of a hydropower station (or large dam). The counterargument raised was that there would have to be other measures to compensate any negative impacts of HPPs, such as improving biodiversity in other areas, but of course like any infrastructure, there are always trade-offs. The participant stated, that in his view large HPPs are useful for the electric system, whereas SHPPs were not. Nevertheless, there is strong opposition across the Balkans for SHPPs.

A point raised by a participant from SE Europe: the small HPPs’ theory and practice must be distinguished and understood. There were studies showing environmentally friendly solutions, but these were not applicable across all of Europe, with disastrous practice in some countries, as he mentioned. Environmental and social issues in western Europe are considered and applied differently in, for example, some Balkan countries. Nevertheless, biodiversity does not recognise political borders.

2.5 Session 4 Geographical Regions

Session 4 of the roundtable was grouped by geographical regions, tackling Alpine and Balkan countries. The session was moderated by Consortium member **Martin Bracken (EASE)** and comprised of speakers: **Kaspar Schuler**, co-director of **CIPRA International**; **Denion Galimuna**, program coordinator of **Kosovo Foundation for Open Society**; **Indira Kartallozi**, director of **Sustainability Leadership Kosovo** and **Besfort Kosova**, project manager of **Balkan Green Foundation**.

The speakers predominantly brought up the issues concerning the Western Balkans with a stronger focus on the political aspects of these regions’ issues with hydropower. The key points brought up by the speakers were:

- 1) Small hydropower plants should only be used for the needs and according to communities, it must be done at regional level as opposed to planning for a significant portion of grid mix coming from small hydro. It was also said that it would be worthwhile amending and improving existing infrastructure as opposed to building new small hydropower.

- 2) Kosovo's example of a situation in which permits, social acceptance and environmental impact assessments were grossly mishandled for the benefit of certain individuals who wanted to push for hydropower in the country to the detriment to the already precious water resources or ecological niches critical to the communities.
- 3) The current state of renewables in the western Balkans in relation to the resources available to them. It was said, that there is a real hydrological stress on certain communities in this region that had been exacerbated by the installment of small hydropower plants. As climate change is expected to unravel, this water scarcity is expected to become more problematic. It was also noted that many of the current small HPPs in these rivers only provided energy at very specific points of the year and that the hydrological cycles harnessed were overestimated and not in synchronization with the demands of energy.
- 4) The potential of other renewables in the region of the western Balkans as hydropower is restructured. According to the Balkan Green Foundation, there would be more potential for wind power than hydropower in many of these countries.

During the discussion, the moderator asked participants if they could bring forward and elaborate on specific examples where they believed local governments had manufactured social acceptance/environmental acceptability of hydropower. Many respondents answered by text to include Bulgaria, Serbia, Slovenia and the Western Balkans as a whole. One participant said that they had seen the Macedonian and Albanian environmental impact assessments and claimed they fall short of the mark. A participant raised an issue in northern Italy where there was also social tension between certain communities and small hydropower. Another participant raised the point that there was an opportunity for networking at the RENEXPO to further gather the stakeholders of all types for all hydropower.

2.6 Session 5 Fauna and Biodiversity

Session 5 of the roundtable was named "Fauna and Biodiversity". The session was moderated by Consortium member **Anton Schleiss (ICOLD-EPFL)** and started with three presentations namely:

- "ARGEFA statement for HYDROPOWER EUROPE" given by **Johannes Schnell**, from the **Fisheries Association of the Alpine countries**
- "Hydropower: experience perspectives of the Fishing Association of Slovenia (FAS)" given **Igor Miličić**, Secretary General of **Fishing Association of Slovenia**
- "Environmental Impacts of Hydropower Plants in Germany - A Statement from Friends of the Earth Germany (BUND)" given by **Lilian Neuer**, Policy Officer in Water Politics at **BUND**.

All three presentations were addressing the impacts of new small hydropower plants with focus on *fish and morphology*.

In the first talk, after a short presentation of ARGEFA (= working group of fishery associations in the alpine region - <http://www.argefa.org/home/>), Johannes Schnell highlighted the effects of some 10'000 hydropower plants in the Alps of which 95% were considered as small and contributing to only 10% of the total yearly hydropower production. As impacts he mentioned a loss of aquatic connectivity for organisms and bedload, mortality of fish while passing turbines, influence on flow regime (residual flow, hydropeaking and thermo-peaking) as well as loss of aquatic and wetland biodiversity.

Johannes Schnell said that the members of ARGEFA request the following (citation):

- *to prevent the construction of new small hydropower plants*
- *to protect the last naturally flowing waters*
- *Adaption of existing hydropower plants to modern standards and better efficiency, instead of building new facilities*
- *to set ecological guidelines, especially when continuation of hydropower approvals is applied for. These may comprise the installation of fish protectors or fish passes, reduction of hydrodynamic amplitudes, the increase of minimal flows and the management of gravel dynamics*
- *Adjustment of approved facilities to current ecological guidelines and frameworks (WRRL, Natura 2000, Nature conservation)*
- *Restoration of the accessibility of habitats upstream and downstream for fish*

Finally, with a calculation Johannes Schnell stated that eating 2 beefsteaks (600 grammes) less per head (capita) and year, the same CO₂ emission in Europe could be avoided as by 20'000 small hydropower plants with an installed capacity of 50 kW, namely 0.5% less CO₂ emissions.

In the second presentation, Igor Miličić, Secretary General of FAS addressed the general effects of hydropower on angling, namely negative impact on fish stocks, changing of habitats of freshwater fish species as well as negative effects on all water-based sports. He questioned if hydropower is really a green source of energy and really could create long-term jobs and could mitigate floods. Then he explained the situation in Slovenia where, as he stated, 23 large hydropower plants produce 30% of the electricity and 480 small hydropower plants only 3%. New hydropower plants are planned on the Sava river (10) and on the Mura river (3 to 8). Regarding the Sava river, he raised the problem that only one HPP had a functional fish ladder and that the planned HPP would be in Natura 2000 areas for Huchen Danube salmon. On the Mura River there are no HPP's in the Slovene part of the river, but at least three are planned. He said, that Mura river has the highest number of fish species in Slovenia. He continued, that here is a strong public opposition against new HPP and government decided to postpone/discard development plans.

Igor Miličić summarized the request of FAS as the following (citation):

- *Upgrading and improving the existing HPPs instead of building new ones*
- *Building new HPP's only if they comply with the WFD standards*
- *Creation of 'no go' areas for hydropower*
- *Fully functional fish ladders on all HPPs*
- *No public subsidies for small scale hydropower*
- *Defining regulations for minimal ecological flow*
- *Exceptions: areas with no alternative energy sources*

In the third presentation **Liliane Neuer** from **BUND** said that around 400 larger power plants in Germany generated more than 80 % of electricity from hydropower. She said, that 7'300 small hydropower plants cover only around 0.5 % of the total electricity demand. As impacts of these small hydropower plants, she mentioned biodiversity loss, river fragmentation, erosion, missing sediment dynamics and groundwater level declines. She made also reference to the recent study (AMBER) published in Nature magazine in December 2020 mentioning that every 1.4 km on European rivers a weir is present, which are mostly the result of river training and flood protection works. She concluded that (small) hydropower was not sustainable and green and under her opinion no new (small) hydropower would be needed to achieve energy transition to 100 % renewables until 2030.

Liliane Neuer summarized the improvements needed for small hydropower development as follows (citation):

- *Operators must convert their systems so that the ecological requirements are met:*
 - *Improving the fish passes.*
 - *Measures to reduce the considerable fish losses when passing through the turbine. E.g., well-functioning bypass routes, horizontal rake grids, crew and slowly rotating turbines, with which fish losses can be kept well below 10 %.*
- *Renewable energy technology must serve nature conservation! Hydropower plants that cannot meet all ecological requirements may no longer be operated.*

Regarding climate change and water shortage, she highlighted, that a sufficient water flow had to be guaranteed in the more frequent dry and hot years for fish passes and at residual discharge sections in the river in order to prevent the water course from overheating or falling dry.

For small hydropower plants Liliane Neuer concluded that they were not green and not needed, since she thinks they go against the aims of WFD & Green Deal (restoration law etc.). Thus, she claimed that there should be no public financing for such new small hydropower. In her view EU subsidies may only be used for the controlled removal of small hydropower plants or barriers.

The three talks were followed by a **discussion** involving all participants of the round table. Mitko Koumanov from Bulgaria claimed that for small hydropower plants in the Balkan area a kind of stress test should be done with an overall assessment of the environmental impact. If the ecological situation, for example regarding fish migration, cannot be improved, the small hydropower plant should be decommissioned, especially if the electricity generation is very small. Igor Miličić from Slovenia added that fish ladders are not a magic tool which makes small hydro eco-friendly since they are very often not functioning properly. If the case of several power plants along the river with reservoirs, it is very difficult, he said, that migrating fish like Huchen Danube salmon can reach spawning grounds. Johannes Schnell mentioned that traditional fish ladders resulted in a selection of fish species since not all species were able to pass. The selection was amplified for a series of hydropower plants along a river and only a few species or even none could reach the upper part of the catchment area i.e. the spawning grounds. Anton Schleiss mentioned that in modern design not technical fish ladders should be built but rather small diversion rivers around the powerhouse which favor not only upstream but also downstream migration and could also serve as biotopes for example for invertebrates or even as spawning grounds.

Jelka Crnobrnja-Isailovic from Belgrade, Serbia mentioned that many species of fishes were endangered by distinction due to climate change especially in the biodiversity hotspots in Europe, namely the Balkan and the Iberian Peninsula. She stated, that these biodiversity hotspots should not be a playground for building hydropower plants. Even if the scientific knowledge and the technologies are available for making hydropower plants as eco-friendly as possible, the reality in relatively poor countries as in the Balkan is different, she said. The legislative and political framework often cannot ensure that high eco-friendly standards are applied in projects of new small hydropower plants, in her experience. Even if Environmental Impact Assessment studies were done officially, she added, they were often based on monitoring data collected only during a few months, which may not show the full biodiversity picture. She moves on, that the monitoring should cover all seasons over a couple of years. Balkan rivers are very fragile with significant discharge only during a few months. Under her opinion, before building new small hydropower plants on such fragile rivers, above all the existing large hydropower plants should be renewed and updated first.

2.7 Session 6 Environment and Society

Session 6 of the roundtable was dedicated to Environment and Society. The session was moderated by Consortium member **Diana Prsancova (ZABALA)**.

As the first speaker, **Flutra Bektashi** from **EcoKos Women** presented her experience of the impact of hydropower on the local communities. Having a mission to create a more favourable socio-economic environment, EcoKos Women strives to promote clean and

renewable energy, and an overall sustainable environment for all communities including underrepresented minorities.

She stated, that until now, Kosovo's overall energy potential was depending on thermopower plants and lignite which are among the biggest air pollutants in Kosovo. On the other hand, hydropower plants fell into the most suitable categories of renewable energy with zero-emission in air quality, so the health of citizens would not be affected.

Kosovo is among the most water-stressed countries in Europe with demands higher than present water resources which are also disproportionately distributed. She added that negative impacts of hydropower plants in Kosovo are of social and political origin such as the lack of transparency about design and construction process of the hydropower plants; the participation of the minorities in the decision making was neglected; negatively affected households by loss of water sources; violation of laws by Central Government. She continued about economic and environmental impacts of hydropower plants in Kosovo and talked about the reduction of water resources due to inadequate design in some locations; negatively affected tourism due to degraded nature; the effect on biodiversity.

She highlighted, that there would be a necessity for Kosovar women to be involved in the hydropower planning process as it is also guaranteed by international principles such as Dublin Principles stating that women play a central part in the provision, management and safeguarding of water.

Next, **Steven Vanholme** presented **EKOenergy** providing ecolabel for sold renewable energy via licensed sellers. Through this ecolabel, EKOenergy fundraises for river restoration and new renewable energy projects which are selected through a transparent process and expert jury. To receive ecolabel, the sold hydropower energy must fulfil renewable and sustainability criteria: A) Fish migration: No new dams, only obstacles built before 2013, excluding small plants up to 10 MW, a functional fish passage where fish can pass the hydropower installation upstream and downstream on their own. B) Continuous flow: An average low flow is a reference for minimum water discharge. C) River habits: Habitats is available in the section of the water body where the hydropower plant is located. Fish migration is a major issue in Finland because almost none of the hydropower plants have a fish passage. The EU LIFE project, Freshabit, constructs fish passes which help to revive the freshwater pearl mussel population.

Lastly, **Vlastimil Karlík** from **Arnika** gave a presentation on environmental and social impacts of small hydropower plants in Bosnia and Hercegovina. A study from 2016 showed that 55% of rivers, hydromorphologically speaking, are slightly or moderately modified. In the cases presented there, due to the disastrous design of sHPPs' derivation, water was directed by a barrier to the pipeline leaving the river channel completely dry for most of the year. Main environmental impacts of such operations were migration barriers; destruction of water-

related ecosystems; a lack of water in a flood plain; the impact on fish breeding habitats; changes in concentration of oxygen and temperature. There was a resistance from local communities because badly designed sHPPs have negative social impacts namely a shortage of drinking and service water; the decline in fish stocks; the impact on ecotourism, sports and recreational activities due to dry riverbeds and concrete structures; the profits from the sale of electricity do not go to the local community.

Mr. Karlik explained, that in Bosnia and Herzegovina, only 1,13% of high natural value territory are protected. Due to the complicated administrative system and weak legislation, it was challenging to stop the construction of over 300 newly planned sHPPs. The speaker continued, that the public was excluded from participation in the decision making, even though it was required by the international Aarhus Convention. He knows, that the information about the planned project was not provided to the local communities and public hearings were often purposely organized without proper notification. For small HPPs, Environmental Impact Assessment studies were often stated as not obligatory, as he continued. As two examples of a successful public petition he mentioned that the construction of sHPPs has been banned on Neretvica river and the Sutjeska National Park.

3 Poll

At the end of the afternoon session, the stakeholders were asked to participate in a poll prepared to evaluate the event and its relevance. The poll included the following questions:

a) How would you evaluate the relevance of this event? (On a scale 1-10)

<i>Grade</i>	6	7	8	9	10
<i>Number of votes</i>	1	2	4	1	4

b) Do you think another Roundtable of this kind can be helpful?

Yes	No	Yes; with a more diverse coverage of topics	Yes; covering only a few priority topics
8	0	2	2

4 Concluding Remarks and Key Messages

Anton Schleiss thanked the participants for sharing their experience during the round table with the Hydropower Europe team. He concluded that the raised problems concerned mainly small hydropower projects on not yet tapped rivers, especially in the Western Balkans which are still in good natural state and have a vulnerable biodiversity. The witness of so-called hydropower “Bonanza”, ongoing above in the Balkan area, was alarming and very harmful to the overall image of EU hydropower sector, especially small hydropower, not only in Europe but also worldwide. Many small hydropower projects presented during the roundtable obviously haven’t been designed and built according to the high standards as used for hydropower in other European countries where plant owners have to comply with provisions of the Water Framework Directive to ensure that they are technically sound and safe, environmentally defensible and socio-economical beneficial. In many Balkan countries the political and legislation framework does not request and enforce the highest standards and private investors are taking advantage of a kind of “Wild West” situation.

Jean-Jacques Fry thanked one more time all the participants and set some milestones for the future.

He was very pleased to welcome about twenty organizations to the Hydropower Europe Forum, and to have been able to benefit from their convictions, opinions and their wide experience on sites. These organizations have alerted the Forum to unacceptable situations especially in the Western Balkans and they have shared a large number of recommendations with the Hydropower Europe team. He also noted more than a dozen of them, which he considers important and which, in his opinion, deserve to be considered in actions of the hydropower strategic roadmap.

APPENDICES

Appendix A: Event Agenda

Time	Organisation	Speaker	Position	Topic
9.00-9.15	Opening Prof. Anton Schleiss, ICOLD, Ecole Polytechnique Fédérale de Lausanne			
	SESSION 1 <i>Geographical regions</i> Moderated by Jean-Jacques Fry, ICOLD			
9.15-9.35	Coalition Clean Baltic	Ewa Les	WG Leader for River Basin and Wastewater Management	Hydropower is renewable but non-ecological
	Institute of Nature Conservation - Polish Academy of Science	Prof. Roman Zurek	Professor	
9.35-9.45	EcoZ	Egzona Shala	Executive Director	Rivers and renewable energy in Kosovo
9.45-10.00	Discussion			
10.00-10.05	Coffee break			

Time	Organisation	Speaker	Position	Topic
	SESSION 2 <i>Ecosystems</i> Moderated by Hendrik Multhaupt, VGB PowerTech			
10.05-10.15	Defense des Milieux Aquatiques	Philippe Garcia	President	Multiplication of hydroelectric dams projects in French mountainous areas
10.15-10.25	Federazione Nazionale Pro Natura	Pierlisa di Felice	Vice President	Hydropower sustainability : is it possible?
10.25-10.40	Discussion			
10.40-10.45	Coffee break			

Time	Organisation	Speaker	Position	Topic
	SESSION 3 <i>Fauna and biodiversity</i> Moderated by Andrej Mišech, EUREC			
10.55-11.05	Revivo Slovenia	Polona Pengal	Scientific Director	-
11.05-11.15	Societas Europaea Herpetologica (SEH)	Jelka Crnobrnja-Isailović	Conservation Committee of SEH	Small Run-of-River Hydropower Plants Negatively Affect Local Herpetofauna in Southeastern Europe
		Dan Cogalniceanu		
11.15-11.25	BirdLife International	Verena Bax	Policy Officer	Hydropower – Consideration of benefits and risks
11.25-11.40	Discussion			
11.40-11.50	Closing Remarks Morning Round Anton Schleiss, Jean-Jacques Fry			

Time	Organisation	Speaker	Position	Topic
14.00-14.10	Opening Prof. Anton Schleiss, Ecole Polytechnique Federale de Lausanne			
	SESSION 4 <i>Geographical regions</i> Moderated by Martin Bracken, EASE			
14.10-14.20	CIPRA International	Kaspar Schuler	Co-director	Requests regarding the (non)use of hydropower from an overarching Alpine perspective, including the demands coming from the Alpine Convention
14.20-14.30	Kosovo Foundation for Open Society	Denion Galimuna	Program Coordinator	Kosovo Eco-Logic – the case of small Hydro Power Plants
14.30-14.40	Sustainability Leadership Kosovo	Indira Kartallozi	Director	Cry me a river: case study from Kosovo
14.40-14.50	Balkan Green Foundation	Besfort Kosova	Project Manager	Western Balkans
14.50-15.05	Discussion			
15.05-15.10	Coffee break			

Time	Organisation	Speaker	Position	Topic
SESSION 5 <i>Fauna and biodiversity</i> Moderated by Prof. Anton Schleiss, ICOLD, Ecole Polytechnique Fédérale de Lausanne				
15.10-15.20	Fisheries association of the Alps	Johannes Schnell	Secretary General	ARGEFA statement for HYDROPOWER EUROPE
15.20-15.30	Fishing Association of Slovenia	Igor Milicic	Secretary General	Hydropower: experience perspectives of the Fishing Association of Slovenia (FAS)
15.30-15.40	Friends of the Earth Germany	Lilian Neuer	Policy Officer	Environmental Impacts of Hydropower Plants in Germany - A Statement from Friends of the Earth Germany (BUND)
15.40-15.55	Discussion			
15.55-16.00	Coffee break			

Time	Organisation	Speaker	Position	Topic
SESSION 6 <i>Environment & Society</i> Moderated by Diana Prsancova, Zabala				
16.00-16.10	EcoKos Women	Flutra Bektashi	Manager	The impact of hydropower on Kosovar women in the future
16.10-16.20	EKO Energy ecolabel	Steven Vanholme	Program Manager	EKOenergy ecolabel and hydropower
16.20-16.30	Arnika	Vlastimil Karlík	Nature conservation expert	Environmental and social impacts of small hydropower plants – example from Bosnia and Hercegovina
16.30-16.45	Discussion			
16.45-16.55	Closing Remarks Afternoon Round Anton Schleiss, Jean-Jacques Fry			

Appendix B: Participants List

Name	Organisation
Alain Kijain	IHA
Andrej Misec	EUREC
Anton Schleiss	ICOLD-EPFL
Arben Lila	Kosovo Advocacy and Development Centre
Balint Halpern	Societas Europaea Herpetologica
Besfort Kosova	Balkan Green Foundation
Brigitte Reitter	Small Hydropower Association of Baden Württemberg
Kaspar Schuler	CIPRA International
Dan Cogalniceanu	Societas Europaea Herpetologica
David Samuel	IHA
Denion Galimuna	Kosovo Foundation for Open Society
Diana Prsancova	Zabala
Egle Kareckaite	EASE
Egzona Shala	EcoZ
Elina Cirule	EASE
Emin Aliyev	EASE
Eva H.	Revivo
Ewa Leś	Coalition Clean Baltic
Fabien Techene	WWF Adria
Flutra Bektashi	Eco Kos Women
François Delorme	CCFD Terre Solidaire
Hendrik Multhaupt	VGB PowerTech
Igor Miličić	Fishing Association of Slovenia
Ildikó Varga	CEEweb for Biodiversity
Indira Kartalozzi	Sustainability Leadership Kosovo
Jelka Crnobrnja-Isailovic	Societas Europaea Herpetologica
Jean-Jacques Fry	ICOLD
Johannes Schnell	Fisheries Associations of the Alps
Karolina Žemyna Gurjzkaitė	Lithuanian Environmental Coalition
Lilian Neuer	Friends of the Earth Germany
Magbule Hyseni	EcoKos Women
Mark Morris	Samui France
Martin Bracken	EASE
Mitko Koumanov	Balkanka Fishing Association
Paul Ablinger	Austrian Small Hydropower Association
Philippe Garcia	Defense des Milieux Aquatiques
Pierlisa Di Felice	Federazione ProNatura

Polona Pengal	Revivo
Rina Fetahaj	Sustainability Leadership Kosovo
Roman Zurek	Polish Academy of Science
Sabrina H. Mela	EASE
Serena Arduino	CIPRA International
Steven Vanholme	EKOenergy ecolabel
Vanda Bonardo	CIPRA International
Verena Bax	NABU
Vlastimil Karlík	Arnika
Ziva Alif	Revivo