



Towards the circularization of hydroelectricity using the existing hydraulic infrastructure, event at World Water Week 2018

Mário Franca and Miroslav Marencic organized recently the event on the World Water Week 2018 in Stockholm: “Towards the circularization of hydroelectricity using the existing hydraulic infrastructure”. Key players in the hydropower industry were invited to debate synergistic approaches to respond to both food and energy needs which are essential to respond to the WEF Nexus, in particular to attain the SDGs 2, 6 and 7.

Anton Schleiss, former president of ICOLD and Emeritus Professor at EPFL, Rana Pratap Singh (UNIDO) and Thomas Sandberg (Swedish Small Hydropower Association and European Renewable Energies Federation) discussed development of alternative strategies and technical solutions incorporated in existing structures, used primarily for other purposes, represent an additional low-impact and lucrative solution for energy generation. A lively discussion was held with the audience which counted with participants from academia, industry and NGO’s concerned about the sustainability of energy production. More than 30 participants from 13 countries were present participating in stimulating and sometime passionate debates between participants and key persons.

As main outcomes we may summarize:

- **Reduce carbon emissions.** The share of production of renewable energy must increase to reduce carbon emissions from fossil sources or to reduce nuclear power dependence.
- **Small hydropower as local power supply.** Small hydropower has no big reservoir or dam and is seasonally predictable and partially regulable. It can be used to stabilize the local grid but also to feed and form isolated island grids. Therefore, the small hydropower is interesting for developing countries and also isolated rural areas or islands.
- **Squeezing energy from the existing systems.** Hydraulic systems should be analyzed (or re-analyzed) to investigate the available energy which can be recovered. Investors on new hydraulic projects should recover the energy available in their already existing systems first, when modernizing existing hydraulic structures should implement hydropower units and, in new projects with other aim than energy production hydropower production should be implemented.

- **Water-Energy-Food-Ecosystem Nexus.** Water-Energy-Food-Ecosystem Nexus is an integral and crucial part of sustainable hydropower development. Different approach and solutions are needed in developed, developing and nearly developed countries.

We will follow these ideas in our further research and we welcome partners interested on developing them to contact is further.