Case Study // Round Table SDG 6 - Sharing water: balancing competing needs in a context of declining resource

Optimising water allocation for energy and hydrological extremes in transboundary context

Finland

Levels: local, national and international

Summary

Finland and Russia share hundreds of rivers crossing the border, of which about 20 major ones belong to the operative cooperation with joint monitoring and joint management plans. The largest transboundary river system is the Vuoksi River with a large upstream lake system in the Finnish territory, the river crossing the border and discharging to the Lake Ladoga. In the river there are four large hydropower station, two in the Finnish side, two in the Russian side.

Joint water management is essential for flood and drought control, navigation, endangered species, recreation (SDG6) and well as energy security (SDG7).

Water allocation rules for the Vuoksi river system shared by Finland and Russia have been developed and implemented by a discharge rule and risk management plan to optimize hydropower production and minimize the damages caused by flood or drought and also taking into account other aspects dependent on water level fluctuations in both sides of the border.

Situation

The upstream lake system of the Vuoksi basin in Finland is large covering major parts of eastern Finland with many shoreline cities, industries and freetime housing. The developments are vulnerable for flood and potential damages increase rapidly with water level increase.
Due to high water flow and high fall heights the hydropower production is essential for energy security, particularly to match the changing demand of electricity.
The cooperation described contributes to transboundary cooperation in integrated water resources management measured by SDG indicator 6.5.2. and it fullfills all criteria set for the succesfull transboundary cooperation.

Strategy

Transboundary water cooperation between Finland and Russia originates from early 1960s, and the bilateral agreement was signed in 1964. The agreement covers all uses of water, and geographically the whole catchment of the transboundary watercourses. For the River Vuoksi system, where water allocation for hydropower and flood/drought control in both countries is essential, a complementary agreement, Vuoksi Discharge Rule, was signed in 1989. The Discharge Rule controls the water level fluctuations in upstream lake system and discharge from the lake to the River Vuoksi in order to minimize the flood/drought damages both upstream and downstream, also taking into account the hydropower production.
Recently, a comprehensive risk management plan has been developed and agreed to further improve the optimisation of water allocation in the system.

Results and impact

- water allocation through discharge regulation in case of extremes
- minimize damages caused by flood/drought
- maximize hydropower production
- secure endangered species
- secure navigation

Challenges and lessons learned

To make the cooperation and adaptive management successful it is important not only to achieve mutual understanding and trust in political level, but also to commit the managers, operators and stakeholders to cooperation. In the Vuoksi case this means reginal water managers and hydropower companies in both sides.

Potential for replication

General approach is replicable in other transboundary waters, but issues and their implications are always case specific. The generic features comprise of mutual understanding and political will, sufficient institutional capacities, appropriate frameworks and processes also nationally, joint hydrological monitoring and forecasting, data exchange and understanding the implications.

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