Balancing different interests for development in transboundary basins

Hydropower and flood protection: the cooperation between Finland and the Russian Federation

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Vuoksi River Basin

FINLAND

RUSSIA

Vuoksi watershed

Lake Ladoga

Gulf of Finland
Background: Finnish-Russian agreement on transboundary waters

- Signed April 24, 1964
- (cf. IFLA Helsinki Rules on the Uses of the Waters of International Rivers, 1966: reasonable and equitable share in the beneficial uses of the waters of an international drainage basin)
- Covers Finland’s eastern border including Lake Saimaa and River Vuoksi
- Covers all fields of water management
- Basis for agreeing on use and protection of watercourses
- Establishes a Joint Finnish-Russian Commission
Background - basic figures

- Lake Saimaa catchment area: 69,500 km$^2$
  - 77% on Finnish territory, 23% on Russian territory
- Lake Saimaa surface area: 4,460 km$^2$
- Annual precipitation: ~ 600 mm
- Water level fluctuation
  - zone 3.3 m
  - annual mean 0.7 m
- River Vuoksi natural discharge
  - mean 600 m$^3$/s
  - max 1170 m$^3$/s
  - min 220 m$^3$/s
Background features

Finland:
• drought, low water levels Saimaa
• navigation, fisheries, recreation, endemic species
• two hydro power units in river Vuoksi

Russia
• floods
• drought, low discharges in River Vuoksi
• two hydro power units in river Vuoksi
• fisheries, abstraction, recreation
MANAGEMENT CHALLENGES AT THE OUTSET

• Finland:
  – flood damages to settlements, industry, agriculture
  – low waters, problems to navigation, recreation
  – hydro power

• Russia
  – floods, spill discharges
  – hydro power production in winter, low flows
Targets at the outset

- Initiative of the Russian Party at the Commission 1973
- Development targets
Preparation of Discharge Rule

• Several alternatives jointly investigated
• Impacts on various livelihoods, fisheries, hydro and other industry, habitation, navigation, water quality
• Commission accepted first plan in 1979
• Counterarguments in both countries -> further planning
• Finally accepted 1989, implemented since 1991
The discharge rule of Lake Saimaa and River Vuoksi
Current status and results obtained

• General principles and mutual targets in Discharge Rule
• Proactive operational decisions rapidly and flexibly
• Hydrological data and forecasts constantly available for authorities, hydro companies and the public
• Beforehand information of discharge changes to all actors
• If losses are anticipated, consultations between the Parties
• Eventual losses estimated and ultimately compensated for if higher than in natural conditions
• Annual working group meetings on implementation
• No major problems or controversies in implementation
Lessons learned

- Real-life integrated water resources management practices achievable in transboundary context
- Legal prerequisite: transboundary water agreement
- Institutional prerequisite: joint commission
- Commitment both upstream and downstream
- Integrated and equitable river basin management
- Transparent management practices
Future challenges: climate change

- Increased occurrence and variability of heavy precipitation and drought periods
- Shorter snow cover period
- Autumn and winter floods become more abundant - spring floods less severe
- Alterations in ice conditions
- Ice and snow cover essential for Saimaa seal nesting

-> Forecasting and optimal flow control crucial
Thank You!