University of Natural Resources and Life Sciences, Vienna
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Summary: Climate Change and Global Water Sharing Challenges

While states withdraw from the Paris Agreement, our climate continues to change. Rising temperatures and growing populations can lead to conflict around water.

We invited **Ashok Swain** (Uppsala University, Sweden) to discuss with us. He is a leading scholar in the field of natural resources and conflict and currently teaches as a guest professor at BOKU Vienna.

IMPROVING QUALITY IS EASIER THAN AUGMENTING QUANTITY

Water reserves are under pressure: not only the global population is increasing steadily; so does the water demand per capita. Urbanization further adds to the challenges. Growing pollution makes waste water treatment an increasingly important strategy.

NOT EVERY EXISTING WATER RESERVE IS ALSO AVAILABLE

There are huge differences in water equity between countries. Besides uneven availability of water, there is considerable disparity in economic, institutional and technological strength.

WHOSE WATER: YOURS, MINE, OURS?

More than 40% of the world's population depends on transborder water reserves. Water cannot be substituted by or compensated through any other resource and therefore holds an unparalleled potential for conflict. While the 1990s were characterized by fear of imminent water wars, the discourse changed in the following years. Several agreements on the shared use of some of the largest river basins were signed in the years before the millennium: Jordan (1994), Mekong (1995), Ganges (1996), Nile (1999) and Zambezi (1995).

COOPERATION WINS OVER CONFLICT?

Historical data accounts for more cooperative actions than conflicting ones. In the last 200 years, around 450 agreements on the shared use of transborder water resources have been signed. Shouldn't we feel tremendously relieved? Swain advised for caution: often, he argued, the real reasons for a conflict are not publicly recognized and we might easily underestimate the contribution of water use issues to past and present conflicts.

FACT BOX: WATER

Climate change, the world's growing population, and changes in water use all contribute to the increasing pressure on water resources:

- world population tripled in the 20th century
- water use per capita increases
- 1.1 billion people lack access to clean drinking water
- 2.6 billion people lack access to adequate sanitation
- 5 million people die annually from water-related diseases (of these, 1.8 million are children)
- Average daily water use differs heavily between Global North and South:
  South: 5-10 L per day
  Europe: up to 200 L p.d.
  North America: up to 450 L p.d.

We use water in agriculture and industry; only about 10% are used as drinking water.

WATER CHALLENGES

Besides increasing demand for water, challenges include among others

- changes in precipitation patterns (making modelling and planning difficult)
- seawater influx into freshwater systems (at the estuary, if not enough water is available in a river system)
- issues of international borders that shift with the corresponding rivers.

Some of these agreements even brought fiercely opposing parties together at the same table to negotiate a joint solution on water usage. The 1960s agreement between India and Pakistan on the Indus basin, for example, took nine long years to be settled, but outlasted three major bilateral conflicts (1965, 1971 and 1999) before being seriously challenged for the first time in 2016.

FUTURE CHALLENGES CALL FOR NEW APPROACHES

However, the past agreements are underequipped to address future uncertainties and challenges, especially with regard to climate change, stressed Swain. Many of the agreements were aid-driven (e.g. through World Bank or UNDP programmes) and lacked internal commitment from concerned states. Furthermore, most agreements are based on historic or current usage, not on the actual proportion that the contractual partner countries supply to the basin. As net suppliers increase their demand, these agreements are now at risk.

Climate change will bring changes in precipitation. Modelling for precipitation in the Nile Basin, for example, suggests altering periods of several decades with reduced and increased precipitation. Such important precipitation changes render the planning of new dams very difficult.

INTERNATIONAL CONVENTIONS: NICE, BUT NOT RATIFIED

An international convention on the use of transborder water reserves exists: the United Nations' Convention on the Protection and Use of Transboundary Water Courses and International Lakes; but it has been ratified by only very few countries world-wide, most of which are small and European. Among larger countries there were quite important abstentions from voting (USA, India), some countries with a substantial share of transborder waters even opposed it (China, Turkey).

INTERNATIONAL RIVER BASIN MANAGEMENT: TO DO'S

To conclude, Ashok Swain shared his wish list for international river basin management with us. On the top: all countries in a basin area should be included in negotiations and agreements, not just two or three. Flexibility is needed to handle short-term emergencies, as well as long-term challenges, implying that the time of "fixed" agreements is over: only a continuously evolving process can offer the needed management support. Any water-related dispute has to be adjudicated upon swiftly.

There is an expanding knowledge gap between many basin-sharing neighbours, warned Swain, as poorer countries often lack information, e.g. simulation data, to protect their interests.

In an ideal world, basin-sharing countries would aim at building trust in each other and eventually manage water storage sites, as well as agricultural sites together, but speaker and audience doubted whether this will ever come true.

Political science meets fish ecology and hydrobiology: guest professor Ashok Swain and CDR's Andreas Melcher argued for holistic approaches to water management that bring all relevant stakeholders to the table for negotiations.

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