International Water Resources Association

POLICY BRIEF
Number 4
May 2020

Water Security and the Sustainable Development Goals

KEY POLICY MESSAGES

- **Technology:** Save water, energy and money through 'smart' information.
- **Society:** Prevent conflicts before they break out.
- **Economy:** Enrich people and planet alike through 'Green Growth'.
- **Environment:** Solve multiple challenges through nexus and nature-based approaches.
- **Governance:** Balance administrative and institutional expertise with local knowledge and good community relationships.

Nakdonggang River, Korea

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IWRA in association with the UNESCO International Centre for Water Security and Sustainable Management (i-WSSM).

This policy brief draws from 'Water Security and the Sustainable Development Goals' Global Water Security Issues (GWSI) Series (1)
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Water treatment plant
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WATER SECURITY HAS MANY DIMENSIONS

Water security (see p 5) is fundamental to the 2030 Agenda for Sustainable Development's Goal 6: Clean Water and Sanitation (SDG6). Security goes beyond physical scarcity to encompass the economic, political, social, and environmental drivers restricting access to water.

UNESCO and the UNESCO International Centre for Water Security and Sustainable Management (i-WSSM) have co-published the Global Water Security Issues (GWSI) to provide practical guidance to achieving SDG6.

The first series explores how different approaches can make societies healthier, manage climate risks, and sustain ecosystems. Technology, society, economy, environment, and governance all play important roles.

TECHNOLOGY. GET SMART ABOUT WATER

Most water problems are not due to scarcity but poor governance in managing uncertainty, exploitation and pollution. New information and communication technologies (ICT) support good water governance with reliable, integrated data.

Gourbesville describes how cities around the world are investing in these 'smart' technologies to sustain growing populations, secure urban water supplies and reduce costs.

Using ICT to gather real-time data means better, faster decisions, and quick identification and repair of leaks. The savings can be substantial: 25 per cent losses (a not unusual amount) cost a medium-sized city more than US$13 million a year in energy, labour and chemical expenses.

Many wastewater treatment plants are being transformed to recover energy and other resources. Energy is the largest controllable cost in water and wastewater operations. Some facilities now produce more energy than required to run them, and sell the excess back to the grid.

Make societies healthier, manage climate risks, and sustain ecosystems

THE FIVE MAJOR ICT PRIORITIES:

- **Real-time Monitoring.**
- **Cities of Tomorrow,** with re-use and recycling; rainwater harvesting; managed aquifer recharge; micro-treatment plants; and, reduced leaks.
- **Asset and Field Work Management,** using sensors; continuous assessment and prediction models; optimised networks; and, 'wearable computers' giving field workers real-time database access.
- **Energy Efficiency,** using smart metering and pricing systems; refined demand forecast; energy saving tools; real-time monitoring; and, heat recovery in wastewater.
- **Water Efficiency,** in cities and agriculture, including detection of illegal extractions.

SOCIETY. DAMPEN HOTSPOTS BEFORE THEY CATCH FIRE

The threat of water wars may be a bit overstated, but the threat of water-related international conflicts is a reality. Water stress can heighten social disruption, intensify conflict, and spark migration. The European immigration crisis is in part due to water, food, and economic threats driving refugees from their homes.

Gleick et al. explore how well-informed diplomatic, defence and development responses can prevent bad situations getting worse. The World Resources Institute's Water, Peace, and Security (WPS) Project, for example, can alert key stakeholders to potential 'hotspots'.

The two-year WPS pilot project has four components:

1. **Understand.** An online, near real-time global early warning system for potential water scarcity-related threats to human security. On-the-ground rapid assessments will verify threats and identify interventions.
2. **Mobilize.** Contact diplomats, defence and development experts, as well as national governments where threats are identified.
3. **Learn.** Training and capacity building to help developing countries cope with crises and avert destabilizing conflict, migration, or acute food insecurity.
4. **Dialogue.** Bring together stakeholders to try to diffuse tensions and find solutions.

ECONOMY. ENRICH ALL THROUGH GREEN GROWTH

'Green Growth' means environmentally sustainable and socially inclusive economic growth. The concept evolved in response to the high environmental cost of traditional economic models driving rapid development and urbanization (Harken and Brewster).

Green growth aims to safeguard water resources and water security. It emerged from South Korea in 2008 as a national policy to create jobs and new growth using 'green and clean' technology.

Water is a catalyst for green growth. Investment in infrastructure and Nature-based Solutions fosters economic growth, security and socially inclusive development while protecting ecosystem services.

1

2

Financial sustainability over time is essential. Funding streams include central or local budgets; consumer tariffs and taxes; payments for environmental services (PES); water trading rights; and private sector engagement.

Fundraising needs to lift its focus from providing water grids for cities, villages and highly populated areas, to extending networks into remote areas. Investing in Nature-based Solutions such as reforestation and riverbank repair can also improve water quality, drive economic development and save water treatment costs.

ENVIRONMENT. TAKE A HOLISTIC APPROACH

A nexus approach integrates management to avoid counterproductive outcomes and maximise co-benefits. Park finds that, in particular, climate change mitigation and adaptation require simultaneous consideration of land and water policies.

1. Children carrying water
© Jose Matheus / Shutterstock

2. Wind turbines at sea
© Claude Weiss / Shutterstock

Solving water issues requires identifying good practices

Gapcheon River, Korea
© Thanya Jones / Shutterstock

Nature-based Solutions (NBS) such as reforestation and reinstating wetlands, for example, can reduce emissions and mitigate climate impacts such as water scarcity and flooding. Rainwater harvesting is a water-sector adaptation that also reduces the likelihood of deforestation to build large infrastructure solutions such as dams.

Conversely, fossil-fuelled desalination can secure water supplies but add to emissions. Similarly, replacing fossil fuels with bioenergy may increase competition for limited land and water, undermining adaptation in the water sector and mitigation measures such as reforestation.

A holistic assessment of climate action should be undertaken at the preparation, planning and evaluation stages. A precautionary approach should be applied to reduce any counterproductive consequences. Local land and water stakeholders should participate in developing action plans.

GOVERNANCE. GROW SUCCESS FROM THE GRASSROOTS

Good governance is key to achieving water security. Most Sustainable Development Goals depend directly or indirectly on providing local infrastructure and services. This depends to a greater or lesser degree on local governments and institutions doing their job.

Local knowledge is a good starting point. All development involves goods or services delivered to people in a particular location. Even when national ministries, private enterprises or international NGOs are responsible, how well policies and projects are delivered depends on local support.

Broad and diverse participation is intrinsic to integrated water resources management. In Brazil, for example, Water Basin Committees must include representatives of the executive branch, water users and local communities. The committees are collegiate forums for knowledge, problem-solving, planning and decision-making (Matos et al.).

LEARN FROM OTHERS

Water challenges are increasingly affecting all global regions, through climate change, urbanization and natural disasters. Addressing water security is a practical response.

Solving diverse water-related issues requires identifying good practices and disseminating the knowledge and information. The GWSI series includes many case studies from around the world for others to study and learn from.

The series also supports policy making; supports international science cooperation for peace, sustainability, and social inclusion; and, strengthens capacity at all levels to promote water security.

Find out more on *What is Water Security* on www.unwater.org/publications/water-security-infographic/

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ACKNOWLEDGEMENTS

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