

1 Introduction



Introduction



Authors: Julie van der Blik and Peter McCornick

The SDG development process has been extensive and inclusive in its attempt to establish consensus among countries and other stakeholders on universal goals and targets. While the global SDGs will be finalized over the coming year, the shape of them is emerging and it is possible to envisage key elements of the water-related SDGs. Through this book we aim to contribute to the next steps in the SDG process: setting national targets, achieving those targets in countries, measuring progress, and, in particular, exploring contributions of the science community through evidence-based support.

In the Millennium Development Goals, water security for direct human needs received prominence. In the development of the SDGs there is additional focus on sustainable management of water for economic growth and on water risks, in particular, water-related disasters. Placing the water-related SDGs in the broader context of water security will provide the basis for a more comprehensive framework. This can then address the water needs of all sectors, cross-sectoral challenges, and risks.

Governments will require support from the science community to achieve and monitor the SDGs.

IWMI's new strategy, to deliver 'a water-secure world', also recognizes the need to position its agricultural water management research agenda within this broader context of water security, emphasize intersectoral dependencies and synergies and ensure the resilience of ecosystems. This opens new challenges for research and partnerships and opportunities to find solutions to complex development challenges in rural and urban settings as well as at river basin scale.

Our specific focus in this book is on securing water for sustainable food production. This links to sustainable water resources management, delivering on the water supply and sanitation requirements and provisioning water for energy and the urban sector. A specific intent is to ensure that the realities in low- and middle-income countries in Africa and Asia are recognized and to provide practical pathways to change that fit these realities and the aspirations of those countries. This will help to prepare for the next step in the SDG process: devolving the SDGs to the national level. It will also provide an input into the development of the universal SDGs by exploring realistic targets and indicators.

Focusing on Delivery—Addressing Some of the Contextual Realities:

- **Recognize Economic Water Scarcity:** In sub-Saharan Africa (SSA), but also in several countries and regions in Asia, economic water scarcity is hampering further development and food security. For example, water storage capacity in SSA is low, but careful and innovative development of this will increase water security and improve resilience to climate change. A further example is groundwater, which is an over-exploited resource in a number of critical food-producing areas of the world. Further development of this resource in much of SSA, Southeast Asia and even in south Asia can make an important contribution to food security. Hence there is a need to provide enough opportunities in the SDG targets, not just for water conservation and increased efficiencies, but for water resource development as well. (See section 2 case studies and sections 6, 7 and 9.)
- **Balance Development and Conservation Needs:** In countries with relatively rapid economic growth, the need to develop water resources for irrigation, energy, urban areas and industry is negatively affecting ecosystem services provided by rivers, lakes, wetlands and aquifers. There is no standard prescription for achieving a balance between development and conserving the natural environment, but understanding the relationship between ecosystems and livelihoods and the likely consequences of changes is essential. Future SDGs should provide the right incentives to balance these needs. (See sections 4, 6, 8 and 9.)
- **Explore Pragmatic Solutions:** Water resources management is context-specific, complicated by the interconnections between water and energy, economic growth and the demand for food. So in resource-poor countries, pragmatic approaches to development will be needed. For example, conventional wastewater treatment is costly and relatively rare in the developing world. This makes it unlikely to be an effective intervention in many poor countries. Similarly, while there is a need to formalize water governance institutions, we also need to respect cultural and informal water rights. Water pricing may be a more elegant solution to overuse, but it can only function well with robust institutions, typical of more developed water economies. (See sections 3, 5 and 8.)

OVERARCHING MESSAGES

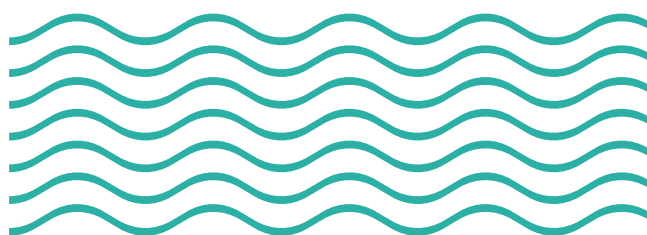
Given these constraints, the challenges may appear daunting. But there is tangible political will behind the SDG process, and what has been developed so far is encouraging. Four key challenges are now emerging:

1. Partnerships

Achieving all water-related goals will require a broad partnership within the water sector and beyond. These partnerships and alliances will need to raise funds, provide access to existing and new knowledge, craft effective policies and programs, implement solutions and monitor changes. Different sectors will need to be represented, and a comprehensive understanding of the interaction and complementarity of water security will be vital. This focus on common purpose, goals and targets and an overall incentive for collaboration within and across sectors have been lacking in the water sector to date. Partnerships will need to be strengthened both within and between countries to encourage learning. The inclusion of the science community, with an emphasis on developing practical solutions, will be important to ensure the generation and sharing of new knowledge. (See sections 2, 4 and 8.)

2. Opportunities for Growth

The emphasis of the proposed water-related and other sector targets on increasing efficiencies (water, energy, etc.) is based on improving the use of existing systems, with only limited allowance for further developing water resources. Many countries in SSA and Asia have not had the capacity to invest in the infrastructure, programs and institutions to utilize their water resources effectively. The goals and targets need to practically accommodate the growth requirements of Asian and, in particular, African countries and recognize that further wise development of the resource is a fundamental aspect of sustainable water resources management. The emphasis should be on facilitating a sustainable and equitable growth path. (See section 9.)



3. Balancing the Scales

The increasing importance of small-scale farmers, especially women, for food security in SSA and Asia deserves special attention. The International Year of Family Farming (2014) highlights that most people in the world rely on food produced on family farms, generally smallholdings. Their increased use of surface and groundwater resources to boost production offers opportunities as well as challenges. It is imperative that policies and investments support the sustainable development and productivity of these small-scale producers. Similarly, large-scale investments in water resources and agriculture need to complement, rather than undermine, small-scale producers. (See sections 2, 3, 5, 6, 7 and 9.)

4. Integration

One of the basic foundations of the SDGs is that more emphasis is needed on integration. Yet efforts to incorporate integration into the complex context of water management, including the links between water, energy and food, have proved challenging. While separate nexus goals and targets may not now be attainable, thinking across sectors and out of the 'sectoral boxes' has produced practical solutions where more textbook approaches had failed. At the country level there is a need for coherent and integrated policies. This can be done, at least in part, by taking a nexus approach to analyzing resource constraints and opportunities. (See sections 2 and 8.)



NEXT STEPS

Governments will require support from the science community to set national targets, choose sound investments and implement effective programs to achieve and monitor the SDGs. Researchers can contribute by:

1. Supporting National Governments to Set National Targets

National-level targets will be set to complement the universal goals and targets. Several ideas on how these national targets could be derived from and align with the universal goals and targets have been presented and discussed internationally. However, whatever approach is taken, countries will need to identify aspirational yet achievable targets for their own circumstances. To identify feasible targets and development pathways, different models will need to be developed. Scenarios should be based on assessments of available water resources, investment levels, investment choices, national priorities and policy options, including the water-related requirements of achieving the other SDGs, such as food security. The science community should support national governments with data, decision-support tools and scenarios.

2. Achieving Water and Food Security-related SDGs

Making the right investment choices should be based on the latest research insights considering efficiency, equity and sustainability. These are not always unambiguous choices and will require balancing the needs of different sectors, user groups and ecosystems.

3. Measuring and Tracking Progress

Clear and measurable indicators, linked to monitoring mechanisms, will be the key to successful implementation of SDGs. However, the usefulness and relevance of any indicators will be as important as the ease of measurement. The stated aim of the SDGs to be more integrated and sustainable than previous goals will add to the complexity. (See sections 4 and 8.)

It is proposed that indicators will track progress on more efficient water use in agriculture, sustainable use of water (withdrawal-to-availability ratio), storage capacity, access to irrigation, water quality, (aquatic) ecosystems services, impacts of water-related disasters and water governance. In the Water Metrics section, the proposed indicator "water use efficiency" has been explored rather than other indicators. (See sections 4, 6, 7 and 8.)

Innovative thinking and applying new technologies are essential. The data revolution has transformed international goal setting. Cost-effective ways of providing data through new developments in remote sensing and mobile technologies need to be further explored, as do enhanced methods for governments and their citizens to directly gather valid information from the field. (See sections 4, 7 and 8.)