INTERNATIONAL DEVELOPMENT IN FOCUS

OVERVIEW

Rising from the Depths

Water Security and Fragility in South Sudan

Edoardo Borgomeo, Claire Chase,
Nicolas Salazar Godoy, and Victor Osei Kwadwo

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- Salazar Godoy, Nicolas. 2022. "Forced Displacement and Water Security in South Sudan." Unpublished background paper prepared for this report. World Bank, Washington, DC.
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Main Messages

WATER IN SOUTH SUDAN: MENACE WITH HOPE

South Sudan is the world's most vulnerable country to climate change and also the one most lacking in coping capacity.[1] Most of the harm from climate change will come in the form of water: increased frequency of droughts and floods, changes in flow patterns in rivers, lower water quality, and impacts on groundwater availability. The South Sudanese have long dealt with these water-related risks, but today's situation is different for two reasons. First, decades of conflict and insecurity have undermined communities' ability to cope with water-related risks. Second, climate change is tremendously increasing the destructive potential of these risks. If unmanaged, these risks will lead to worsening impacts on food security; the movement of people; and the security of communities, ecosystems, and the economy. But therein lies opportunity: through improvements in water management, South Sudan can improve the lives and livelihoods of communities and better prepare for climate change.

This overview summarizes *Rising from the Depths: Water Security and Fragility in South Sudan*, a World Bank report exploring opportunities and trade-offs for aligning South Sudan's water investments and policies with its commitment to peace and stability. The report elevates water security as an issue critical for national development and stability, not just a humanitarian need. Focusing on water security for people, production, and protection, it shows that water insecurity is indeed an existential threat to South Sudan. South Sudan is a global hotspot for flood risk: it ranks seventh in the world for share of total country population exposed to river floods. The dramatic flood events of 2019, 2020, 2021, and 2022 are stark reminders of this extremely high exposure to flood hazards. Floods in 2021 affected between 800,000 and 1.2 million people, displaced more than 300,000 people, and caused economic damage of at least US$671 million.[2]

Although flood risks are capturing headlines, they are just one of the many threats from water insecurity. Lack of access to safe water supply and sanitation is a core concern for the dignity and well-being of millions of South Sudanese, with more than 60 percent of the population (about 6.6 million people) using unimproved sources, such as surface water and unprotected wells, and 75 percent

(8.2 million people) practicing open defecation. South Sudan also experiences frequent droughts, especially in the southeast and northeast, which affect the mobility of pastoralists and farmers who rely on natural resources for their livelihoods. Moreover, lack of reliable irrigation and drainage and human-induced soil erosion contribute to low agricultural productivity. Women and girls tend to be disproportionately affected by these water-related threats.

However, the story of water in South Sudan is also a story of opportunity. The report shows that South Sudan can harness the ubiquity of water as a tool for advancing national development and stability. Seasonal flooding sustains the livelihoods of at least 6 million people who live along the Nile and Sobat Rivers and the wide eastern and western floodplains. In the country's agricultural areas, especially in the Equatoria region, increased water availability during the main crop-growing seasons through irrigation and improved land and water management can enhance yields and bolster food production. Interventions in water supply and sanitation reduce public health risks and the incidence of neglected tropical diseases and improve the personal safety of women and girls, thereby promoting school attendance, among other benefits.

FIVE PRIORITIES FOR HARNESSING WATER FOR PEACE AND DEVELOPMENT

How can South Sudan harness water's potential to sustain development and stability? Five priorities include the following:

1. *Strengthen nascent policy and institutional frameworks to guide water sector investments and ensure their sustainability.* This task includes empowering and building the capacity of the sector's human resources, undertaking technical consultations to revise and update the 2013 Water Bill and achieve its ratification, and developing a water resources master plan.

2. *Address the water supply and sanitation crisis.* It will be necessary to strengthen service delivery models for rural households, sustainable use and management of groundwater resources, and promotion of climate-resilient solutions. Continued collaboration with international partners will be essential to delivering much-needed water services.

3. *Advance disaster risk preparedness and early warning.* Responding to floods and droughts is a matter not just of building infrastructure but also of preventing populations from moving into harm's way and of devising information systems and institutional arrangements to increase preparedness and early warning. In the short term, the expansion of hydrometeorological services, the development of early warning systems, and the delineation of flood-prone areas are key to reducing losses from floods and droughts.

4. *Harness water's productive potential and ecosystem services.* This priority area includes enhancing flood-based livelihoods with investments supporting domestic fish production, wetland restoration, and flood-recession agriculture.

5. *Use a portfolio of infrastructure options to manage water resources.* Although large-scale river engineering might contribute to improving water security, the absence of sector frameworks, required feasibility assessments, and

capacity for strategic planning and infrastructure management means that these projects are unlikely to deliver the expected outcomes and could have unintended consequences. Hence, in the short term, policy makers should prefer community-level water storage and flood control alternatives that can be built over shorter time horizons and with less harmful environmental and social externalities.

THE WAY AHEAD

In the long term, a more ambitious program of policies and investments is required, including strategic investments in urban water systems and water storage. The identification, design, and implementation of these investments should be guided by comprehensive feasibility assessments that take into account their impact on the rich biodiversity and complex social and conflict dynamics of South Sudan. Although infrastructure will be needed, it will not be sufficient. Water security is achieved not solely by trying to control water and diverting its flow but also by focusing on (a) increasing community preparedness and delineating areas for water, leaving "room for the river," and (b) making productive use of the water for household consumption, livelihoods, and development. This approach is followed across the world in flood-prone areas such as Bangladesh, Japan, and the Netherlands, where planners work with—rather than against—the floodwaters and complement every investment with institutional measures to involve all levels of government: national, provincial, and local.

Finally, policies and investments needed to achieve water security involve uncertainty, making commitment to an iterative planning approach crucial. Countries that successfully manage water risks do so by implementing water policies, carefully monitoring their impacts and results, and learning from their successes and failures. A water-secure future—one that harnesses the productive potential of water while managing its destructive force—can be achieved by putting in place the levers and tools needed to adapt this complex system to a dynamically changing world.

NOTES

1. International Monetary Fund Climate-driven INFORM Risk, 2022 (https://climatedata.imf.org/pages/fi-indicators).
2. GRADE Note on May–October 2021 South Sudan Floods (unpublished World Bank report).

Executive Summary

OVERVIEW

Extreme floods in 2020, 2021, and 2022 are a stark reminder of South Sudan's vulnerability to the destructive force of water. These disasters compounded an already challenging situation characterized by a protracted humanitarian and forced displacement crisis, unprecedented levels of food insecurity, widespread violence, and fragile institutions. Although water's destructive force can compound existing fragilities, its productive potential can also enable stability and development. As South Sudan works to consolidate peace and to stabilize the economy, water management and policy are key instruments with which to support the country's efforts toward recovery and to strengthen community resilience.

This report identifies constraints and opportunities to leverage water sector interventions to strengthen resilience to conflict, climate, and disease shocks. It seeks to elevate water security as an issue critical for national development and stability, not just a humanitarian need. Through geospatial and econometric methods; policy, institutional, and regulatory assessments; expert interviews; and focus group discussions, the report describes the importance of water security for sustaining livelihoods and ecosystems and for advancing human development and inclusion in South Sudan. The report considers key challenges and opportunities relating to water security in three dimensions: people, production, and protection (table ES.1). The first two dimensions relate to water management for harnessing water's productive potential for human well-being, livelihoods, and ecosystems; the third aspect relates to management of water to protect societies, economies, and ecosystems from the destructive impacts of water such as water-borne disease, floods, and droughts. The report also analyzes the relationship between these three core dimensions of water security and broader human and social development outcomes for communities and society. In particular, the report focuses on the intersection of water security with four outcome areas: health and nutrition, forced displacement, gender, and conflict.

WATER SECURITY FOR PEOPLE, PRODUCTION, AND PROTECTION

Water security for people

Access to drinking water supply is a core challenge, with more than 60 percent of South Sudan's population using unimproved sources, such as unprotected wells and river water. Even at these levels, access to basic water supply further declines during the rainy season because floodwaters submerge water sources and make water points inaccessible. Access to drinking water supply and sanitation services is characterized by a large urban-rural divide, with the bulk of improvements reported for urban areas failing to reach most South Sudanese since 2011. In urban areas, access to at least basic drinking water sources has improved in the past decade, increasing from 52 percent in 2011 to 70 percent in 2020, while in rural areas, access to at least basic drinking water supplies declined by 5 percentage points, from 38 percent in 2011 to 33 percent in 2020.

Nationally, just 10 percent of households have access to sanitation and 75 percent practice open defecation. Although recent data suggest that modest improvements were made on increasing access to basic drinking water in urban areas, fewer households have access to sanitation than before the conflict that started in 2013. In South Sudan, the rates of open defecation are substantially higher and access to at least basic sanitation is substantially lower than in other countries in Sub-Saharan Africa.

Water security for production

Availability and variability of water resources play a key role supporting productive and resilient livelihoods and ecosystems in South Sudan. Seasonal flooding sustains livelihoods for about 6 million people who live along the Nile and Sobat Rivers and the wide eastern and western floodplains. These populations and their livelihoods depend heavily on the country's natural capital, notably the iconic Sudd wetland, whose economic value for livelihoods alone has been estimated to be more than US$250 million (NBI 2020). The total economic value of the multiple services from the wetland is estimated to be at least US$3.2 billion (NBI 2020). Although new and emerging livelihoods—such as artisanal mining, charcoal production, and brickmaking—support income generation, they also contribute to deforestation and land degradation, undermining natural capital and exacerbating vulnerability to droughts and floods.

The potential for water infrastructure to support livelihoods remains unexploited. There are no large dams or reservoirs in South Sudan with storage capacity greater than 0.1 cubic kilometers, and most water storage structures are community based. Water storage is limited to roadside dugout pits, rock catchments, water barriers, and *haffir* (pond in Arabic). Many of the most recently constructed haffir are reported to be nonfunctional because of inadequate site selection, design, and maintenance. South Sudan's irrigation potential remains largely untapped: irrigated agriculture currently makes up less than 5 percent of the total area under cultivation. Although innovations in irrigation service provision—including farmer-led irrigation development and small-scale solar-powered irrigation systems—offer potential opportunity, careful assessments and strategies are required to prioritize rehabilitation and expansion.

Water security for protection

Droughts and floods are the most obvious manifestations of South Sudan's highly variable and unpredictable freshwater resources. Their frequency and intensity are influenced by interactions between climate patterns occurring at local and global scales and that are intensifying under climate change. South Sudan is a global hotspot for flood risk: it ranks seventh in the world for share of total country population exposed to river floods. The dramatic flood events of 2019, 2020, and 2021 are stark reminders of this extremely high exposure to flood hazards. South Sudan faces flood hazards from both fluvial and pluvial sources. Fluvial sources dominate in the central and eastern parts of the country, where the largest rivers are located. These floods are directly linked to rainfall patterns in the African Great Lakes region, where the Bahr el Jebel (White Nile) originates, and in the Ethiopian highlands, where the Sobat River originates. Pluvial sources dominate in the southwest, where the steeper topography and the lack of large water bodies mean that most surface water floods occur after heavy rainfall events rather than from the overflow of water bodies.

Hydrological variability also means that South Sudan is at risk from droughts. The southeastern and northeastern parts of the country experience more frequent droughts compared with other parts of the country. In these areas, droughts can affect the mobility options of pastoralists and others who rely on natural resources for their livelihoods, bringing them into competition with neighboring communities and increasing the risk of cattle raids. As temperatures increase because of climate change, the frequency and intensity of droughts are projected to increase. These increasing temperatures will amplify the impact of drought, given that warming typically leads to increased evaporation and further reductions in the availability of water.

TABLE ES.1 Key water security aspects and related facts for South Sudan

WATER SECURITY ASPECT	FACTS
Water security for people	• Nationally, just 10 percent of households have access to sanitation and 75 percent practice open defecation. • Close to 15 percent of households without improved drinking water in the dry season travel more than two hours roundtrip to access water. • An estimated 33 percent of schools have no drinking water service and 21 percent have no sanitation.
Water security for production	• Seasonal flooding sustains livelihoods for about 6 million people who live along the Nile and Sobat Rivers and the wider eastern and western floodplains. • Out of a total agricultural land area of about 28.5 million hectares, as much as 24 million hectares are suitable for irrigated agriculture. • South Sudan has some of Sub-Saharan Africa's highest solar irrigation adoption potential: the suitable area for solar-based irrigation is about 6–10 million hectares using groundwater and 1–3 million hectares using surface water.
Water security for protection	• South Sudan is a global hotspot for flood risk: it ranks seventh in the world for share of total country population exposed to river floods. • One in two South Sudanese—about 5.4 million people—live in areas exposed to moderate flood hazard (areas where water depths of a 1-in-100 year flood event reach or exceed 0.15 meters). • One in four South Sudanese—about 2.7 million people—live in areas exposed to high and potentially deadly flood hazard (areas where water depths of a 1-in-100 year flood event reach or exceed 0.5 meters). • Droughts are very frequent in the south and northeast; under climate change, droughts are projected to become 60–100 percent more frequent by the end of the century compared with the 2020s.

Source: World Bank.

LINKS WITH HUMAN DEVELOPMENT AND STABILITY

To examine the far-reaching implications of water insecurity in South Sudan, the report illustrates links with key human development, inclusion, and fragility features. Given the country context, characterized by dire human development needs and fragile sociopolitical systems, this intersection analysis sheds light on the links with four key aspects: health and nutrition, forced displacement, gender, and conflict.

Health and nutrition

Low levels of access to water supply, sanitation, and hygiene (WASH) severely undermine health and nutrition outcomes in South Sudan. WASH-related neglected tropical diseases are widespread across the country, and the persistence of the underlying factors that intensified successive cholera outbreaks in South Sudan between 2014 and 2017 puts the country at high risk for a resurgence of the disease. In addition, lower respiratory tract infections and diarrheal disease are the second- and third-largest causes of death in South Sudan, with poor WASH being the second leading risk factor for all death and disability combined. Conflict dynamics, population movement, and climate change all influence the emergence and dispersal of many infectious disease pathogens, and the risks are exacerbated by lack of access to water supply and sanitation services, and poor-quality health services.

Forced displacement

South Sudan is the dominant source of refugees in Sub-Saharan Africa and hosts one of the world's largest internally displaced populations. Floods trigger temporary or more permanent population displacement, with forcibly displaced populations often having to settle in flood-prone areas because of insecurity. Forcibly displaced populations face heightened water challenges, with forcibly displaced women and girls experiencing distinctive WASH-linked needs and risks at different phases of the displacement cycle. If unattended, such needs and risks can increase their vulnerability to gender-based and intimate partner violence and contribute to deepening gender inequalities. The provision of clean drinking water in areas of return or local integration is one of the Six Priority Areas under the 2011 South Sudan Durable Solutions Strategy. Without water and water services, durable solutions cannot materialize.

Gender

South Sudan is one of the most unequal societies in the world along gender lines, which affects women's and girls' ability to cope with and adapt to water insecurity. Although women take part in water management committees, their active participation is low, and key decisions about siting water points and allocation of water resources are made by men. There are also large differentials between women and men with regard to access to water and ability to cope with natural disasters. Women and girls often walk long distances to access water, which increases the risk of sexual and gender-based violence, especially when water points are constructed without their prior involvement and consultation. Women play a predominant role in farming, providing 80 percent of farm labor

in the country, making them more vulnerable to floods and droughts than men, who have control and access to "movable" livestock assets. Finally, the relationship between water and gender is influenced by social norms and belief systems. Personal stories collected as part of focus group discussions show that women carry much of the responsibility for ensuring households' water supplies but are excluded from decision-making. Because of social norms, water-related decisions are the responsibility of men: they "own" households' productive assets (livestock), which grants them the authority to make decisions with respect to water.

Conflict

Quantitative and qualitative assessments demonstrate important interactions between water availability and the occurrence of violence. The report's empirical analysis of drought and conflict data suggests that more severe drought is associated with higher levels of violence. This evidence can be explained by considering drought's potential to disrupt two key components of South Sudanese livelihoods: cattle and mobility. Drought disrupts livestock grazing activities by limiting land and water resources available for rearing. In turn, this disruption can induce tensions as herders try to access limited supplies of these resources. In addition, drought impacts mobility patterns. Pastoralist routes adapt to the changing availability of water and groups move closer together in areas with remaining water and pasture. By moving away from customary mobility routes, pastoralists are more likely to end up closer to groups from other areas, with which they might lack shared customary institutions and mechanisms for settling disputes. Too much water can also be associated with violence. When water is overly abundant, pastoralists may not always follow negotiated access and customary institutions for accessing water resources and land. In turn, this means that they might move closer to other groups, inciting competition over shared resources or making them more vulnerable to cattle raiding. Despite these links between water and conflict, it is important to emphasize that droughts or floods rarely if ever explain the occurrence of conflict and violence. Community vulnerability to water-conflict issues differs widely and is mediated by political and social factors, including (a) small arms proliferation among civilians, (b) government interventions restricting mobility, and (c) elite exploitation of local grievances and tensions over water to inflict damage on opponents. Beyond influencing violence and conflict dynamics, water is often a weapon and casualty of conflict in South Sudan: warring parties systematically destroyed or stole pumps used by communities, depriving them of access to water.

THE NEED FOR STRONGER INSTITUTIONS IN THE TRANSITION FROM HUMANITARIAN MODALITIES OF WATER MANAGEMENT TO A LONG-TERM AND GOVERNMENT-LED DEVELOPMENT APPROACH

This report identifies five key priorities and related recommendations to improve water security and gradually make the transition to a government-led and long-term approach to water management. Three priorities are linked to the three dimensions of water security examined in the report (people, production, and protection), while two are cross-cutting priorities and related recommendations

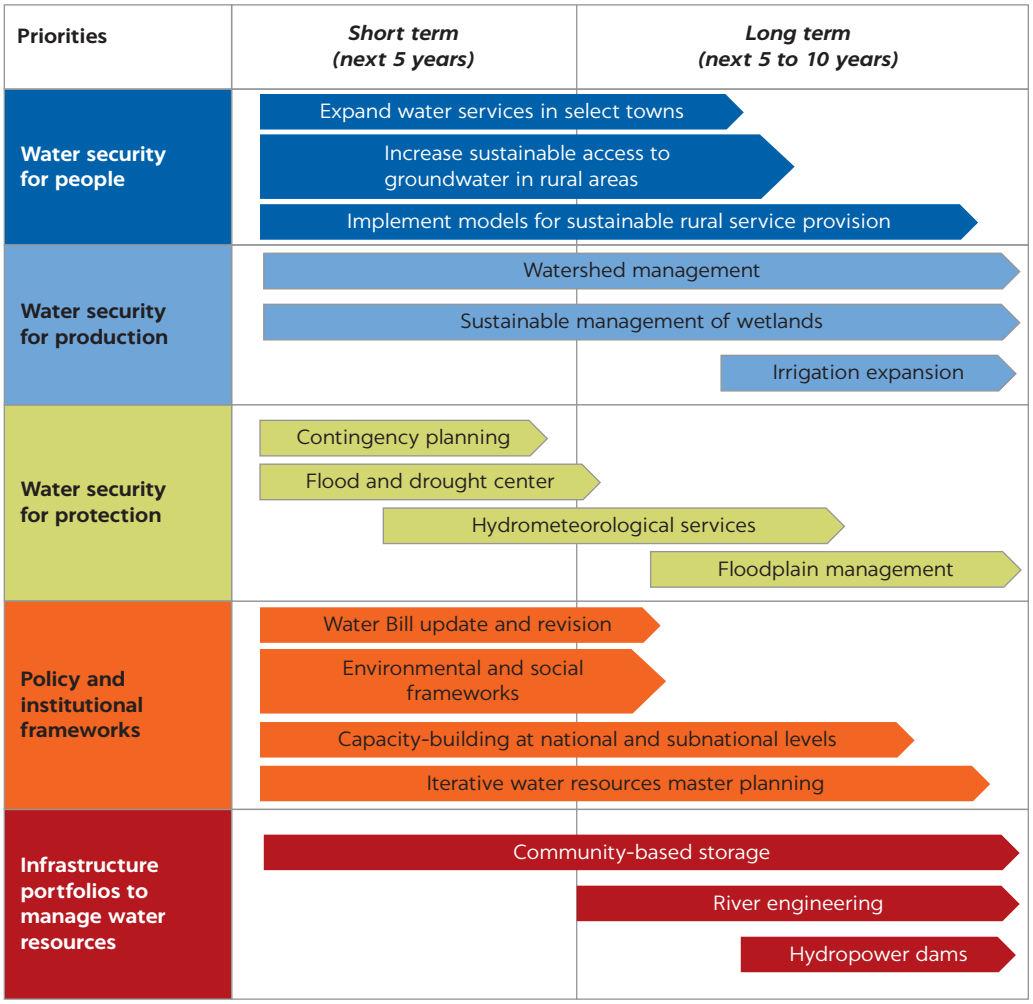
aimed at advancing water security across multiple dimensions. Action on some of the recommendations should begin immediately because of the urgency of the challenges they address and because of their low to moderate technical, social, and environmental complexity. More complex recommendations should be pursued in the medium to long term once core water institutions infrastructure have been put in place (figure ES 1). Chapter 5 provides a more detailed breakdown of recommendations under each priority area, including a mapping of relevant stakeholders and potential sites.

Priority 1: Water security for people

Low coverage of water supply and sanitation services contributes to low levels of human capital attainment through its effects on nutrition, health, and educational outcomes. Access to water supply and sanitation is a daily struggle for millions of South Sudanese. Although the coverage of drinking water supply services in urban areas has improved, service levels in rural areas have declined since 2013.

FIGURE ES.1

Sequencing priorities for water policy and investment in South Sudan



Source: World Bank.

Overall, fewer households have access to sanitation than before the conflict period. To address the water supply and sanitation crisis in the short term, the government needs to continue working with international partners to deliver much-needed water services, including the following recommendations:

- Recommendation (R) 1.1 Increase central coordination and oversight of water supply and sanitation interventions.
- R 1.2 Increase sustainable access and management of groundwater resources in small towns and rural areas.
- R 1.3 Expand coverage of water supply and sanitation services in rural areas.
- R 1.4 Design any urban and rural services (infrastructure design and operating and maintenance practices) around preferences and priorities of water users (in particular, women and girls) and consolidate lessons into revised WASH guidelines to incorporate climate resilience and social inclusion considerations.
- R 1.5 Define institutional accountability and mandates for water service provision across urban and rural areas.
- R 1.6 Increase capacity, extend distribution networks, and improve service delivery performance of water and sanitation infrastructure in selected cities.

Priority 2: Water security for production

Although water resources engender significant risks, they also provide benefits for people and the economy. Receding and rising floodwaters are a key enabler of livelihoods in South Sudan, and water is highly valued in pastoralist communities. The country's natural capital provides a range of ecosystem services, supporting livelihoods, regulating water flows, and providing habitats for biodiversity. Furthermore, the potential for irrigation to bolster food production remains untapped. To harness water's productive potential for food and ecosystems, the report identifies these recommendations:

- R 2.1 Sustain flood-based livelihoods with investments supporting domestic fish production and preservation, rice production, and flood-recession agriculture.
- R 2.2 Update the irrigation master plan to include identification of areas suitable for farmer-led irrigation initiatives.
- R 2.3 Rehabilitate and expand irrigation and drainage infrastructure.
- R 2.4 Promote watershed management activities.

Priority 3: Water security for protection

Coping with droughts and floods presents a profound challenge to climate adaptation and development in South Sudan; however, the country's disaster risk preparedness and early warning systems remain largely inadequate. Responding to floods and droughts is not just a matter of building infrastructure, but also of preventing populations from moving into harm's way and of devising information systems and institutional arrangements to increase preparedness and early warning. Floodplain management, including delineation of flood-prone areas, and managed retreat away from areas that are frequently affected by floods are alternatives to structural protection that also have to be pursued to prepare for water-related disasters. Responding to floods and droughts is also a matter of

transboundary cooperation: the regional nature of floods and droughts requires coordinated efforts in forecasting and early warning and in infrastructure planning and operation. Specific recommendations under this priority area include the following:

- R 3.1 Repair and upgrade existing hydrometric stations.
- R 3.2 Build national and subnational capacity for risk management.
- R 3.3 Expand hydrometric network and establish a hydrometeorological telemetry system, including for water quality and groundwater monitoring.
- R 3.4 Build knowledge base to advance flood risk management, including constructing topographic maps and defining technical standards for flood protection infrastructure.
- R 3.5 Develop minimum standards and principles for evaluation of options for managed retreat for populations currently living in highly flood-prone areas.
- R 3.6 Develop capacity for flood risk mapping and forecasting and examine options for relocation of communities located in very high flood risk areas.
- R 3.7 Conduct a hydrological assessment of the Sudd wetland and its response to flooding.
- R 3.8 Strengthen information exchange with Nile riparians on floods and droughts.

Priority 4: Policy and institutional frameworks

Water governance is weak and institutional mandates are overlapping. Policy intentions from the first Southern Sudan Water Policy of 2007 have yet to be translated into legislation, and the 2013 Water Bill has not been ratified. Addressing these constraints is essential so that the transition from humanitarian to government-led water management can begin, and involves the following recommendations:

- R 4.1 Undertake technical consultations to revise and update the 2013 Water Bill and achieve its ratification, including through engagement of subnational entities and humanitarian and development partners.
- R 4.2 Develop a capacity-building plan with targets for professionals and staff at national and subnational levels; enhance technical and professional education and training.
- R 4.3 Undertake technical consultations to lay the groundwork for the development of an environmental and social framework for water sector interventions.
- R 4.4 Develop a water resources master plan, comprising (a) formulation of a nationwide investment plan to enhance water's contribution to economic growth and employment and (b) a monitoring plan to track impacts and results and adaptively update the plan.

Priority 5: Infrastructure portfolios to manage water resources

In his PhD thesis, Dr. John Garang de Mabior identified the economic potential of investments to manage the country's water resources and natural capital (Garang de Mabior, 1981). However, he also raised concerns about the potential

for such large activities to engender a range of unintended consequences, including social inequality and tensions, if not properly planned and implemented. As proposals for large river engineering works return to South Sudan, policy makers are advised to prefer more agile and easy to implement infrastructure options over the short term while they identify the large-scale investments needed to provide long-term responses to the country's water insecurity. Over the long term, more significant investments in water storage are likely to be required, and should be guided by comprehensive feasibility assessments, including of their impact on social and conflict dynamics. The following recommendations apply:

- R 5.1 Conduct an inventory of existing flood embankments and related status.
- R 5.2 Conduct an inventory of existing water storage structures (haffir) and related status.
- R 5.3 Rehabilitate and reinforce selected existing embankments.
- R 5.4 Rehabilitate and expand community-based water storage structures.
- R 5.5 Construct flood control and water storage structures integrating green and gray solutions.

THE WAY AHEAD: SEQUENCING AND MONITORING WATER POLICY AND INVESTMENT

Over the long term, an ambitious program of policies and investments is required, including strategic investments in urban water systems and water storage. The identification, design, and implementation of these investments should be guided by comprehensive feasibility assessments that include their impact on the rich biodiversity and complex social and conflict dynamics of South Sudan. Although infrastructure will be needed, it will not be enough. Water security is achieved not by trying solely to control water and diverting its flow, but by also focusing on (a) increasing community preparedness and delineating areas for water, leaving "room for the river," and (b) making productive use of the water for household consumption, livelihoods, and development. This approach is followed across the world in flood-prone areas such as Bangladesh, Japan, and the Netherlands, where planners work with—rather than against—the floodwaters and complement every investment with institutional measures that involve all levels of government: national, provincial, and local.

This ambitious water policy and investment program will involve uncertainty, making a commitment to an iterative planning approach crucial. Uncertainty arises from political developments, insecurity, and climate change, among other factors. Careful monitoring and evaluation are needed to detect and manage expected and unexpected negative effects arising from these uncertainties and to adjust policies over time. To successfully manage water risks, South Sudan should implement water policies, carefully monitor their impacts and results, and learn from their successes and failures. A water secure future, one that harnesses the productive potential of water while managing its destructive force, can be achieved by putting in place the levers and tools needed to adapt this complex system to a changing world.

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A PDF of the overview and the book are available at
https://openknowledge.worldbank.org/handle/10986/29311.
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In 2022, South Sudan was ranked as the most vulnerable country to climate change in the world as well as the first for lack of coping capacity. South Sudan is also one of the world's most politically fragile countries. *Rising from the Depths* explores opportunities and trade-offs for aligning South Sudan's water-related investments and policies with its commitment to peace and its climate change adaptation needs. This report elevates water security as an issue critical for national development and stability—not just as a humanitarian need.

With a focus on water security for people, production, and protection, the report shows that water insecurity is an existential threat to South Sudan. One in two South Sudanese live in areas exposed to moderate flood hazard; the country ranks seventh in the world for share of population exposed to river floods. Lack of access to safe drinking water supply and sanitation is also a core concern: more than 60 percent of the population use unimproved sources and 75 percent practice open defecation. Women and girls tend to be disproportionately impacted by these water-related threats. The report illustrates the negative implications of these challenges on health and nutrition, forced displacement, gender, and conflict.

Yet, the challenges of water in South Sudan are also an opportunity. *Rising from the Depths* shows that South Sudan can harness the ubiquity of water as a tool to advance national development and stability. Priorities include strengthening nascent policy and institutional frameworks to guide water sector investments and ensure their sustainability, using a portfolio of infrastructure to manage water resources, and addressing the country's water supply and sanitation crisis. The identification, design, and implementation of investments should be guided by comprehensive feasibility assessments, including on their impact on the country's rich biodiversity and social and conflict dynamics. While infrastructure will be needed, it will not be enough. Water security in South Sudan will be achieved not solely by trying to control water and divert its flow but also by focusing on increasing community preparedness; delineating areas for water; and making productive use of water for household consumption, livelihoods, and development.

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