**United Nations 2023 Water Conference on the midterm comprehensive review of the implementation of the objectives of the International Decade for Action, "Water for Sustainable Development" 2018–2028**

**Thematic Concept Paper: Water Action Decade**

**Accelerating the implementation of the objectives of the Decade including through the UN SG's Action Plan**

*Target length: 8,500_____*

*Current length: 7,230_____*

## Introduction

Growing pressure on the world's water resources is having major impacts on our social, economic, and environmental well-being (United Nations 2017). Lack of safe drinking water supply and basic sanitation services is becoming an increasing constraint to sustainable urban development. The inadequate access to these important services in a fast-urbanizing Africa have greatly slowed[1]sanitation (United Nations 2017). Cities and local governments in the global south are today confronted with a rising urban population resulting in an increased demand for water and sanitation services, increasing urban poverty, growing financial resource constraints, and uncertainties and risk implications of climate change. The problem is complicated by inadequate infrastructure, weak institutional capacity, low investments, and poor service models with the situation becoming even worse for the urban poor population living in low-income areas and informal settlements. The key issues contributing to poor performance of water supply facilities were identified as: Inadequate data on operation and maintenance, insufficient and inefficient use of funds, poor management of water supply facilities, inappropriate system design, low profile of operation and maintenance, inadequate policies, legal frameworks and overlapping responsibilities, climate change and political interference (UNECA 2006). If present trends continue, the global demand for water is expected to grow by 50% by 2030. Unless and until this demand is efficiently met, the health of the community and development activities will be highly affected.

Therefore, there is need to fast-track interventions that aim at improving legal, institutional and policies environments, increase sector financing, improved planning, and resilient infrastructure design in the face of climate change, strengthened coordination and sector governance, improved capacities and accountability of utilities and authorities, strengthened and standardised monitoring methodologies, indicators and data management, and inclusion. In his press remarks during the second meeting of the High-Level Panel on Water, in New York in September 2016, the United Nations General-Secretary Ban Ki-Moon asked the delegates to champion a comprehensive, inclusive, and collaborative way of developing and managing water resources and improving water and sanitation services (United Nations 2016). He emphasized the delegates' significant role in mobilizing action, changing mindsets, and advocating for resources. In this regard, there is greater need for both water quantity and water quality aspects must be considered, as poor water quality affects its use value and its impact on the environment.

[1] Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines. Geneva: World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), 2017

## The key challenges

Although Sustainable Development Goals bolstered by the **UN SG's Action Plan** provided an opportunity for ensuring universal access to improved WASH services and water related development, access to unclean water, lack of access to safely managed sanitation, and improved hygiene remain a clear challenge to the poor people across the world. Lack of hygiene affects poor children and families first, while the rest of the world's population benefits from direct access to the water they need for domestic use (UN-Water 2007). The growing water scarcity is now one of the leading challenges for sustainable development. This challenge will become more pressing as the world's population continues to grow, their living standards increase, diets change, and the effects of climate change intensify (FAO 2019). Of the 2.1 billion people who do not have safely managed water, 844 million do not have even a basic drinking water service. This includes 263 million people who must spend over 30 minutes per trip collecting water from sources outside the home, and 159 million who still drink untreated water from surface water sources, such as streams or lakes (United Nations 2017).

### *Water Security*

In 2019, over 733 million people lived in areas of high and critical levels of water stress. Imbalances between availability and demand, the degradation of groundwater and surface water quality, intersectoral competition, and interregional and international conflicts, all bring water issues to the fore (UN-Water 2007). Freshwater ecosystems are among the most extensively altered systems on Earth (Cooley, H., et. Al. 2013). Rivers, streams, and lakes have been subjected to chemical, physical, and biological alteration as a result of large-scale water diversions, introduction of invasive species, overharvesting, pollution, and climate change (Carpenter, S.R., et. Al. 2011). To build resilience against climate change and to serve an ever-growing population, an integrated and inclusive approach must be taken to managing this finite resource (Cooley, H., et. Al. 2013).

#### *Water quality*

While most water assessments emphasize water quantity, water quality is also critical for satisfying basic human and environmental needs (Carpenter, S.R., et. Al. 2011). The quality of the world's water is under increasing threat due to population growth, expanding industrial and agricultural activities, and climate change (Carpenter, S.R., et. Al. 2011). Poor water quality threatens human and ecosystem health, increases treatment costs, and reduces the availability of safe water for drinking and other uses (Palaniappan, M., et. Al. 2010).

### *Sanitation services*

Urban sanitation coverage in rapidly urbanizing developing regions has increased only slightly over the last 20 years, and the number of people without access to improved sanitation has grown 35 percent, to 684 million people. Although access to toilets is generally higher in urban areas than in rural areas, sanitary conditions for poor people in urban areas are aggravated by high-density living, inadequate septage and solid waste management, and poor drainage (Hawkins, P., et al. (2013). Each year, it is estimated that approximately 829,000 people die from diarrhoea as a result of unsafe drinking water, sanitation and hand hygiene. These causes represent 60% of all deaths due to diarrhoea globally, including nearly 300,000 children under the age of five, 5.3% of all deaths in this age group (Prüss-Ustün A, et. al. 2019). It is estimated that at least US$6.5 billion is lost per year in working days due to a lack of access to sanitation (UN-WWDR 2021). In addition, almost 400,000 work-related deaths occur each year from communicable diseases, which have the main contributing factors being poor-quality drinking water, and poor sanitation and hygiene (WWAP 2016).

In many developing countries, there are major disparities in access to sanitation in urban areas between rich and poor. These disparities highlight a pressing need to address the urban sanitation challenge comprehensively, with emphasis on including slum dwellers and poor communities that have typically been neglected. Without concerted intervention, the prospects of cholera, diarrhea, and worm infections will increase, jeopardizing education, productivity, and the quality of life for all urban dwellers (Hawkins, P., et al. (2013).

### *Hygiene practices*

Hygiene is at the core of effective infection prevention and control (IPC) and improvement of population's health. As of 2020, 2.3 billion people lacked basic hygiene services (handwashing facility with soap and water), and 1.6 billion people had access to handwashing facilities that lacked water or soap (WHO/UNICEF 2021).. About 47% of schools do not have proper handwashing facilities, and 16% of healthcare facilities do not have proper handwashing facilities in critical areas, such as at point-of-care or near toilets (World Bank 2020). The experience with COVID 19 has revealed the significance of prioritizing improvement of hygiene practices as one of the most effective measures to reduce transmission of diseases. WHO's latest global survey on implementation of national infection prevention and control programmes highlights the urgent need to reduce inequalities in the availability of good hand hygiene and other infection prevention and control measures between high- and lower-income countries (PAHO 2021). Improving hygiene practices is a great entry point for helping the world's most vulnerable because these are basic building blocks of everyone's well-being.

### *Inequality in access to WASH mainly Sanitation*

According to research done across ten low- and middle-income countries, on average, 56% of subsidies end up in the pockets of the richest 20%, while only 6% of subsidies find their way to the poorest 20% (Luis A., et. al. 2019). The 2019 World Water Development Report observed that people living in informal settlements often pay 10–20 times more for their water, which comes from suppliers such as water tankers (WWAP 2019). Similarly, for sanitation, majorities of utilities in developing countries have in the past favored water and sewerage services that has been the hallmark of service provision in more affluent sections cities and municipalities thus leaving out those living in low-income and marginalized areas. There is already ongoing re-organization of water services providers (WSPs) to embrace more total sanitation including non-sewered rather than sewerage services only. This is a chance to usher in alternative sustainable sanitation and fecal sludge management technologies, thus improving various sanitation technologies. An enabling environment for regulation will make WSPs accountable to their clients and improve coordination mechanisms that have not been included in the sanitation service chain before.

### *Disasters and pandemic risks and resilience issues*

Equally at risk are low-lying coastal cities and small island states vulnerable to damage from sea-level rise, flooding, hurricanes, and other storms. Projections show that by 2050, 800 million urban residents in over 570 low-lying coastal cities, will be impacted by sea level rise and coastal flooding and that up to 650 million people in 500 cities will experience decreasing water supplies due to climate change. The ongoing COVID-19 has also exposed and exacerbated underlying inequalities and vulnerabilities in cities. It has highlighted the essential role of water, sanitation, and hygiene in strengthening community preparedness, response and recovery in slums and informal settlements where lack of such services make simple public health interventions such as regular washing of hands extremely difficult.

### *Deterioration of urban catchments*

With rapid urbanization, unplanned urban developments, impacts of climate change among others, urban catchments are deteriorating causing water shortages and threatening the availability of clean water for urban dwellers. This endangers the wellbeing of urban communities and adds more unbearable costs to urban water utilities for increasing water quality and availability. Different efforts have been put in place to mitigate the impacts of degradation of urban water bodies and their in-stream habitats. Integrated planning based on long term participatory planning involving social, economic and environmental transformation are some of the mechanisms tested to reverse or mitigate the challenge.

## Need to fast-track the action decade resolutions on water and sanitation

Access to water and sanitation is a precondition to life and a declared human right. Water is vitally important to sustainable development – from health and nutrition to gender equity and economics (IDAWSD 2018). Over the coming years, our water-related challenges will become more urgent (IDAWSD 2018). The increasing demands of a growing population and rapidly developing global economy, combined with the effects of climate change, will exacerbate lack of access to water and sanitation for domestic uses (IDAWSD 2018). Following this realization, the United Nations passed the Water Action Decade the following objectives: 1) Advance sustainable development; 2) Energize implementation of existing programmes and projects; and 3) Mobilize action to achieve the 2030 Agenda (UNSG Plan 2018). These objectives were underpinned by four work streams including: i) Facilitating access to knowledge and the exchange of good practices; ii) Improving knowledge generation and dissemination, including latest information relevant to water-related SDGs; iii) Pursuing advocacy, networking, and promoting partnerships and action; and iv) Strengthening communication actions for implementation of the water-related Goals.

## Working towards the vision of the Water Action Decade

As UN Member Agency, UN-Habitat also aligned itself and its WASH activities to the United Nations General Assembly's 2018-2028 International Decade for Action under which "Water for Sustainable Development" is a priority to accelerate efforts towards tackling water-related challenges. Due to this the UN-Habitat's commitment and response towards the various Water Action Decades have been focused on urban water, sanitation and hygiene interventions that support realization of Africa Water Vision 2025, achievement of Sustainable Development Goal (SDG) 6, and the water and sanitation aspects of the New Urban Agenda (NUA). Main activity areas of commitment include the Water for Cities Programme under water action decade work stream 1 and the Global Water Operators Partnership Alliance (GWOPA) under water action decade work stream 3, all addressing water action decade objective 1 (UNSG Plan 2018). The UN-Habitat's interventions as designed have indeed had impacts beyond water action decade objective 1 with a number of positive results also contributing to both objectives 2 and 3 of the water action decade.

### ***Programmes and interventions***

Under the two work streams the UN-Habitat have worked with different stakeholders in the member states to provide policy advisory services, capacity building and technical assistance to local authorities and water and sanitation service providers to improve their capacity to deliver effective and efficient services while addressing the needs of the urban poor. The approach has focused on global advocacy and support to regional water and sanitation-related political processes and events to raise the profile of pro-poor urban water and sanitation issues and their integration into policy and practice. Since

1999 when the first "Water for Cities" Programme was launched, UN-HABITAT has acquired valuable experience, knowledge and expertise in pro-poor urban water governance, urban water conservation and demand management, integrated urban environmental sanitation, and income generation for the urban poor through community-based water and sanitation services. The pro-poor focus is guided by the principle of *leaving no one behind – reaching the furthest behind first*. Over 100 cities in 36 countries in Africa, Asia and Latin America and the Caribbean have benefitted from the Programme that has supported a combination of policy and normative work with on-the-ground pilot and demonstration initiatives (for learning) through regional "Water for Cities" programmes in Asia, Africa, and the Latin America. Activities include:

1. Three regional water and sanitation programmes in Africa, Asia and Latin America and the Caribbean, which facilitate pro-poor investments in partnership with regional and multilateral financing institutions.
2. Replicable model-setting initiatives targeting secondary urban centres in the Lake Victoria and the Mekong regions.
3. Normative activities which focus on developing pro-poor and gender sensitive governance frameworks, including policy options, norms, standards and management toolkits for the urban water and sanitation sector.
4. Monitoring progress towards the achievement of internationally agreed water and sanitation targets.

**Specific initiatives towards fulfilling the Water Action Decade**

**The Urban Basic Services Trust Fund**

To support the implementation of the above programme activities, UN-Habitat launched the Water and Sanitation Trust Fund (WSTF) in 2003. The Trust Fund was initiated in response to two major international calls: Millennium Development Goal 7, Target 10 which aimed "to reduce by half the proportion of people without sustainable access to safe drinking water by the year 2015", and an appeal in 2002 at the World Summit on Sustainable Development, which added a target on "reducing by half the proportion of people without access to basic sanitation by 2015". The idea of a Trust Fund for water and sanitation came from Resolution GC 19/6 adopted by the UN-Habitat Governing Council in May 2003. Through the Resolution, member states requested the Executive Director to "further strengthen and promote the work of UN-Habitat in the field of urban drinking water and sanitation and invited Governments and international financial institutions to increase support to UN-Habitat's water and sanitation activities." Key achievements of the Trust Fund include: i) 2 million people provided with safe drinking water and sanitation through field demonstration projects, ii) 175 local authorities and 200 service provider institutions supported through capacity development activities resulting in strengthened institutional and technical capacity for efficient and sustainable provision of water supply and basic sanitation services, iii) Knowledge products - 3 global reports, toolkits, guides, etc. developed and widely shared with partner governments and other actors, and iv) MDG monitoring mechanisms improved through Urban Inequities Survey and increased collaboration with the WHO/UNICEF Joint Monitoring Programme. Now renamed, Urban Basic Services Trust Fund, the WSTF has received more than USD150 million in grant contributions from the Governments of Norway, Canada, The Netherlands, Sweden, Spain, France, Italy and Poland, private sector, and foundations. It also leveraged substantial financial resources in matching grants and loans estimated at USD1 billion through partnership with regional development banks to improve water and sanitation in more than 36 countries in Africa, Asia and Latin America and the Caribbean. Programme activities and

achievements. The Water and Sanitation Programme of UN-Habitat supports a combination of operational field projects and normative work. Core elements of the Programme include:

- Engagement in policy and institutional reforms to support national and local governments in developing appropriate legal and institutional frameworks for integrated urban water and sanitation management,
- Strengthening the technical and management capacity of urban water and sanitation operators to ensure institutional efficiency, effectiveness, and resilience in service provision and to provide adequate levels of service for the urban poor,
- Global Water Operators Partnership Alliance
- Implementing field projects to demonstrate innovative approaches that can effectively and sustainably improve access for poor people to clean water and basic sanitation in targeted communities,
- Water, Sanitation and Hygiene Education for Schools
- Post-2015 global monitoring mechanism (GEMI)
- Normative tools and publications

These have been achieved by building strategic partnerships, especially with financing institutions and the private sector to increase investments and ensure that big infrastructure projects have a stronger focus on the poor. The Programme has established partnerships with development banks and international financing institutions which fund huge water and sanitation infrastructure projects. By providing pre-investment planning and capacity development to partner countries, UN-HABITAT ensures that such projects benefit from faster appraisal and preparation, stronger focus on the poor, greater ownership by recipient cities and sustainability of investments through training and capacity building.

**1) Engagement in policy and institutional reforms**

Technical and advisory support is given to partner countries through policy dialogue, sector review and strategy development. Many countries in the less developed world have outdated legal systems, inappropriate policies, weak institutions, and the absence of strong community-based organizations to articulate the needs of consumers, especially the poor. Accordingly, policy and governance reform, long-term institutional development and capacity enhancement are prioritized by UN-Habitat as central pillars for long-term service improvements. This is complemented by global advocacy and knowledge dissemination to prioritize water and sanitation through platforms such as UN-Water and the Global Wastewater Initiative. At the global level, as co-chair of the UN-Water Taskforces on Wastewater and Water and Sanitation, UN-Habitat co-led the thematic consultations on water which culminated in a consolidated technical advice to Member States to prioritize water in the post-2015 development agenda. The result is a comprehensive stand-alone SDG 6 on water with specific targets on universal access to safe drinking water, sanitation and hygiene, sustainable use and development of water resources, water governance, wastewater pollution and water quality and water-related disasters. At the country level, UN-Habitat conducted a review of the water supply tariff in Rwanda that had been in use since 2006. A new tariff came into operation in September 2015 and moved the utility towards full cost recovery and with more focus on the needs of the poor.

**2) Capacity building and technical assistance to water service providers**

Capacity building and technical assistance is provided to local authorities, water utilities and other service providers to improve their capacity to deliver effective and efficient services while addressing the needs of the urban poor. Key areas of focus include: poverty mapping/assessments; development of strategic business plans; gender mainstreaming and women empowerment; preparation and implementation of performance improvement plans; water demand management; billing and revenue

collection; facilitating trainings to water utilities on operating and maintaining water supply systems, and customer care and block mapping. Peer-to-peer exchange mechanisms for practical exchange of experiences among service providers.

An example of capacity building and technical assistance to service providers is the Lake Victoria Water and Sanitation Initiative. In December 2010, the African Development Bank (AfDB) approved a Grant of about US$110 million to finance investments in water supply, hygiene and environmental sanitation, capacity building and programme management. UN-Habitat entered a service contract with the EAC to implement the capacity building and training component of the Programme (TCB) while each of the five East African Community partner states are responsible for implementing the physical infrastructure component. Out of the US$110 million grant provided by the Bank, UN-Habitat was allocated, US$ 4,244,445.00 for the TCB Programme. 15 water service providers and 15 local governments have benefited from utility management training which has improved their operational and financial performance. 200 local government staff and 250 staff in water utilities have been provided with functional capacity to operate, maintain, and manage improved water and sanitation systems in a sustainable manner. Although these interventions' impact is yet to be evaluated, an earlier evaluation of Phase I of the Programme noted improvements in service delivery and performance of the utilities.

Under the UN Kigoma Joint Program (UN KJP), a five-year project coordinated under the UN RCO since 2017 to date, in Tanzania, UN Habitat has been assisting water utilities to construct and rehabilitate water supply systems; acquire tools kits for maintaining and operating water supply systems; and develop and apply simple management and governance tools for community-based water supply organizations.

**3) Global Water Operators Partnership Alliance**

UN-Habitat, through its Global Water Operators Partnership Alliance designed the Water Operators Partnerships (WOPs) to strengthen technical and management capacity of urban water and sanitation operators to ensure institutional efficiency, effectiveness, and resilience in service provision and to provide adequate levels of service for the urban poor. Through the Global Water Operators Partnerships Alliance (GWOPA), UN-Habitat is supporting the performance improvement of urban water and sanitation operators and makes linkages with investments needed for infrastructure upgrade, particularly related to extension of services to the poor, the circular economy, and adaptation to climate change. Since 2009, GWOPA has supported over 200 water operators serving over 1.5 million customers, most of which have recorded improved efficiency within the utility or created enabling conditions for more sustainable and equitable service provision, in for example, Fiji, Australia, Morocco, France, Argentina, and Brazil. In Africa, GWOPA finalized the implementation of a project in nine countries in which a series of WOPs were implemented to enhance the capacity of nine urban water operators in areas such as non-revenue water, human resource policy, GIS, extension of services, customer relations, billing, and many others. The WOPs also allowed the recipient utilities to work with their mentor partners to identify long-term priorities for the improvement of the overall performance of the utility, and to develop performance improvement plans (PIPs) that reflect these priorities. GWOPA is working with the utilities on mobilizing the needed financial resources to implement these plans in follow-up technical assistance and capacity-building interventions.

**4) Field Projects**

UN-Habitat has implemented several field projects aimed at demonstrating innovative approaches that can effectively and sustainably improve access for poor people to clean water and basic sanitation in targeted communities. Some of these projects include:

i) Scaling Citywide Inclusive Sanitation Service Systems https://unhabitat.org/news/12-jan-2021/un-habitat-to-improve-sanitation-in-informal-settlements-worldwide

UN-Habitat, with support from the Bill & Melinda Gates Foundation, is advancing Citywide Inclusive Sanitation (CWIS) norms, which aim to ensure everyone benefits from safely managed sanitation. This is done by promoting a public service approach to extend and sustain inclusive sanitation services across urbanized service areas, drawing on the full range of available and appropriate technologies - including onsite and sewers, centralized or decentralized as appropriate - to meet service goals. UN Habitat is working to improve local, national, and global tools and experience to help authorities establish stronger, safer, more inclusive sanitation service delivery systems. The project will strengthen national data and information management systems on sanitation, water quality and wastewater. For example, the project will help develop a standardized methodology to source, monitor and aggregate data on the quality and reach of sanitation services in informal settlements to inform investment and service delivery decisions. It will help global monitoring of Sustainable Development Goal 6 on clean water and sanitation for all. Pilot demonstrations are currently underway in Kenya and Nepal.

ii) Lake Victoria Water and Sanitation (LVWATSAN)-Mwanza Project: A Multi-Partnership Approach for the Implementation of Sanitation in the Low-Income Settlements of Mwanza, Tanzania https://unhabitat.org/the-lake-victoria-water-and-sanitation-project

The LVWATSAN-Mwanza project is supported through financial assistance by the European Investment Bank and Agence Française de Développement (AFD) worth 13.1 million Euros. The sanitation project will deliver over 300 sanitation facilities to meet the sanitation needs of about 250,000 persons, including 150 schools. UN-Habitat's role include: i) coordination between the key institutional stakeholders on the project, made up of the Ministry of Water, the Mwanza Urban Water and Sanitation Authority, the Mwanza City Council, the Illemela Municipal Councils, as well as the councils for Magu, Misungwi, and Lamadi; ii) setting up management and coordination structures to include the preparation and operationalizing of MoUs between MWAUWASA and the Mwanza City/Illemella Municipal Councils; and satellite towns of Magu, Misungwi and Lamadi; a Sanitation Project Steering Committee (SC) and a Sanitation Task Force (STF) for the project; iii) preparation and facilitation for the adoption of a stakeholder engagement plan (SEP); as well as the set up and operationalizing of Multi Stakeholder Forums (MSFs).

iii) Improving WASH in Peri-urban Areas of Mzuzu City and Karonga Town in Malawi https://sustainabledevelopment.un.org/partnership/?p=11007

Improving Water Supply, Sanitation and Hygiene Promotion in Peri-urban Areas of Mzuzu City and Karonga Town in Malawi Following the signing of the grant contract in December 2014 between the European Union Delegation in Malawi and UN-Habitat, water supply and sanitation projects have been implemented in Mzuzu city and Karonga town of Malawi. The project tasks include provision of sustainable water supply in one settlement in Mzuzu city and two settlements in Karonga town, basic and improved sanitation facilities in 10 schools in Mzuzu and 8 schools in Karonga, community led total sanitation (CLTS) and school Led total sanitation (SLTS) triggering and awareness raising programmes in beneficiary communities and schools respectively, and capacity building for the local institutions and community organizations for the management and operation of water and sanitation services. Key outcomes of the project include increased access to sustainable water supply, improved sanitation, and hygiene and sanitation awareness promotion through CLTS approaches as well as strengthened capacity of four local institutions and communities to operate and manage WASH facilities while boosting the financial standings of poor women and improve their livelihoods through

adapting sanitation technological options and marketing approaches that focus on the sanitation value chain.

iv) Building flood resilient WASH infrastructure in Disaster-prone Communities (DPC) in Ghana https://unhabitat.org/news/13-sep-2021/northern-ghana-project-led-by-un-habitat-comes-to-a-close-providing-resilient

The WASH in DPC Programme, aims to strengthen community resilience in disaster-prone regions by building human and institutional capacity in disaster risk management and expanding access to resilient WASH services. The Programme is being implemented as a collaborative effort by four UN agencies, led by UN-Habitat. The main activities include the development of flood resilient water and sanitation technologies for incorporation into national standards, capacity building activities to enhance the capacity of national, regional and district governments and local communities, in disaster risk management, and the rehabilitation and construction of infrastructure and related training to expand access to resilient WASH services for over 200,000 persons living in 265 settlements. Specific results achieved include: Flood resilient water and sanitation technologies developed and validated by national water and sanitation institutions of Ghana for incorporation in national WASH technical standards; disaster preparedness plans prepared and validated for 24 districts; access to resilient water supply services provided to over 103,000 vulnerable persons; school sanitation and hygiene education to in 26 schools; sanitation marketing and hygiene awareness programme delivered to 203 communities, targeting open defecation free status for the areas; and over 104 community water and sanitation teams established and trained to manage community-based WASH services.

v) Building small scale climate resilient rural infrastructure in Lao PDR https://www.adaptation-undp.org/projects/ldcf2-lao-pdr

The objective of this project is to build climate resilience in small towns along the east-west economic corridor in the central region of Lao PDR. This will be achieved through the provision of climate resilient water infrastructure and the mainstreaming of climate change into urban planning. The project has three components including: Develop town level master plans which integrate climate change adaptation into socially inclusive infrastructure, spatial planning, and land use management in and beyond the project area. Capacity built at District, Provincial and National level to plan for climate resilient infrastructure development and to maintain and manage infrastructure; socially inclusive infrastructure built in target towns that protects people from climate change related impacts and provides continuous services despite current and anticipated future changes in the climate; and knowledge and awareness enhanced from national to local levels along the economic corridor, ensuring sustainability and potentially leading to policy changes at the national level.

vi) Global Sanitation Fund (GSF) Programme in Nepal. https://unhabitat.org.np/project_detail/global-sanitation-fund-programme-nepal

The Global Sanitation Fund (GSF) Programme in Nepal is financed by the Water Supply and Sanitation Collaborative Council (WSSCC) and implemented by UN Habitat Nepal. This evaluation seeks to provide a summative and a formative forward-looking analysis of the Programme. The analysis is framed around the Organisation for Economic Co-operation and Development's Development Assistance Committee (OECD DAC) evaluation criteria of relevance, efficiency, effectiveness, and sustainability. The methods and techniques of the evaluation have been customized to the specific evolution of the GSF-supported programme in view of the current stage of Nepal's sanitation status. A mixed methods approach has been adopted focusing on the referencing and triangulation of

quantitative data from a variety of programme and national documents, qualified through a series of primary sources. Over the period from 2011 – 2019, the GSF programme in Nepal contributed to 667 (or 22%) of the 3,039 Village Development Committees (VDCs) (out of 3,372) that achieved Open Defecation Free (ODF) status over this period. Within these ODF jurisdictions, this amounts to a contribution by the GSF programme of just over 3.5 million people (or 31%) of the 11.6 million new people accessing improved sanitation since 2011.

vii) UN Kigoma Joint Programme - Improving human security for host and refugee communities in Kigoma Region, Tanzania (UN KJP)- https://www.unicef.org/tanzania/united-nations-kigoma-joint-programme

The UN Kigoma Joint Programme (UN KJP) is an area-based cross-sectoral programme of the UN Country Team intended to improve human security in the region of Kigoma, Tanzania, which receives refugees from the neigbouring Burundi and the Democratic Republic of Congo. The challenges related to lack of capacity and resources for provision of adequate services, when local government agencies and regions are faced with rapid influx of additional people compounds the situation in the Region. UN KJP supports the humanitarian development nexus by linking together the existing UN response to refugees and migrants with an expanded development support to the host communities. The intervention has provided access to clean drinking water to over 3000 school pupils and more than 7,560 people in neighbouring communities, provided clean drinking water to four health facilities, assisted water utilities to rehabilitate and construct new solarized water supply systems, and provided tool kits for operating and maintaining water supply systems

viii) Water, Sanitation and Hygiene Education for Schools https://mirror.unhabitat.org/content.asp?cid=3254&catid=270&typeid=13

UN-HABITAT has over the years implemented the Values-based Water, Sanitation and Hygiene Education Programme as a component of the Water for Cities Programme. The key programme priorities included: Mainstreaming values-based water, sanitation and hygiene education into the school curriculum; development of resource materials for the curriculum; conducting teacher training; developing teacher training guides; demonstrating Values-based Water, Sanitation and Hygiene education in selected pilot schools and surrounding communities; development of resource material and pilot demonstration of Values-based Water, Sanitation and Hygiene for the non-formal education sector; and provision of safe drinking water and better sanitation facilities for schools.

ix) Post-2015 global monitoring mechanism (GEMI) https://wateractiondecade.org/2018/01/19/the-inter-agency-initiative-gemi/

UN-Habitat is playing a leading role in developing a global framework for monitoring progress on wastewater, water quality and water resources management. The Global Expanded Monitoring Initiative (GEMI) was established in 2014 as an inter-agency initiative composed of the United Nations Human Settlements Programme (UN-Habitat), United Nations Environment Programme (UNEP), the United Nations Children's Fund (UNICEF), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO) and the World Meteorological Organization (WMO), operating under the UN-Water umbrella and complementing JMP and GLAAS. The objective of IMI SDG6, supported by government of Austria, France, Germany, the Netherlands, Sweden and Switzerland, and possible from EU, is to provide member states with a monitoring guide and report on global progress towards SDG targets 6.3 to 6.6. The long-term goal is to establish and manage, by 2030, a coherent monitoring framework for water and sanitation to inform the post-2015 period and contribute to country progress through well-informed decision-making on water, based on harmonized, comprehensive, timely and accurate information. The specific objectives of IMI SDG6 are to: Integrate and expand existing

monitoring efforts, to ensure harmonized monitoring of the entire water cycle; provide member states with a monitoring guide for SDG targets 6.3-6.6; engage member states and enhance their capacity in water sector monitoring; and report on global progress towards SDG targets 6.3-6.6.

The IMI SDG6 framework allows Member States to pursue national monitoring interests with flexibility and address national and regional issues while maintaining compatibility with global monitoring efforts. UN-Habitat and WHO are responsible for SDG target 6.3 on wastewater. Between 2015 and 2016, monitoring methodologies have been developed and tested in 7 proof-of-concept pilot countries - Senegal, Uganda, Bangladesh, Netherlands, Peru, Jordan and Fiji (2015-16). The Initiative is currently being rolled out globally. In 2020-2022, UN-Habitat partnered with regional water associations, operators and regulators, ministries, development partners, academic, public and private sectors, to organize five series of regional webinars on "*Setting the Agenda for Wastewater Treatment and Monitoring in the Context of SDGs*" in Latin America, Caribbean, Africa, Arab Region and Asia. A high-level webinar was finally organized in each region, to advocate for the importance of wastewater monitoring for decision-making in investment and policy development. The objective of this initiative was to build awareness on some of the most critical aspects of wastewater management, and to support countries in reporting wastewater statistics at national level for improving the global monitoring of the SDG indicator 6.3.1.

**5) Normative tools and publications**

i) UN-Habitat and UNICEF Interim technical note on water, sanitation and hygiene for COVID-19 response in slums and informal urban settlements - The technical note provides additional information to support water, sanitation and hygiene (WASH) interventions as part of the ongoing COVID-19 response at national and sub-national levels. The note supports both formal and informal WASH institutions (including public and private) to address the water, sanitation and hygiene needs of the most marginalized populations in informal settlements. It promotes partnerships and recognition of all relevant institutions including water and sanitation utilities, municipalities, small-scale and informal service providers as well as deliberate strategies to address the WASH needs of populations in slums and informal urban settlements. The note acknowledges the need for phased interventions with provision for immediate and intermediate actions that will support WASH response, strengthening systems and resilience to build back better, and increase access to WASH services for all. It complements and aligns with all the existing WASH guidance and other programmatic guidance for COVID-19 response. https://unhabitat.org/sites/default/files/2020/05/un-habitat-unicef_wash_technical_note-_urban_wash_for_covid_in_informal_settlements.pdf

ii) Climate Proofing Toolkit for Basic Urban Infrastructure, with a Focus on Water and Sanitation – The publication provides a step-by-step guide with checklists and templates on "how to" mainstream climate change considerations in water and sanitation infrastructure investment planning and design. It provides checklists and templates. It is a useful guide to new UN-Habitat water and sanitation projects being developed in the area of climate adaptation. Although there are a number of publications on climate-proofing infrastructure, especially from multilateral and regional financial institutions such as the Asian Development Bank, they focus on their specific investment portfolios. This publication draws from UN-Habitat's global experiences supporting countries at the national, subnational and community levels with water and sanitation-related climate change mainstreaming and adaptation initiatives. It also draws from lessons from other organizations, including the United Nations Framework Convention on Climate Change. https://unhabitat.org/climate-proofing-toolkit-for-basic-urban-infrastructure-with-a-focus-on-water-and-sanitation

iii) Chapter 4 of UN World Water Development Report 2022 - UN-Habitat regularly contributes to the World Water Development Report. It contributed Chapter 4 of the 2022 edition of the United Nations World Water Development Report (UN WWDR 2022) entitled 'Groundwater: Making the invisible visible'. The Report describes the challenges and opportunities associated with the development, management, and governance of groundwater across the world. Chapter 4 on 'Groundwater for Human Settlements' gives an overview of groundwater supply for domestic uses (including drinking water) in both urban and rural settings. It takes note of the fact that while major part of urban water is generally supplied by water utilities, private urban self-supply from groundwater has grown markedly in many developing country cities. It also examines the hazards of groundwater use and the issue of groundwater pollution due to inadequate urban and rural sanitation. https://www.unwater.org/publications/un-world-water-development-report-2022

iv) Technical brief on Climate Resilient Sanitation and A Call to Action co-developed by UN-Habitat WASH Team, UNICEF, Bill and Melinda Gates Foundation, Global Green Growth Institute (GGGI), University of Technology, Sydney, World Bank and WHO. The objective of the Technical Brief entitled 'Linking Risk with Response: Climate-resilient Sanitation in Practice' is to help sector stakeholders better understand the rationale for climate-resilient sanitation (CRS), approaches to CRS, and available resources for programming. The Call to Action calls on all relevant stakeholders to ensure access to safe, climate-resilient sanitation services for 3.6 billion people in developing countries by 2030. Call to Action on Climate Resilient Sanitation.

## Conclusion and recommendations

That there are many achievements in increasing access to water supply, safely managed sanitation and improved hygiene cannot be denied. Most of the interventions undertaken by sector stakeholders have contributed toward the realization of the Water Action Decade objectives. Realization of the importance of ground water resources and management of transboundary water resources has made steady progress. However, despite considerable progress made in the improvement of WASH services globally, the demographic and environmental health scenario remains a concern in the developing countries particularly including Sub-Saharan Africa and Southeast Asia. Failures in some of the important drivers of steady progress have deprived hundreds of millions of world population access to sustainable WASH services. The outcomes of these failures have undermined public health, economic productivity, water quantity and quality. The Water Action Decade has not done enough to catalyze action by national, regional governments and urban authorities through rigorous advocacy and effective leadership making progress very slow towards its vision. There are still broad challenges including poverty, limited community participation, inadequate gender inclusion, lack of political will, unreliable data, and lack of coordination as well as integrated approach between the various stakeholders - government, private sector and civil society that still face the sector. An example is sanitation and hygiene which are crucial elements to global health, but often suffering from political neglect in most countries. The messages below suggest actions required to add new impetus towards accelerating progress towards universal access to improved WASH services.

## Key Messages

i) Achieving water security thus requires cooperation between different kinds of water users, and between those sharing river basins and aquifers, within a framework that allows for the protection of vital ecosystems from pollution and other threats.

ii) In terms of sector governance, both cross sectoral engagement and mechanisms to foster multi-level governance are key to building cooperation between local or subnational (urban) and national government and provides a platform that feeds into the national dialogues. This will definitely enhance leadership and planning for programmes to be implemented by other sector actors as well as enabling governments to convene forums for collective action.

iii) Cities can act as important incubators and catalysts of action at scale if we build the capacity of cities to actively contribute to these targets we could accelerate progress across international agreements and targets.

iv) Regional bodies like AMCOW should exert continent level push to localize the SDG targets thus enabling harnessing urban centres contributions to these national and global targets.

v) At the towns, municipals, and cities levels of WASH services provision, WSPs should increase responsibility and accountability towards the marginalized to promote more inclusive approaches through expanded technological options and service models.

vi) There is a need for coordinated, inclusive, and participatory efforts for protecting and sustainable develop and manage urban water bodies.

vii) Stakeholders should unite in championing for galvanization of momentum on improvement of hygiene practices. There is need for countries to actively and meaningfully identify, include, engage, and consider the population segment who are at risk of being left behind in all aspects of sanitation and hygiene interventions.

viii) There is need for strategies that build on the progress made in addressing both the socio-economic and spatial inequalities in access to WASH through balance allocations to ensure no one is left behind.

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# THEMATIC CONCEPT PAPERS

# Water for Sustainable Urban Development

**Water at the centre of Urban Development**
**to build resilience, better health outcomes and equity in rapidly urbanizing areas**

**[Second draft 14 December 2022]**

# 1. Introduction: Water at the center of Sustainable Urban Development

**In 1977 the first UN Water Conference was held. One year before, Habitat I, the first UN conference on human settlements and urbanization. At the time, urbanization and its impacts were less prominent in the UN agenda, also because two-thirds of humanity was still rural. Now, almost 50 years later, over 50% of the world's population lives in cities and unplanned urbanization has brought about challenges that have made new demands on natural resources as well as our physical environment. Challenges of water as a vital resource and a powerful environmental agent are among the most critical.**

**The COVID pandemic, ongoing conflicts and the climate emergency have reversed years of progress made in achieving the Sustainable Development Goals, in particular in the fight against poverty and protecting our planet. By 2030, urban areas are projected to house 60 per cent of people, many of which will lack sanitary living space due to lack of water and sanitation services in cities and urban areas. Water is key in attaining our social, economic and environmental goals in current and yet-to-be-built cities. This paper suggests that water should be placed at the heart of sustainable urban development and argues how working with water can help us to achieve healthy, resilient, and equitable urban space for all. This will require that we move away from 'business as usual, as water security and water related disaster solutions require a long-term, integrated and area-based 'transboundary' approach.**

## Value of water for Urbanization

The value attributed to water and sanitation in cities and human settlements can be traced back to the origins of civilization[1]. Over recorded history, access to a reliable water source has been vital to the location and growth of cities and human settlements[2]. Water enabled agricultural activities and trade to thrive, ensuring the development of some of humanity's most recognized civilizations. Most industrial cities were originally located near water for transportation, power, and trade3.

Water is central to maintaining reciprocal relations between the natural ecosystem and the built environment in the cities. Today, many modern cities and towns are located at the edge of a water body. According to the UN Atlas of the Oceans, 8 of the top 10 largest cities in the world are located by the coast, while many others are located near rivers, lakes or natural springs. As engines for economic growth and wellbeing, these cities and towns are dependent on water and

[1] Yevjevich V.,1992. Water and civilization. Water International, 17, pp. 163–171

[2] UN-Water 2011. Water and Urbanization. World Water Day Official Brochure. https://archive.worldwaterday.org/2011/download/wwd2011_brochure_en_web.pdf

[3] Winiwarter, V., Haidvogl, G., Hohensinner, S. et al. The long-term evolution of urban waters and their nineteenth century transformation in European cities. A comparative environmental history. Water Hist 8, 209–233 (2016). https://doi.org/10.1007/s12685-016-0172-z

sanitation to support their: 1) industrial and service sectors, 2) to sustain the health of their residents, and 3) to improve and protect their natural environment[4].

## Rapid Urbanization and increasing demand for water

How cities and human settlements cope with the growing demand for water and sanitation services as a result of growing urban population and increased economic activities also shows the value they attach to these essential services.[5] Africa and Asia that are home to some of the countries hard pressed to provide adequate infrastructure and services to their inhabitants due to non-existent or dilapidated infrastructure, weak policy and institutional arrangements, lack of appropriate business models to manage services, inadequate capacity and low investments, among others[6].

Sixty per cent of the global population, or over four billion people, live in water-stressed areas. In many urban areas, this water stress is exacerbated by pollution, with about 80-90% of all wastewater in developing countries discharged directly into surface water bodies with severe risks for both ecosystem and human health (Cohen-Shacham et al., 2016).

## Urban resilience to increase of flooding, sea level rise and drought

Climate change has adverse effects on cities and human settlements. By one estimate, 530 cities are already reporting the devastating effects of climate change7, subjecting up to 517 million urban residents to tropical diseases and lost livelihoods, destroying infrastructure, and undermining the capacity of local governments to provide basic services to their citizens. This number is based on data reported to Carbon Disclosure Project's (CDP) global environmental disclosure system in 2018 by 620 cities globally. According to CDP projections, by 2050, eight times as many city dwellers will be exposed to high temperatures8 and 800 million more people could be at risk from the impacts of rising seas and storm surges. Coastal cities and small island developing states are more exposed to the adverse impacts of climate change. Loss of infrastructure, water salination, loss of land due to inundation and erosion are forecasted to hit hard these areas9.

## Addressing inequalities and human rights through water in cities

Investing in water provides opportunities to transform urban slums and informal settlements in

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[4] Colenbrander, S. 2016. Cities as engines of economic growth: the case for providing basic infrastructure and services in urban areas. IIED Working Paper. IIED, London.

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8 The Future We Don't Want - C40 Cities

9 Adelle Thomas, April Baptiste, Rosanne Martyr-Koller, Patrick Pringle, and Kevon Rhiney. (2020). Annual Review of Environment and Resources: Climate Change and Small Island Developing States, 45:1–27 Climate Change and Small Island Developing States (annualreviews.org)

cities of the global south into resilient and equitable urban centres. Globally, cities are hosting a significant population in slums and informal settlements; currently, around one billion and three billion by 2050, lack access to safe drinking water and sanitation[10]. Their housing is located on environmentally fragile locations such as steep slopes, floodplains, coastal shores, and riverbanks, and threat to public health due to contamination of water sources.

According to OHCHR, marginalized groups, including women, children, indigenous people, minority groups, refugees, persons living with disabilities, the urban poor and older persons, particularly those living within these fragile locations are at the frontline of the water crisis. According to UNHCR's WASH Monitoring System, by the end of 2018, only 35 per cent of refugees had access to safely managed drinking water supply located on-premises, compared to an average of 71 per cent of the global population. In addition, one in four primary schools worldwide has no access to water services, leaving children to use unprotected sources or stay thirsty[11].

### How to put water at the heart of urban development?

Future cities need to represent a paradigm shift towards a new model of urbanization that can better respond to the challenges of our age, optimizing resources to harness potential. This vision should be fully in line with the SDGs. Water plays a vital role and a great entry point to this transition specifically by engaging leaders and citizens in reconnecting with the natural water cycle. Through the localization of the SDGs, local and national governments need to ensure equal access to quality water supply and manage the existing water supply. This can be achieved through a holistic multi-level and multi-sectorial approach, including an integrated and area-based spatial planning, strengthening legal and policy frameworks to overcome fragmentation in public policy formulation, reducing the financing gap and inclusive decision-making to unlock the opportunities for innovation and capacity development in water management for sustainable urban development.

## Current Status Water & Urban Development

This section will explain the challenges, current status and trends related to water security, resilience to flooding and droughts, and in both dimensions ensuring leaving no one behind in urban development through the lens of urban governance, planning and finance.

### Current status Urban Governance ensuring water security

Institutional coordination is an important process in ensuring water security and urban resilience to water related disasters, especially for priority groups, as water in urban development is trans-boundary and multi-dimensional.

[10] United Nations (2015), The Millennium Development Goals Report. UN-Habitat (2015), World Cities Report 2016.

11 International Institute for Sustainable Development (2019), Water for All Means Leaving No One Behind

Rapid urbanization has generated growing demand for urban services such as water and infrastructure and challenges in accommodating residents in areas risk free to natural disasters. Decades of misuse, poor management, overextraction of groundwater and contamination of freshwater supplies have exacerbated water stress. In addition, cities and countries are facing growing challenges linked to degraded water-related ecosystems, water scarcity caused by climate change, underinvestment in water and sanitation and insufficient cooperation on transboundary waters**.**
This section will elaborate on how these urban governance challenges can be transformed into opportunities. Urban governance, in which individuals and institutions, both public and private, plan and manage the common affairs of the city in a continuing process where conflicting or diverse interests may be accommodated, and cooperative action can be taken.

*Current Status, trends*
National policies and laws are assigning increasing *responsibilities to municipal governments* but municipal governments face challenges. In many countries, urban governance systems are currently unfit for purpose and need critical reforms to enable sustainable and inclusive urban development. Most countries, especially in the Global South, suffer from ill-defined distribution of responsibilities between different levels of governments, leading to the duplication of roles and responsibilities. *Urban governments are not able to fully deliver on their responsibilities* due to inadequate decentralization, insufficient resources, poor capacity, and weak frameworks for engagement with residents, civil society, and other key stakeholders. Consequently, common citizens suffer from poor public service delivery such as access to water and they end up procuring these services from informal, expensive, yet unsafe channels. For example, around 69 million African urban residents have no access to safe water services.[12] For instance, in Johannesburg, only 31% of households in informal settlements have access to piped water and electricity, while in the informal settlements of Nairobi - just 7% of households do.[13] Citizen population and distribution is key urban governance issue, which can increase human exposure to flooding, and drought. These issues as well as the rise of slums and informal settlements are largely the outcomes of lack of access to urban land and housing governance.

*Localising the SDG2030*
To address these governance issues, SDG 6, target 6.5, aims, by 2030, that countries implement integrated water resources management at all levels, including through transboundary cooperation as appropriate. Target 6.A considers that, by 2030, international cooperation will expand and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies. Finally, target 6B calls for strengthening the participation of local communities in improving water and sanitation management. SDG 16 on effective institutions recognizes three key principles: achieving SDGs is the shared

[12] UN-Habitat, Cities and Pandemics: Towards a more just, green, and healthy future (2021). https://unhabitat.org/cities-and-pandemics-towards-a-more-just-green-and-healthy-future-0
[13] Ibid.

responsibility of all levels of government; local and regional authorities must have the necessary competences and financial autonomy to achieve the goals in their respective areas; citizens must always remain at the heart of the action. At the same time, SDG 7 energy for all, SDG 10.3 on reducing inequalities state how essential it is to review and assess the impact of existing laws, policies and practices and to promote appropriate legislation and policies to ensure equal opportunities and reduce inequalities of outcome. The NUA recognizes that "the spatial organization, accessibility, and design of urban space, as well as infrastructure and basic service provision, together with development policies, can promote or hinder social cohesion, equality, and inclusion" (NUA 29). The NUA also calls for "measures to establish legal and policy frameworks, based on the principles of equality and non-discrimination" (NUA 89).

## Current status Urban and Territorial planning for water security and resilience

Today, water stress is a major concern in many urban areas. The core aspect of urbanisation contributing to water stress is the rapid population growth together with inadequate planning and competing demands on water resources.

As urban areas continue to grow exponentially, the existing discrepancies between urban planning and water management in most cities globally are becoming more evident. Most urban settlements lack adequate and reliable provision of key infrastructure, either for delivery of water services or for mitigation against water related disasters. In addition, current models of planning for water are unreliable in terms of cost effectiveness, technical performance, social equity, and environmental sustainability.

An integrated and area-based approach to planning for water promotes coordinated planning for water with all other urban sectors, thus mirroring the complex nature of cities while enabling urban practitioners to assess water needs at site or neighbourhood scale and link them with other existing plans. This is instrumental in preventing fragmentation when planning for water and minimizing conflicts.

*Current Status, trends*

In most cities, planning for the water sector is not integrated within planning for other urban issues such as housing, public space, land use, transportation and energy, often resulting in urban planning fragmentation and resultant challenges such as suboptimal water quality and increasing water related disasters due to land use and water conflicts. This, in addition to lack of a multi-level or city-regional approach when planning for the water sector poses grievous water challenges to most urban areas.

Around 90 per cent of urban expansion in developing countries has been occurring near hazard prone areas within unplanned settlements situated close to water sources as riparian and coastal areas, with limited access to proper sanitation and solid waste management facilities (WEF, 2020). It is estimated that up to 80 per cent of global wastewater enters water bodies untreated with adverse impacts on human and ecosystem health (WWAP, 2017). The effects of this are quite perceptible as it is estimated that more than half of the world's biggest rivers are seriously polluted, yet an estimated 2 billion people globally, rely directly on rivers for their drinking water. It is estimated that 50 per cent of the world's population lives within 3km of a surface

body of fresh water, and only 10 per cent live further than 10km away. For instance, the combined population living within the Nile basin is estimated at 257 million (Nilebasin.org).

Similar trends are noted within the coastal regions. 44 per cent of the world's population resides within 150 kilometres of the coast, with a projected increase in the total population living in low-lying coastal zones from 680 million to 1 billion by 2050, increasing the population's vulnerability to water related hazards (Conservation International). It is estimated that about USD 4.7 trillion in assets is exposed to coastal floods.

At territorial level, watersheds are increasingly under pressure from various development activities, such as deforestation, wildfires, extractive industries, urban sprawl, and contamination leaving the urban centres and human settlements without a lifeline. These human induced activities are further contributing the impacts of climate change and stress on the water resources. In addition, water scarcity and floods in rural areas are also in some cases contributing to migrations toward major cities, adding demographic pressure to their already stressed water and sanitation systems.

*Need for transformative change: planning and water management nexus*

Urban planning and management need to catch up with the rapid urbanization challenges to plan for enough and clean water sources, for individuals and businesses, and human and ecosystem health and socio-economic development, also in view of urban development will further encroach on hazardous locations, including disaster prone riparian and coastal areas.

To forestall this, governments and urban actors need to adopt well-thought out, transformative measures to heighten the action towards water resource management, through integration of holistic and integrated planning approaches across temporal and spatial scales, compounding the opportunities available for innovation, capacity development and data quality improvement.

According to an IPCC report, 75 per cent of the cities and infrastructure expected to be in use by 2050 are yet to be built. This therefore provides an opportunity to act now in providing new solutions that can be adopted soon enough to drive change, reshape cities and rebalance urban and rural linkages. The nexus between territorial and urban planning and water management needs to be rethought and strengthened, encouraging cities to adopt integrated and area-based approaches to planning for water.

*Evidence-based Planning and Innovation*

Considering the importance of data in planning for water, it is crucial that data experts understand the water sector in order to co-create effective and innovative solutions. Adequate and reliable data is required to track the progress towards achieving SDG 6 and 11, so as to increase the focus on underserved areas and to bridge the existing gap before the situation worsens. This is envisioned to promote information exchange across all levels, strengthening capacity development amongst all relevant stakeholders for well informed decision making.

*Links with Global Agendas*

Planning for water management in urban areas aligns with New Urban Agenda, which provides guidance on the integration and consideration for conservation and rehabilitation of water

resources, water storage and retention and investments on climate resilient blue-green infrastructure that supports stormwater management, disaster mitigation and equitable access to water and sanitation services, within urban and territorial development plans. The New Urban Agenda emphasizes the concept of 'leaving no one behind' thus underscoring the need to bridge the gap in water access across various regions, with emphasis on the underserved areas which are hit the hardest by the water crisis.

It therefore serves as a roadmap towards achieving the SDGs, particularly SDG 6 and 11, by promoting access to safe and clean water, enhancing water-use efficiency, promoting integrated water resources management and restoration of water resources for environmental and socio-economic wellbeing in cities, further advancing the implementation of SDG 3, 10, 13 and all others by extension[14].

In addition, this contributes to the goals of the Sendai framework on promoting the mainstreaming of disaster risk assessment, mapping and management into development planning and management of rivers, coastal flood plain areas, wetlands and all other areas prone to droughts and flooding, including through the identification of areas that are safe for human settlement, and at the same time preserving ecosystem functions that help to reduce risks[15].

## Current status Urban finance for water security

The total economic losses from water insecurity amount to US$ 260 billion per year from inadequate water supply and sanitation, which include US$ 94 billion annually from agricultural losses and food insecurity and US$ 120 billion from urban property flood damages[16]. While these losses have a global spread, India and China bear the single highest economic losses amounting to US$120 billion together. Sub-Saharan Africa leads in water supply and sanitation deficiencies; while the greatest risks from flooding are felt in Asia.

To tackle this water insecurity gap, it is estimated that investment needs exceed US$ 1 trillion per year or an equivalent of 1.21% of global GDP[17]. Projections also show that if the global water crisis is tackled, US$18.5 billion in economic losses annually will be averted from water and sanitation related deaths alone[18].

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14 United Nations. (2015). Transforming our world: the 2030 Agenda for Sustainable Development, A/RES/70/1, sustainabledevelopment.un.org

15 UNISDR. (2015). Sendai Framework for Disaster Risk Reduction 2015-2030, Geneva Switzerland

16 Sadoff, C., Hall, J., Grey, D., Aerts, J., Ait-Kadi, M., Brown, C., . . . Wiberg, D. (2015). Securing Water, Sustaining Growth: Report of the GWP/OECD TaskForce on Water Security and Sustainable Growth. UK: University of Oxford

17 OECD. (2022). Financing a water secure future. OECD.

18 Water.org. (2022, November 23). The Water Crisis. Retrieved from water.org: https://water.org/our-impact/water-crisis/#:~:text=lost%20economic%20opportunities.-,%24260%20billion%20is%20lost%20globally%20each%20year%20due,of%20basic%20water%20and%20sanitation.

*Current Status, trends*

In cities, particularly in developing countries, households often lack access to constant and quality water supply hence resorting to reliance on alternative and overlapping sources of water. The choice of water supply is based on several factors including availability (time and distance), quality and price. Ultimately, the affordability of water is the greatest impediment to access for urban residents, which in turn is influenced by the nature of the water infrastructure.

*Affordability of water services*

The acceptable "affordable" costs of WASH services by the UN are 5% of the household income or 2.5 to 4.5% if each household member has access to 50 to 100 liters daily, which is not the case in most cities.

A study conducted across 15 cities in Low Income Countries[19] reveals that approximately 42% of households in the cities lack access to municipal piped water systems. In consequence, residents have to resort to alternative sources such as rivers and other bodies of water for access to water with obvious implications on the quality and cleanliness of the water. Where such bodies of water are not available residents sometimes need to resort to private water delivery via tankers, which is found to be 52 times more expensive than piped water in cities like Mumbai.

The affordability issue of these water services is felt mostly by those living in informal settlements. A study from Nhlamankulu (an informal settlement of Maputo, Mozambique), shows that households pay US$ 6.00 per cubic meter for water bought from neighbors (from boreholes), thus paying 13 times more for the same water than households in serviced parts of the city. Similarly, in Kampala, households in serviced parts of the city pay 3% of their household income on water whereas those in informal settlements of the same city spend 11.7% of their household income[20].

*High operational and management costs of water projects*

The diversification of the water provision sector has foreseen an increase in water projects, which however, have not translated into a win-win scenario for the providers and consumers. The sourcing of revenue from water utilities by city governments, utility and private companies involved has been a biting challenge. This is attributed to the high investment costs channeled to water projects compared to the low or no recovery costs and the risks involved such as non-payment of water bills, currency fluctuations, political interference and non-revenue water losses.

In the case of the city of Mandalay in Myanmar for example, the Mandalay City Development Committee (MCDC) responsible for water infrastructure provision, operation and maintenance

19Beard, V., & Mitlin, D. (2021). Water access in global South cities: The challenges of intermittency and affordability. World Development.

20 Beard, V., & Mitlin, D. (2021). Water access in global South cities: The challenges of intermittency and affordability. World Development.

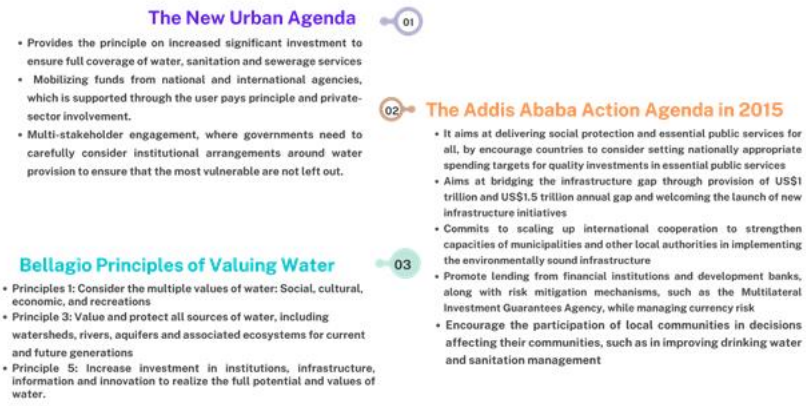
and revenue is making major losses from the water sector[21]. Studies have shown that the city's water and sanitation expenditure by 2014 was approximately US$3.7million, however due to the high operating costs of the infrastructure, the city incurred a loss of about US$2.4 million between 2016 and 2017. These losses largely comprised of non-revenue water (52% of the water lost during distribution) where 70% of it is due to physical leakages and data handling or meter reading errors (30%). To recover these high capital and operational expenditures, the city must raise the tariff costs, which in turn leads to more people seeking alternative sources of water, which do not necessarily translate to affordability.

To achieve SDG 6, the role of the public sector is imperative through provision of resources to operate and maintain these infrastructures. However, the public finances to support the provision of quality and sustainable water infrastructure are deficient and scarce, hence need supplementing and complementing from other sources.

*Need for transformative change*

Despite, the obvious investment needs in water security, the financing flows to the sector are still deficient and not commensurate to the water and sanitation needs globally for the realization of Sustainable Development Goal (SDG) 6. For instance, the GLAAS Report of 2019 comprising a survey of 115 countries and featuring 4.5 billion people, revealed that less than 15% of the countries have the requisite human and fiscal resources to implement their Water Sanitation and Hygiene (WASH) plans[22]. As the world urbanizes and effects of climate change continue to manifest, these financing gaps will widen, therefore a policy shift is needed.

*Links with Global Agendas*




## 2. Opportunities for water-related, transformative urban solutions

The existing and future water-related challenges we face require the rapid development and deployment of innovative and transformative solutions that go beyond business-as-usual. This

21 Nagpal, T., Balac, M., & Haas, A. (2019). Understanding demand and funding for piped-water supply in Mandalay City. International Growth Centre

22 UN-Water. (2019). *UN-Water GLAAS 2019: National systems to support drinking-water, sanitation and hygiene - Global status report 2019.* United Nations.

section will elaborate on transformative solutions in the field of Governance, Planning and Finance, addressing cross-cutting issues: Capacity development, Innovation, and Governance.

## Opportunities for transformative urban governance solutions

Water governance is one of the key issues in cities. Water governance has been described as "…the range of political, social, economic and administrative systems that are in place to develop and manage water resources and the delivery of water services, at different levels of society."[23]The five building blocks for sound water governance include: a powerful administrative organisation, a legally embedded system, an adequate financing system based on economic analyses of water services, a systematic planning approach and participation of stakeholders.

Water governance is essential to balance available resources with demands from a multitude of often conflicting water users as well as ensuring critical ecosystems continue to maintain the resource base. This is reflected in the *OECD Water Governance Principles* that provides the 12 must-dos for governments to design and implement effective, efficient, and inclusive water policies.

| Principle | Explanation |
|---|---|
| **Principle 1** | Clearly allocate and distinguish roles and responsibilities for water policymaking, policy implementation, operational management and regulation, and foster co-ordination across these responsible authorities. |
| **Principle 2** | Manage water at the appropriate scale(s) within integrated basin governance systems to reflect local conditions, and foster co-ordination between the different scales. |
| **Principle 3** | Encourage policy coherence through effective cross-sectoral co-ordination, especially between policies for water and the environment, health, energy, agriculture, industry, spatial planning, and land use. |
| **Principle 4** | Adapt the level of capacity of responsible authorities to the complexity of water challenges to be met, and to the set of competencies required to carry out their duties. |
| **Principle 5** | Produce, update, and share timely, consistent, comparable, and policy-relevant water and water-related data and information, and use it to guide, assess and improve water policy. |
| **Principle 6** | Ensure that governance arrangements help mobilize water finance and allocate financial resources in an efficient, transparent, and timely manner. |
| **Principle 7** | Ensure that sound water management regulatory frameworks are effectively implemented and enforced in pursuit of the public interest. |
| **Principle 8** | Promote the adoption and implementation of innovative water governance practices across responsible authorities, levels of government and relevant stakeholders. |
| **Principle 9** | Mainstream integrity and transparency practices across water policies, water institutions and water governance frameworks for greater accountability and trust in decision-making. |
| **Principle 10** | Promote stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation. |
| **Principle 11** | Encourage water governance frameworks that help manage trade-offs across water users, rural and urban areas, and generations. |
| **Principle 12** | Promote regular monitoring and evaluation of water policy and governance where appropriate, share the results with the public and make adjustments when needed. |

[23] Effective Water Governance Rogers and Hall, 2003, EC Background Papers No.7, Global Water Partnership, Stockholm.

Source: The OECD Principles on Water Governance. https://www.oecd.org/regional/regionaldevelopment/oecd-principles-on-water-governance.htm

*Key objectives and approaches*

Achieving the Sustainable Development Goals (SDGs) and the New Urban Agenda, and particular SDG 6 and SDG 11, requires **strong and effective political institutions and processes** which are defined by the following three pillars:

a) **Effectiveness,** i) competence; ii) sound policy making; and iii) collaboration
b) **Accountability:** iv) integrity, v) transparency and vi) independent oversight; and
c) **Inclusiveness:** vii) leaving no one behind, viii) non-discrimination, ix) participation, x) subsidiarity and xi) intergenerational equity.[24]

The above principles operationalized through a *Multi-Level Governance* are key for integrated and inclusive urban development to make arrangements for making binding decisions that engage a multiplicity of actors (private, public and social) at different territorial levels.[25] This refers to promoting collaboration and cooperation between institutions and with the citizens. This can take place in two ways: vertical collaboration – across all levels of government (national, regional, metropolitan and local). Horizontal collaboration – multi-sectoral and multi-stakeholder engagement between governments and non-state actors (private sector, civil society, community groups among others). Participatory mechanisms and accountability will help to address disparities in service provision and help policy makers to focus on inequity and its deeper causes. Appropriate governance measures, such as regulation and enforcement of agreed standards, are essential to ensure overall quality of water bodies over time. The political will to control pollution can improve water quality in rivers and lakes as well as support ecosystem functioning by reducing organic and mineral nutrients that deplete the oxygen supply.

As an example, *UN-Habitat's project in the Dibamba Riverbank Corridor in Douala, Cameroon,* shows that an inclusive, multilevel governance approach and the participation of diverse stakeholders is important to build a sustainable development plan for the river and the metropolitan council at large. Inclusive governance is promoted in the project, with the establishment of an integrated management body that would include local stakeholders with the support of the city of Douala and the national Government. Similarly, in 2021, the Douala Metropolitan Observatory (DMO) was designed and set up to collect, analyze, disseminate and monitor data and information on various issues and opportunities in Douala.

*Knowledge exchange and Capacity Development*

Collaboration among cities and regions by sharing best practices for rapid implementation is crucial not only to cope with SDG6 but also with many of the other SDGs. At the local level, the

[24] UN CEPA principles on effective governance https://sdg.iisd.org/news/cepa-18-discusses-implementing-governance-principles-for-sdgs/

[25] Schmitter, P, "Neofunctionalism" in A. Wiener and T. Diez (eds), *European Integration Theory* (OUP 2004) and OECD, *Building Competitive Regions: Strategies and Governance* (OECD 2005).

effectiveness of municipal government depends on locally available resources, skills, structures and management processes. Consequently, capacity building for urban governance must consider institutional capacities, the technical and professional skills of individuals, and local leadership skills which includes a cross-sectoral learning exchange between different stakeholders (water operators, waste management, urban and territorial planners, finance specialists, agricultural industries etc). This calls for a targeted approach that mobilizes different types of education and training (high and middle-level education), technical courses, peer-to-peer learning and technical support. This also includes local government and civil society exchanging information and knowledge to improve the ability of community leaders and public institutions to engage in dialogue to support a collaborative approach.

*Innovation and data management*

Innovations in urban water and sanitation management are continuously introduced in cities, both in terms of hardware (IT solutions, infrastructure, new technologies) and software (new planning approaches, governance arrangements and stakeholder engagement). There are often huge opportunities to achieve scale for private investors and for lower cost of services provided to the public. New technological solutions that better integrate different sectoral services, e.g. water and energy, or the reuse of wastewater for irrigation, can be key if their application is developed within an integrated inter-sectoral governance model. Digitization or Internat of Things (IoT) can help to improve the performance of water and sanitation utilities in cities to reach out more people and provide sustainable services. This includes a reduction to non-revenue water, better managing water infrastructure and maintenance and customer relations. The other area could be to establish an early warning system to reduce loss from flooding, etc.
However, large scale adoption of innovations into more sustainable water management in urban areas are often hindered. New and innovative solutions often face a competitiveness challenge as current policies favour deep-rooted practices of not accounting for the real cost of poor water practices (pollution etc.) or of infrastructure developments that carry high levels of risk from disaster. Regulations, financing arrangements and institutional responsibilities often carry forward incumbent practices, for example favouring large-scale centralized infrastructure over decentralized solutions enabling local water reuse and require political process and commitment for change to take place.

## Opportunities Urban and Territorial Planning

In the words of former UN Deputy Secretary-General Jan Eliasson “Cities are where the battle for sustainable development will be won”. Urbanization instead of being a mere and inevitable challenge, should be seen as an opportunity to advance toward a more sustainable human development. As cities increasingly build consensus on the need for a paradigm shift in the face of rapid and unplanned urbanization and climate change, it is of utmost importance to recognize that water is at the core of sustainable development, as it is critical for socio-economic development, healthy ecosystems and for human survival.

Effective planning is therefore instrumental in ensuring that water is at the heart of urban development, thus fostering integrated urban water management at all levels. As we plan for our

future cities, there is an opportunity to integrate planning for the water sector with planning for other urban issues for a better system wide performance of urban areas.

*Key messages and policy implications*

1. Planning plays an instrumental role in bringing water at the centre of sustainable urban development. Good urban planning includes water as a key focus of decision making to enhance water security and waterway health, reduce flood risk and damage, and create spaces that collect, clean, and recycle water.
2. A holistic, multi-sectoral and multi-level approach to urban planning is key for water management, in order to reflect the multifaceted nature of water issues in urban areas.
3. The resilience, functioning and protection of water related ecosystems should be a key priority when planning for urban areas amidst rapid urban expansion.
4. Data-based decision making is instrumental in planning efficiently for water in urban areas, with considerations for the supply and demand dynamics, as well as future population projections and climate change.

*Urban and Territorial Planning Approaches*

Key planning approaches related to water are outlined below, such as Blue Economy planning, Water infrastructure Planning, application of Nature-Based solutions, urban regeneration and evidence-based planning.

1. *Blue Economy:*

   The Blue Economy is an emerging concept which encourages better stewardship of our ocean and other blue resources. It provides for an inclusive model in which coastal zones, or those with significant waterbodies – which sometimes lack the capacity to manage their rich water resources – can begin to extend the benefit of those resources to all[26] Through spatial planning, urban economy and legislation, UN-Habitat has supported coastal cities and districts to embark on sustainable development practices, seizing opportunities under the Blue Economy, and supporting communities to protect and preserve existing ecosystems. UN-Habitat has furthermore assisted the strengthened governance of coastal cities by working directly with vulnerable communities, planners and decision makers, promoting climate change adaptation, low emission development and sustainable local economic development. Examples of projects include urban renewal (Jamaica), planning new settlements for relocated vulnerable populations (Príncipe), designing and constructing resilient housing, social and educational facilities (Mozambique), and the planning and redevelopment of a lakefront (Kenya), all of which provide necessary support to countries and cities located along coastal and waterfront

26 United Nations Human Settlements Programme. (2018). UN-Habitat background paper on BLUE ECONOMY AND CITIES, Kenya

areas[27].

Case Study: Go Blue Project: Connecting People, Cities and the Ocean
The project is an innovative Land-Sea planning project for a more sustainable and resilient Kenyan coast. The Project is a partnership between the Government of Kenya and the European Union, focusing on 6 coastal counties in Kenya, with the support of UN-Habitat and UNEP. The overall objective of the Project is to unlock the potential of blue economy through the land-sea planning, in order to create opportunities along the coast for a more sustainable and inclusive economic growth. The innovative approach of the Go Blue Project, that integrates both land and sea planning methodologies together, will try to increase ecosystems-oriented planning, while at same time increase socio-economic development related to coastal environments. The programme aims to harness important coastal and marine resources to achieve a sustainable blue economy and bring jobs to over 3,000 youth and women.

Table 3: Challenges and Opportunities for Coastal Cities and Marine Protection [45]

| Challenges | Opportunities |
|---|---|
| • Climate change impacts | • Aquaculture and Fisheries |
| • Rapid growth of urban centres | • Blue Economy opportunities |
| • Limited resource base | • Eco-tourism |
| • Little resilience and high exposure to natural disasters | • Renewable energies (especially wind and solar energy) |
| • Increased pollution from inland & ocean | • Biodiversity (land & water) |
| • Rapidly growing populations | • Ecosystem-based adaptation |
| • Unsustainable tourism practices without engagement from multiple sectors | • Youth employment in waste management and ocean protection |
| • Often underfunded and erratic urban planning practices | • Community engagement and participatory processes |
| • Limited resources from public sector to address coastal and marine challenges together | • Integrating urban planning and marine protection (ICZM and beyond) |
| • Limited opportunities for the private sector | • Coastal cities autonomy and empowerment |
| • Poor wastewater and solid waste management | |

UN-Habitat background paper on BLUE ECONOMY AND CITIES, 2018

2. *Water Infrastructure planning for water and sanitation utilities*

Effective planning is essential for water and sanitation utilities to sustainably bridge the gap between current and future water supply demands and ensuring the sustainability and resilience of the communities they serve. Resilient infrastructure is therefore required to supply communities with potable water, as well as to collect, treat and discharge wastewater to manage storm water runoff, thus preventing flooding.

3. *Application of nature-based solutions*

Applying NbS in urban planning interventions can significantly reduce water stress in

27 United Nations Human Settlements Programme. (2018). UN-Habitat background paper on BLUE ECONOMY AND CITIES, Kenya

urban areas. Different types of green environments can work to naturally absorb pollutants and purify water sources. Similarly, increasing permeable ground cover associated with the creation and enhancement of green spaces can minimize the likelihood of potable and polluted water unintentionally mixing, as well as the likelihood of stagnancy in drinking water sources[28].

In disaster prone areas, leveraging on opportunities provided by nature-based solutions to mitigate water related risks and disasters along rivers and coastal areas. For instance, coastal nature-based solutions can enhance sustainability and resilience by protecting communities and infrastructure from hazards such as storms, floods and sea level rises through the integration of mangroves and seagrass meadows which also enhance climate mitigation that may further strain water systems. Restoration of river ecosystems and developing water retention areas can complement conventional infrastructure and enhance access to water in urban areas.

Therefore, NbS can and should be integrated into existing grey infrastructure, providing complimentary services such as water purification and retention to existing distribution networks within settlements[29]. They represent a living solution, inspired by nature, resulting in economic viability and enhancing socio-economic and environmental benefits, thus safeguarding ecosystem services and promoting sustainable developments[30].

Case study: Blue-green network planning as a spatial development and climate-resilient strategy - the case of Belmopan, Belize

UN-Habitat in collaboration with the Belmopan City Council and other local stakeholders, identified a blue-green network approach for the update of the master plan for the capital city of Belize, Belmopan. They developed a masterplan for the city that provides new strategies for managing urban flood risk, enhances and innovates the garden city character and promotes economic development in this rapidly developing city.
Blue-green network planning consists of planning strategies based on blue water-based elements, green vegetation-based elements, green technologies and low-carbon and climate-resilient infrastructure. Blue elements include streams, storm water drains, irrigation channels, wetlands, freshwater, sanitation and public spaces that can

28 UN-Habitat. (2021) Policy Brief 1: Using Nature-Based Solutions in Public Spaces to Enhance Urban Resilience

29 UN-Habitat. (2021) Policy Brief 1: Using Nature-Based Solutions in Public Spaces to Enhance Urban Resilience

30 Maes, J. & Jacobs, S. (2015). Nature-based solutions for Europe's sustainable development. Conserv. Lett. 10, 121–124.

temporarily accommodate water overflow. Green elements include trees along streets, recreation zones, playgrounds, parks, forests, greenways and riparian strips. This planning approach acknowledges that cities are embedded in natural systems by examining a city's ecological and hydrological relationships.

4. *Urban regeneration with water*

While many cities have altered the natural course of rivers in its infrastructure development, they have not always considered the effects on the natural ecosystems, yet rivers play a vital role in the prosperity of many cities globally. There are multiple benefits to redirecting expansion so that it avoids sensitive ecosystems, green spaces and other areas important for flood control. Ecologically sensitive land use planning and management will support the health of surrounding bodies of water, key areas for buffering storms and provide socio-economic co-benefits.

Urban rivers have the potential to contribute immensely to the ecological, social and economic wellbeing of cities, thus management of rivers can be leveraged as an opportunity to promote all-round revitalization of cities.

Case study: Nairobi River Life Project

The Nairobi River Life Project is a joint flagship initiative of the Nairobi Metropolitan Services and UN-Habitat aimed at reclaiming Nairobi River, one of the 3 main rivers in the city. The project adopts participatory and ecosystem-based approaches, engaging urban actors across the public, private and civil sectors in undertaking water-related assessments and developing a spatial strategy that addresses various challenges along the river system including water quality, vulnerability arising from encroachment on riparian areas and loss of riparian public spaces which are key for water management and social sustainability.
The project leverages opportunities along the river in enhancing water security and quality, increasing recreational opportunities, promoting economic development through job creation, increasing access to green spaces, reducing inequalities within the adjacent informal settlements, and eventually promoting regeneration of neglected areas in the city.

*5. Evidence-based planning*

Effective management of the world's water resources is widely considered to require credible and reliable data and information regarding the state of the resource, and how it changes as a result of resource use and development, land use practices, and climate change. Data and information exchange is particularly fundamental when planning around transboundary water systems and resources.

High quality, local-level data and adequate capacity amongst urban actors to analyse the data, can provide powerful insights for urban planning and lead to well-informed decisions and policies on water management, that take future population projections into consideration. There is an opportunity to leverage data, innovative approaches and available technology to identify gaps in water service delivery and management at neighbourhood level, thus promoting better planned and serviced settlements at a city level. Making sure that such localized data is accessible by decision makers at all levels is instrumental in ensuring more equitable development planning and water delivery outcomes, especially within underserved communities.

## Opportunities for transformative Urban Finance solutions

It is essential to note that investments in water security not only protect society from water related risks but also supports social well-being and economic growth, which provides resources for investment in institutions, information systems, research and innovation technology, infrastructure and financial risk management tools.

*Key messages and policy implications*

1. Investment in water will play a vital role in breaking the vicious cycle of poverty in the world's poorest nations
2. Water is a driver to the achievement of other development goals on climate resilience, sustainable urbanization, food security, health, gender quality and education
3. Efficiency is paramount, to minimize wastage.

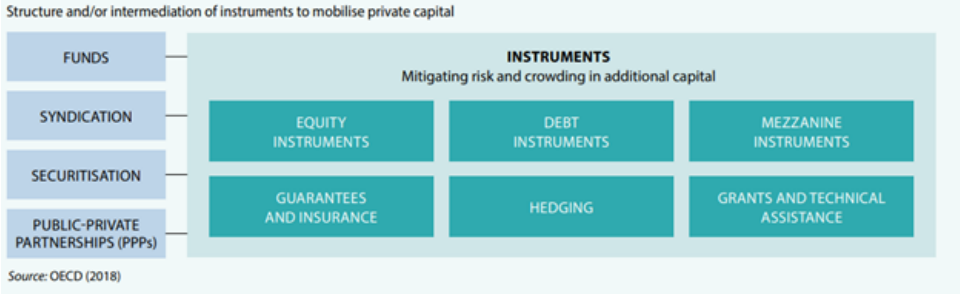
*Objectives and approaches*

1. *Blended Finance*

   The risk-return profile of investments is the key driver in competing for and acquiring financiers in water and sanitation. This entails the range and share of the risks between the involved parties and the guarantee of a stable stream of revenue to the investor[31]. However, with the stretched fiscal capacity of the public sector in providing water infrastructure and the unattractiveness of the sector to private actors to scale up their investments, blended finance is an ideal alternative to crowd in more financial resources and strengthen financial systems of the sector through sharing and mitigation of risks.

31 OECD. (2019). Making Blended Finance Work for Water and Sanitation: Unlocking Commercial Finance for SDG 6. OECD.

Blended finance approaches are as follows:




The upsides of adopting blended finance approaches include mobilization of local financiers and resources and building capital markets, enhance investor attraction, and are a capacity and market building tool. For developing countries however, blended finance has proven unsuccessful due to increased focus on large projects that do not guarantee proper service provision and value for money for the investor. To ensure optimal utilization of blended finance, OECD provides principles including anchoring it development goals; designing it in a way that increases commercial finance; localization; fostering partnerships; and monitoring for transparency and results.

2. *Carbon for water financing model*

This is an alternative additional resource mobilization strategy for small and medium enterprises providing water and sanitation services. There is an increasing number water and sanitation projects being certified for carbon credits[32], with about 1.1 million tonnes of CO2 were traded to benefit clean water projects in 2015[33].
The main benefit of this innovative model is that it offers SMEs carbon credits opportunities to leverage finance for increasing access to safe water especially to rural and low-income households that contribute to achievement of SGD 6 and other climate goals; improves their financial viability and sustainability; and offers other socio-economic benefits associated with health, employment opportunity, time saving for women and girls. However, to increase the adoption and efficiency of carbon for water model, technical capacity development of SMEs particularly is required.

**3.** *Data and digitization for Non-Revenue Water Management*

The global estimated volume of NRW 346 million cubic meters per day translates to 126 billion cubic meters annually. These losses are conservatively valued at US$ 0.31 per cubic meter with the total costs amounting to US$ 39 billion per year. This not only questions the credibility of water utilities especially during a time of elevated climate crisis and water stress, but also raises financial concerns considering the widening

32 https://www.goldstandard.org/sites/default/files/documents/gs_agriculture_clean_cow_meth_dec_2018.pdf

33 Kerk, A. V. (2016, September 15). Carbon finance: unlocking investments for safe water? Retrieved from IRC: https://www.ircwash.org/blog/carbon-finance-unlocking-investments-safe-water

financial gaps and deficiencies within the sector[34]. Provision of data through digitization of water systems can play a significant role in identification of areas where these losses are being incurred, reducing operational costs of water infrastructure, increase efficiency in utilization of water resources through for instance influencing behavioral change and expanding water supply at affordable costs.

4. *Climate Finance*

   The global climate finance flows amounting to us$630 billion annually are a potential complementary source for financing water infrastructure. Water projects may qualify for both climate adaptation and mitigation financing, which creates an even stronger case for financing. Little financing has however, been channeled towards water resilience and adaptation particularly in developing countries, due to the associated risks of the sector. An example is the Green Climate Fund the operating entity for UNFCC climate funds, has a total of US$10.3 billion pledge for adaptation and mitigation projects. Most climate funding sources sideline projects at the subnational level. The Sub-national Climate Finance Initiative, is the latest financing tool aimed to bridge the sourcing, financing and sustainability certification gap of sub national infrastructure projects by minimizing risks through capacity building, technical assistance and provision of concessional finance[35].

*Best practices to illustrate approaches*

*Public Private Partnerships* has proven to be a successful approach of blending finance for delivery of water projects particularly in developing countries. These arrangements are being used increasingly by public utilities in various methodologies such as Build-Operate-Transfer (BOT), Design-Build-Operate (DBO), Management Contracts, Performance-Based Contracts among others to increase water availability through non-revenue water management or establishment of new sources of water[36].

*The Kigali Bulk Water Project,* in Rwanda is perfect example of a successful water PPP project in Sub-Saharan Africa. Under the advisory role, the IFC, for assisting the Kigali Water in the preparation, design, and implementation of private sector participation in the Project. The blended finance package was secured from Emerging Africa Infrastructure Fund (EAIF) who provided a US$40 million, 18-year-long term loan jointly with the African Development Bank, the Technical Assistance Facility (TAF)provided a US$6.5 million grant funding to reduce up-front costs and allow the expansion of water supply to 150,000 people without increasing

34 Liemberger, R., & Wyatt, A. (2019). Quantifying the global non-revenue water problem. Water Supply, 831-837

35 OECD. (2021). *8th Roundtable on Financing Water, focused on Climate Action in partnership with the U.S. Government.*

36 Delmon, V. (2020, December 2). 5 Trends in Public-Private Partnerships in Water Supply and Sanitation. Retrieved from PUBLIC-PRIVATE PARTNERSHIP LEGAL RESOURCE CENTER: https://ppp.worldbank.org/public-private-partnership/5-trends-public-private-partnerships-water-supply-and-sanitation

tariffs[37]. After the PPP structure on a Build-Operate-Transfer Model for a concession period 0f 27 years was developed, Metito Consortium won.

The *company Hydrologic in Cambodia* is an illustrative example of how carbon credits are feasible through the supply 400, 000 water filters in 2012 to substitute the use of charcoal and firewood to boil water. Each water filter reduces 1.03 tonnes of CO2 emissions annually, and can be sold at the carbon market for US$3.8 per tonne[38].

*The Dropula, a smart water meter system* fitted in the municipal water system is an example of how data can be used to minimize and track non-revenue water and also influence behavioral change in Cape Town. The meter system was invented during Cape town's Day Zero to detects and informs the user on any spikes in usage on their smart device. The device identifies why and where the spike has occurred, allowing any leaks to be fixed and change any water wasteful behaviors[39]. Since its use in schools within Cape Town, Dropula has helped reduce water consumption levels by 55% and collectively saving about 500 million liters of water.

37 CATTANEO, E. (2018, March 22). Kigali Water: Lessons from one of sub-Saharan Africa's first water PPPs. Retrieved from World Bank Blogs: https://blogs.worldbank.org/ppps/kigali-water-lessons-one-sub-saharan-africa-s-first-water-ppps

38 Kerk, A. V. (2016, September 15). Carbon finance: unlocking investments for safe water? Retrieved from IRC: https://www.ircwash.org/blog/carbon-finance-unlocking-investments-safe-water

39 Heggie, J. (2022). Six products that helped beat Day Zero. Retrieved from National Geographic: https://www.nationalgeographic.com/science/article/partner-content-six-innovative-ways-water-was-saved

# 5. Recommendations

## Recommendations Urban Governance

Governance is not just about governments. The highly interconnected nature of water as a global risk means it needs to be addressed from multiple angles. Governance is a shared responsibility in coordinating and solving collective action problems. This requires integrated governance approaches focusing on:

1. *Mainstream* water and sanitation, and urban water resilience in national and subnational *urban policies***,** *legislation* and *urban development strategies* coupled with better coordination between ministries responsible for urban development, those responsible for water and sanitation, and climate resilience.
2. *Promoting pro-poor legal standards* that remove administrative, financial or physical accessibility barriers to the right to water, regardless of their status (formal/informal),
3. *Multilevel governance approach for water supply and management.* This approach would contribute to the reduction of duplication of efforts in terms of time and resources. Holistic decision-making process and integration of a wide variety of actors in water governance can help in achieving win-win outcomes across various sectors. Including, a *systematic approach* to better cope with risks and ensure a water secure world, as water risks are often interlinked and spill over to other policy sectors (drought in agriculture, flood in urban planning, etc.).
4. A proper *culture of information sharing*, deploying data management, among the different stakeholders would be useful to deliver value for all. Informed participation and participatory monitoring helps getting from localized solutions in governance to larger societal models and approaches that empower the roles and responsibilities as well as rights and obligations of civil society constituents.
5. Adopt *new implementation pathways*, including greater stakeholder participation, particularly of the poor, indigenous peoples, youth and women. This is because consumers are a driving force of change in water governance as especially young consumers are growingly informed and involved on the *climate-related effects on water resources.*
6. *Trust* is the key ingredient of inclusive and equitable governance of water, and water related development and risk sharing. Pluralism and diversity of civil societies should be seen as an endowment and point of richness.
7. Developing a *long-term water strategy* to respond to long-term environmental, economic and social objectives with a view to making the best use of water resources, through risk prevention and integrated water resources management. This strategy should also promote adaptive and mitigation strategies, action programs and measures based on clear and coherent mandates, through effective basin management plans that are consistent with national policies and local conditions.
8. Developing a *strong business case,* thinking beyond the water box, developing a proper risk assessment, and applying a total lifecycle cost approach, is fundamental for the success and sustainability of water-related financing and investment decisions.

9. *Incentivize the public sector* to overcome vested business interests for promoting pro-poor water solutions (formal/informal sector), such as delegated management from public sector to local businesses and formalizing existing businesses.

### Recommendation Urban and Territorial Planning:

1. Planning for the water sector should be *integrated with other urban sectors*, such as land use, housing, industry, energy, and transportation. It is recommended to foster collaboration between all entities during planning processes and to promote the participation of citizens in decision-making and implementation processes to strengthen water stewardship in urban areas. The capacity of urban actors to better collectively manage water resources should be strengthened by applying a multi-disciplinary and inter-sectoral approach to overcome fragmentation in public policy formulation and decision-making.
2. At *urban and territorial scale,* an *integrated, ecosystem-oriented land use planning* is needed to organize a more efficient and sustainable use of natural resources, including water, reducing unbalances between human settlements of different size and increasing a more sustainable and equilibrate relation between the rural and urban systems.
3. *Evidence-based planning,* built upon correct and updated datasets related directly and indirectly to water and sewage management, use and coverage, can support more efficient planning decisions that can ultimately increase access to water resources and sanitation, at same reducing the costs for the infrastructures. In the same direction the sustainable principles for city and neighborhood planning contained in the New Urban Agenda, such the advocacy for more compact city models, can also support reducing the costs for construction and maintenance per capita.
4. *Resilient coastal and riparian urban infrastructure* will have to be prioritized, including climate-proofing existing infrastructure services. This will help cities reduce risk and adapt to climate change ahead of time. UN Habitat's Climate Proofing Toolkit provides a set of steps, tasks and tools to provide guidance to policymakers, planners, practitioners, engineers and utility managers to ensure that the potential climate change impacts are factored in the design, construction, location and operation of current and future basic urban infrastructure, with a focus on water and sanitation.
5. *Blue-green infrastructure* should be adopted as *complementary* to existing conventional infrastructure rather than as an alternative. Willingness and commitment to innovate, collect and analyze data, and exchange information across actors at various levels is therefore critical in finding the right combinations of blue, green and grey infrastructure for effective water management based on contextual conditions.
6. There is need for strong commitment to global and country level *water footprints* for industrial production, domestic use and commercial applications especially in cities in the developing countries to adequately value water by attaching the economic cost of water to the product value while at the same time ensuring balanced allocation for different uses. At the same time, *innovative alternatives to freshwater resources*

should be developed and promoted for water intensive industries and other economic productions lines to ensure sustained economic growth while conserving the scares freshwater resources for other critical uses including household uses.

## Recommendation Urban Finance

To harness the foregoing opportunities and alleviate the bottlenecks to achieving SDG 6 and SDG11, national and local governments, development partners, civil society organizations, and private companies need to work together effectively on the following issues:

- Improved management and regulation of community, private and alternative water provision systems
    - Support national and local governments in putting in place effective anti-trust legislation to and implementation mechanisms to avoid the proliferation of monopolies and non-competitive market structures and ineffective water service provision
    - Strengthen incentives for and capacity of government to effectively regulate Informal/alternative service provider networks
    - Strengthen anti-corruption practices within government to avoid vested interests from influencing regulation of informal/alternative water provision mechanisms
- Improved utilization of available resources and assets for public water infrastructure provision and water system management:
    - Budgeting mechanisms need to be reviewed to ensure allocation to water infrastructure is needed that does justice to the investment needs and outlines strategic priority investment projects.
    - Procurement policies and practices need to be reviewed to ensure effective utilization of government resources which effectively assess the pro and cons of new technologies and ways of working to ensure optimal project selection and design
    - Operational efforts need to be budgeted and planned for effectively to ensure timely and comprehensive maintenance on existing infrastructure and appropriate management of third-party service providers
    - Monitoring systems need to be installed to ensure access to reliable real-time data on water systems to minimize overall operational costs and leverage differentials in customer demand and ability to pay.
    - Design of tariff structures need to be improved to ensure affordability of water services and water projects without over-reliance on taxes and subsidies. Best practices in setting practices entail those that ensure consumers pay for their consumption while cushioning low-income users. This can be ensured by having systems where high-income users pay higher fees for the service, which shall act as subsidies for low-income groups.
- Improved access to and sources of funding and finance

- Capacity building and incentivization of domestic resource mobilization at national level and increased leveraging of Own Source Revenues by local governments is needed to provide necessary resources for water security
- Additional focus should be placed on improving creditworthiness of local governments to finance upfront investments of water infrastructure. This can include work on audit mechanisms and or financial management practices within government as well as, work on deepening of the financial sector or crowding-in of credit-ratings via public sector investment
- More effectively leverage public funding in blended finance arrangements to attract private investment in water infrastructure via the identification and proper preparation of bankable projects
- Leverage available climate finance and other innovative financing mechanisms for water infrastructure and water resource planning, by a) anchoring water to no nationally determined contributions and national adaptation plans b) showcasing how water security aligns to climate action; c) building knowledge and expertise of stakeholders involved in water-climate initiatives to help in identification of bankable projects.

## Guiding Questions

### Urban Governance

- How can cities promote sustainable water management and achieve SDG 6 through an integrated governance/multi-level governance approach?
- Which long-term water strategies and decision-making instruments are needed to improve water governance in informal settlements and rural areas?
- How can we enable and implement effective climate governance to address water shortages, food, drought and flooding in urban areas?

### Urban Finance

- How do we mobilize sufficient funding to radically increase progress towards water resilient cities?
- Under what conditions should we promote the use of various financing and funding opportunities to realize improvements towards water security in urban areas?
- How can we enable and speed up the financing of sustainable and resilient water projects in cities while avoiding the inefficient usage of existing resources?
- How can we create an enabling environment for sustainable water for urban development?
- What is the role and potential of local governments in putting water at the centre of urban development?

### Urban and Territorial Planning

- How can urban planners incorporate water sensitive outcomes at various scales into planning, design and management to provide multi-value benefits?
- What are the pathways for leveraging on adequate and reliable data and implementing innovative solutions for urban and water planning frameworks?
- How can we encourage and speed up the acceptance of nature-inspired solutions for water management in urban areas?
- Which steps should be taken to ensure integrated approaches to urban planning that promote cross-sectoral collaboration and recognise the interlinkages between water and urban systems?
- How can we make land-use planning at urban and territorial scale become more environmentally and resource oriented?

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