WASH, water resources and waste water management

Universal access to water, sanitation and hygiene (WASH) is an essential component of an integrated approach to tackling poverty, hunger, ill-health and inequality. However achieving and sustaining universal access to WASH depends in turn on establishing accountable systems for equitable and sustainable management of water resources.

Water is one of the most basic human needs and is critical for livelihoods – to grow crops, raise livestock, produce goods and provide services. It is also a key economic input for many industries at different scales:

- At a community level, water is essential for economic activities – from making beverages to leather crafting and construction.
- Access to water can directly affect business operations and reputation for companies in many sectors, such as food and beverage or extractive industries.
- Rainfall can have a direct impact on growth where economies are dependent on sectors exposed to climatic variability, particularly agriculture[1].

Water is vital to produce food and generate energy – the food system and economic growth depend on it. 70% of global water withdrawals are used for agriculture[2] and the Chinese Academy of Science estimates that 16 planned coal-fired power stations in China will require ten billion cubic metres annually[3].

Water can have implications for national security and prosperity. 'Water wars' are unlikely[4] – but poor water management can pose significant risks for state stability and integrity, particularly when combined with poverty or social tensions[5].

Water is also a critical part of our environment. Freshwater ecosystems are a buffer, smoothing out the disruptions caused by rainfall variability or pollution. They are vital for the resilience of societies and contribute to countries' and communities' ability to absorb disruption and water risk.

Water also plays an essential role in other vital ecosystem services[6]. The Nakivubo swamp near Kampala was estimated to have an annual value of US$1m – 1.75m for purifying the city's waste waters and retaining nutrients[7].

The key water challenges

Increasing demand, constrained supply

Population increase, changes in consumption patterns and economic growth are driving up demand for water – from 1960-2000, global water withdrawals doubled in volume[8]. At the same time, water availability in many countries is already constrained by insufficient or unreliable rainfall[9]. Climate change will further increase pressure on water supply by altering the water cycle[10].

The 2030 Water Resources Group suggests that the world will face a 40% global shortfall between demand and available supply by 2030 and that over a third of the world population will be living under significant water stress.

Economic and political scarcity

The supply and demand stresses set out above are overlaid with economic and political scarcity – where water is unaffordable or inaccessible – which in some contexts, is more important than physical scarcity. Around 1% of global water is freshwater, but we use less than 10% of that[11]. Yet, one in ten of the world's people still lack safe water[12] – not because the water isn't there, but because they cannot access it[13]. This is often due to an absence of infrastructure such as handpumps or because existing services have fallen into disrepair; in 2007 an estimated 36% of handpumps in Sub-Saharan Africa were non-functional[14]. Political leadership is crucial to provide the necessary prioritisation and investment in WASH to deliver sustainable infrastructure.

Ecosystem disruption

Freshwater ecosystems are being disrupted through pollution and alteration. The Millennium Ecosystem Assessment estimated that 5-25% of global freshwater use exceeds the long-term supply[15]. The amount of water behind dams quadrupled from 1960 to 2000 generating both positive and negative effects for human wellbeing[16].

Yet Sub-Saharan Africa uses only 5% of its annual renewable freshwater[17]. Inorganic nitrogen pollution in rivers has more than doubled over pre-industrial levels[18], rising to more than ten times in many industrialised regions. This impairs the ability of ecosystems to provide clean and reliable sources of fresh water.

Water-related risks

From 2000 to 2006, 2,163 water-related disasters were reported globally[19], killing more than 290,000 people, affecting more than 1.5 billion people, and inflicting more than US$422 billion in damages[20]. Vulnerability to water-related risk is on the rise as populations increase and people choose to live in marginal and vulnerable areas.

Access to water, sanitation and hygiene

WASH services bring about multiple social and developmental benefits that improve health and nutrition, increase school attendance, lead to major time savings, and result in greater dignity and safety for women. The importance of WASH was recognised in the Millennium Development Goal (MDG) target to halve the proportion of people without access to safe water and sanitation between 1990 and 2015. Although the water target has already been met[21], one in ten of the world's people still do not have access to safe water[22]. Sanitation is the most off-track of all the targets, with 2.5 billion people, nearly 40% of the world's population, not having access to adequate sanitation[23]. If present trends continue, the MDG to halve the proportion of people living without adequate sanitation will not be met until 2025[24].

Groundwater and rainwater-based supplies introduced as part of WASH services are often the only reliable, convenient and clean source available to communities. People depend on this water to meet multiple needs, not just for drinking and basic needs but for livelihoods too. Groundwater is generally more resilient to drought conditions than surface sources and remains available for household level food production and cattle watering when other sources dry up. WASH services bring more secure and dependable supplies to vulnerable areas.

The type of framework for WASH that should be in place post-2015 was the subject of the two-year Joint Monitoring Programme (JMP) led by UNICEF and WHO, consisting of a consultative expert process on new targets and indicators for monitoring. The process led to sectoral consensus from key experts around the need for an ambitious goal to provide universal access to safe and sustainable water, sanitation and hygiene – targeting the most disadvantaged and marginalised groups in particular.

The JMP also stated the importance of recognising the complex dimensions associated with WASH sustainability linked upstream to water resources and downstream to wastewater management in the new framework.

Further information on the work of the JMP is available at www.wssinfo.org

WASH and water resource management

Improvements to domestic and productive water supply coverage can only be sustained if water resources are managed sustainably. Only 3% of renewable water resources are managed in Africa compared with 80% in the USA and 40% in Asia[25].

Whilst concepts such as Integrated Water Resource Management (IWRM) are proposed to ensure sustainable water management, solutions need to acknowledge practical

realities on the ground. While IWRM is based on sound principles, it requires functional institutions with clear roles and responsibilities to have an impact. These either don't exist or are inadequately resourced in many low and middle income countries. At the same time, WASH practitioners struggle to integrate theoretical basin-level IWRM concepts into their work. Consequently, water resources continue to go unmanaged and services are exposed to a higher risk of failure.

Much more can be done to strengthen WASH approaches to include practical steps that communities can take to manage their water resources – including local monitoring of water and land use together with risk-based planning.

WASH and waste water management

An estimated 90% of wastewater is discharged untreated in developing countries[26]. The lack of management of wastewater means that aquifer pollution from on-site sanitation facilities is a becoming a critical problem in densely populated urban areas, which are growing around the world. Sound management of wastewater and faecal sludge is vital if contamination of water resources, disease and destruction of ecosystems are to be avoided.

Stakeholders responsible for delivering sanitation (including the WASH sector) must do more to find viable business models for management of faecal sludge and ensure these are integrated into the design of sanitation programmes. Simply constructing latrines without a strategy for emptying and safe disposal of waste does not adequately address the challenges facing communities without access to sanitation. It is crucial that in any post-2015 framework goals and targets on WASH are integrated and framed in such a way that all communities and delivery agents are incentivised to deliver sanitation in the most sustainable way.

The role of water in the post-2015 framework

The post-2015 process offers an opportunity to join up the different elements of water by focussing on why it matters – its role in both eradicating poverty and building sustainable economies. This would mean:

- **Including everyone** – end the situation where people don't have access to a basic human right in the form of water services.
- **Sharing the benefits fairly** – the benefits of water need to be shared fairly between different uses – for society, for the economy and for the planet.
- **Living within our means** – protect the economy and society from water-related risks by respecting planetary boundaries and better managing water-related risk.

WaterAid's vision is of a world where everyone, everywhere has access to safe water, sanitation and hygiene by 2030. We are calling for an integrated approach to delivering this vision. We therefore recommend that the post-2015 framework includes the following targets to support the achievement of universal access to WASH and ensure equitable and sustainable management of water resources:

- Treat or reuse all municipal and industrial waste and faecal sludge prior to discharge.
- Bring freshwater withdrawals in line with renewable supply, and increase water productivity (social, economic, environmental).
- Raise the quality of all freshwater bodies to meet human and ecosystem needs.
- Reduce the human and economic cost of water and sanitation-related disaster losses.

WaterAid's post-2015 vision

WaterAid's vision for post-2015 is an ambitious new development framework unifying poverty eradication and sustainable development objectives, supported by a renewed global partnership ensuring effective resource mobilisation and mutual accountability for progress achieved. To ensure that everyone, everywhere has access to safe water, sanitation and hygiene (WASH) the framework should:

1 Include a dedicated goal on water and sanitation and set ambitious targets to achieve universal access to WASH by 2030 that prioritise the following[27]:

   - No-one practises open defecation.
   - Everyone has safe water, sanitation and hygiene at home.
   - All schools and health facilities have safe water, sanitation and hygiene.
   - Water, sanitation and hygiene are sustainable and inequalities in access have been progressively eliminated.

2 Recognise that universal access to WASH is an essential component of an integrated approach to tackling poverty, hunger, ill-health and inequality.

3 Recognise that achieving and sustaining universal access to WASH depends on establishing accountable systems for equitable and sustainable management of water resources.

Endnotes

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