AfDB Sector Brief: WASH and Nutrition

Human Capital, Youth and Skills Development Department (AHhD)

August 2019
Why is WASH Important for Nutrition?

Stunting is an outcome associated with the cycle of poverty and inadequate WASH conditions which are linked to nutritional status through multiple pathways: social, environmental, health-related and economic.¹ Several studies have shown the association between improved WASH conditions, child growth and stunting reduction.² One study in Peru found a positive association between improved water sources and child growth, demonstrating that this effect was greater when the intervention was combined with improved sanitation facilities.³ A cross-sectional analysis of health surveys in India showed that the risk of stunting decreased significantly when caregivers reported optimal handwashing practices in addition to sanitation improvements.⁴ In their meta-analysis, Dangour, et al⁵ found a modest but significant effect of different interventions that aimed to improve water quality and handwashing in the height-for-age Z-score (HAZ)⁶ of children under the age of five; the effect was greater in children under two years of age.

Inadequate WASH is linked to child nutritional status in different ways through multiple pathways (see Figure 1). At the biological level, there are three main pathways: repeated diarrhoea episodes, soil-transmitted infections (helmintiasis) and Environmental Enteric Dysfunction (EED). Other health risks linking WASH and undernutrition include infections, such as malaria or acute respiratory infections, which are often associated with poor WASH conditions such as standing water where mosquitoes breed or poor hand-washing leading to disease transmission. WASH conditions also impact non-biological causes of undernutrition. A wide variety of social and economic costs related to lack of access to domestic water and sanitation exist, such as water expenditure, time or resources spent in fetching water, and cost for the treatment of diseases linked to poor hygiene and lack of access to domestic water and sanitation. This could all lead to time and resource constraints for caregivers—mainly women—and may impact the caregivers’ physical and mental health, such as lack of privacy or insecurity in accessing distant facilities, conditions that influence the quality of care provided to children.

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¹ WASH and Nutrition. WASH Nutrition Forum; 2015; Bonn
⁶ Height-for-age Z-score: Height-for-age (H/A) is an anthropometric indicator of linear growth. The Z-score or standard deviation system expresses the anthropometric value as a number of standard deviations or Z-scores below or above the reference mean or median value.
Impact Pathways from WASH to Nutrition

The Rural Water Supply and Sanitation Initiative (RWSSI) is an Africa-wide initiative hosted by the AfDB as a focused regional response to Africa’s rural water supply and sanitation crisis. RWSSI was launched in 2003 as a framework for resource mobilisation, investment, and development of rural water supply, improved sanitation, and hygiene behaviour change across Africa. The overall objective of RWSSI is to reduce poverty by accelerating access to improved rural water supply and sanitation facilities from a baseline of 47% and 44% respectively in 2000, to 100% by 2025.

Access to safe drinking water and improved sanitation is improving but remains very low in Africa despite increasing official development assistance (ODA) for the sector. Access to safe drinking water in Africa is generally low by global standards and characterised by wide disparities between and within countries. Overall, access is higher in North Africa compared to the rest of the continent. In 2015, the proportion of people with access to safely managed sources of drinking water in Africa—excluding North Africa—was 23.7%; barely one-third of the global average of 71%. Coverage varies widely between countries; thus, access ranges from 100% in Mauritius to 19% in Eritrea. Access is also uneven within countries, and rural-urban disparities persist in most parts of Africa. In 2015, approximately 82% of the urban population of Africa—excluding North Africa—had access to basic drinking water services, compared to only 43% of the rural population.

Source: Dangour et al. (2013), which was adapted by Lapague J., ACF (2014) “WASH and nutrition factsheet”

Key findings of the 2018 Africa Sustainable Development Goals (SDG) Report
Where sanitation is concerned, access to safely managed services is improving but remains low both in Africa and at the global level. At the global level, only 39% of the population—fewer than four out of 10 individuals—have access to safely managed sanitation services. Precise data for this indicator is lacking for most of Africa. In North Africa, for which data are available, the proportion of people with access to safely managed sanitation services was 25.1% in 2015, up from 18.1% in 2005. These trends notwithstanding, Africa (excluding North Africa) receives the largest amount of ODA for water supply and sanitation. Funding for this purpose has been rising in all regions except in Eastern Asia and, for Africa, this funding has doubled between 2000 and 2015.

Figure 2 outlines the impact pathways from WASH to nutrition based on the analysis of WASH-related interventions in AfDB projects that are linked to improved health and nutrition outcomes. Three main pathways have been identified, namely: water supply quality and quantity, sanitation facilities and services, and hygiene promotion and education.
Figure 2
Impact pathways from WASH to nutrition

**Figure Legend**
- WASH related interventions
- Caregiving & practices
- Food & nutrition related
- Health related outcomes
- Nutritional status impact

**Source:**
- Created for AfDB Nutrition Smart WASH Projects (Nutrition International, 2019)
- (Adapted from the UNICEF Conceptual Framework of Child Malnutrition, 1997)
### Differentiating a Nutrition Smart WASH Programme from a Conventional WASH Programme

<table>
<thead>
<tr>
<th>Feature</th>
<th>Conventional WASH</th>
<th>Nutrition Smart WASH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary outcomes of interest</td>
<td>Clinical disease outcome (for example, diarrhoea, trachoma, neglected tropical</td>
<td>Nutritional outcome (for example, stunting, anaemia) in addition to clinical disease</td>
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<tr>
<td>(impact indicators)</td>
<td>disease)</td>
<td>outcomes</td>
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<tr>
<td>Primary target group</td>
<td>All age groups, community-wide</td>
<td>The first 1,000 days from conception through two years (focus is on caregivers, since</td>
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<tr>
<td></td>
<td></td>
<td>the baby is dependent on their actions)</td>
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<tr>
<td>Infrastructural choices</td>
<td>Toilet, water supply</td>
<td>Toilet, water supply, protected play space</td>
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<tr>
<td>Sources of contamination</td>
<td>Human faeces</td>
<td>Human and animal faeces</td>
</tr>
<tr>
<td>Vectors of faeco-oral transmission</td>
<td>Fingers (with a focus on caregiver hands), fluids, flies, fields</td>
<td>Fingers (focusing on both caregiver and baby hands), fluids, flies, fields (especially</td>
</tr>
<tr>
<td>(behavioural/process indicators)</td>
<td></td>
<td>soil)</td>
</tr>
<tr>
<td>Targeted behaviours</td>
<td>Disposal of faeces, handwashing with soap, water treatment, food hygiene</td>
<td>Disposal of faeces (with added emphasis on animal stool and child faeces), handwashing</td>
</tr>
<tr>
<td>(behavioural/process indicators)</td>
<td></td>
<td>with soap (focusing on both caregiver and baby hands), water treatment, food hygiene,</td>
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<td></td>
<td></td>
<td>exclusive breastfeeding, removal of mosquito breeding waterholes</td>
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<tr>
<td>Factors influencing choice of</td>
<td>Communicable disease prevention or control; ministerial or donor priorities</td>
<td>Nutritional outcomes</td>
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<tr>
<td>combinations of intervention</td>
<td></td>
<td></td>
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<tr>
<td>components</td>
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<tr>
<td>Evidence base</td>
<td>Strong randomized trial evidence</td>
<td>Strong observational evidence base and plausibility basis</td>
</tr>
</tbody>
</table>

**Source:** Mduudzi Mbuya (Adapted from Global Nutrition Report 2016: From Promise to Impact)

### Priority Actions for Nutrition Smart WASH Programmes

1. **Focus on nutritional outcomes.** WASH programmes inherently address crucial underlying drivers of foetal and child nutrition and development, and can therefore be made nutrition smart. They can be further leveraged for nutrition actions when they are implemented in a manner that protects women’s time; reducing the time women spend fetching water can affect the time they have available for child care and other activities associated with improved consumption. Nutrition smart WASH programmes should engage women and include interventions to protect and promote their nutritional status, well-being, social status, decision-making and overall empowerment as well as their ability to manage their time, resources and assets.

2. **Target the first 1,000 days.** The first 1,000 days after conception have been identified as a critical point in a child’s development because of the rapid process of linear growth, which mirrors brain development. WASH programmes targeted to this age group are therefore more likely to achieve nutritional outcomes and prevent the developmental deficits associated with early growth faltering.

3. **Focus on the causal linkages between WASH and nutritional outcomes.** Conditions of poor WASH can affect nutritional status through diarrhoeal disease and parasitic infections. A recent hypothesis posits that a subclinical gut disorder called environmental enteric dysfunction is a primary mediator of the association between WASH, stunting and anaemia. Focusing only on clinical disease outcomes may thus underestimate the impact of WASH interventions. WASH programmes should be implemented with a time frame that permits changes in nutritional outcomes to be realized and evaluated for additional outcomes related to diarrhoea incidence and prevalence.

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8 Pickering and Davis 2012; WHO, UNICEF and USAID 2015.
4. **Align WASH interventions with these causal linkages.** A primary objective of nutrition smart WASH programmes should be to prevent children from ingesting faecal microbes in the first 1,000 days. Research in rural Zimbabwe and elsewhere suggests that the faeco-oral transmission pathways for adults differ from those of infants and young children who engage in mouthing and exploratory play. Nutrition smart WASH interventions should:
   - Reduce the environmental microbe load through household sanitation and hygiene;
   - Reduce faecal transmission via hands through washing of caregivers’ and children’s hands with soap;
   - Improve drinking water quality through improved access to protected water sources and hygienic methods of household water treatment and storage;
   - Promote exclusive breastfeeding for the first six months of life to ensure adequate consumption of key nutrients and to avoid containers and non-breastmilk liquids that may be contaminated;
   - Avoid child faecal ingestion during mouthing and exploratory play by ensuring a clean play and infant feeding environment; and
   - Provide hygienically prepared and stored complementary food that is fed to children using clean utensils and hands.

5. **Ensure good geographical concentration of WASH projects in the areas affected by undernutrition.** Regions with the highest stunting rates or lowest access to clean water and sanitation facilities should be targeted for WASH projects.

6. **Place emphasis on behaviour change.** Knowing that the provision of hardware only (e.g. access to water and sanitation facilities) brings little benefit to health if it is not accompanied with suitable hygiene behaviours, WASH projects should include nutrition promotion and behaviour change strategies. For example, promoting handwashing at critical times (e.g. after defecation and disposal of child faeces, prior to preparing and handling food, and before eating) will have impact on health and nutrition outcomes.10

7. **Engage women and include interventions** to protect and promote their nutritional status, well-being, social status, decision-making and overall empowerment as well as their ability to manage their time, resources and assets.

8. **Improve coordination and enhance partnerships** among relevant ministries (e.g. health, agriculture, education, water resources and sanitation), humanitarian organisations and other relevant stakeholders to ensure the integration of health and nutrition goals in all WASH projects from the outset. For example, a link between WASH and education could be the promotion of handwashing facilities near toilets and areas where food is consumed in a school. Investments in humanitarian emergencies present vital opportunities for AfDB nutrition smart WASH projects to prevent infection and address malnutrition.

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9 Ngure et al. 2013; Mbuya et al. 2015
10 WHO, 2015: Improving nutrition outcomes with better water, sanitation and hygiene: practical solutions for policies and programmes
**Case Study of AfDB’s Nutrition Smart WASH Project**

**Gambia, 2018: Climate Smart Rural WASH Development Project**

Stunting affects about 25% of children in The Gambia and 58% of women of reproductive age suffer from anaemia. Poverty and climate change underlie a very fragile state of food and nutrition security, which is exacerbated by inadequate basic services. Only 47% of infants are exclusively breastfed and large numbers of people lack access to basic sanitation and water supply. In 2015, it was estimated that 47.6% of households had access to piped water indoors or in the compound.

The overall goal of the Gambia Climate Smart Rural WASH Development Project is to contribute to the National Development Plan water sector goal of “Improved equitable access to safe and affordable water supply and sanitation, good hygiene practices and environmental protection promoted for all.” The specific objectives of the proposed project are to: (i) increase sustainable access to safe water by 17% and access to safely managed sanitation by 2%; (ii) enhance services delivery capacity in the sector; and (iii) improve livelihoods through nurturing safe water and sanitation services related opportunities for women and youth employment.

The project will directly benefit an estimated 200,000 rural and peri-urban Gambians, particularly women and children who are expected to live healthier lives and to reduce distances required to fetch water. An additional 300,000 people will benefit from the interventions in improved solid and liquid waste management as well as mitigation of the rapidly deteriorating aquatic environment. Other public and private sector institutions—including schools, health units, markets and small and micro-enterprises—will also benefit from the project.

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**Project:** Gambia, 2018: Climate Smart Rural WASH Development Project

**Objective:** To improve equitable access to safe and affordable water supply and sanitation, good hygiene practices and environmental protection promoted for all.

**Nutrition Smart Features**

**Targeting:** The project targets 144 rural and peri-urban communities based on their poverty level, population size, water point coverage, child mortality rate, and incidence of water borne diseases. Direct beneficiaries include women and children.

**Interventions:**
- Climate resilient water supply infrastructure provided in rural and peri-urban areas
- Provision of sanitation and hygiene facilities in rural and peri-urban areas
- Installation of waste collection treatment and disposal facilities

**Socioeconomic returns**

- Increased national capacity enhancement for sustainable WASH services
- Water resources management for improved livelihoods
- Increased employment opportunity for youths

**Nutrition impact**

- Reduced under-five mortality rate, per 1,000 live births
- Increased % population with access to safely managed sanitation services including handwashing with soap and water (>50% women)

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Monitoring and Evaluation Indicators

Examples of Core Sector Indicators:
- Sustainable access to clean water:
- Percentage (%) of population using an improved (i.e. clean) water source year-round
- Sustainable access to improved sanitation:
- Percentage (%) of population using an improved sanitation facility year-round
- Gender equality
- Number (#) of women (including adolescent girls) who benefitted from WASH interventions

Examples of Custom Project Output Indicators:
- # of WASH facilities constructed and/or rehabilitated
- # of households with handwashing stations
- # of schools with water points, single-sex sanitation facilities and handwashing stations
- # of people reached with one or more water, sanitation or hygiene promotion intervention
- # of people reached with access to improved hygiene through AfDB support to hygiene promotion

Note: At national level, WASH indicators may be collected through:
- National Population and Housing Census
- Multiple Indicator Cluster Surveys (MICS)
- Other national (and sub-national) household surveys
- SMART surveys

Collaborating Partners

Collaborating partners will be country specific but usually include:
- Ministries of Water and Sanitation, Health, and Education
- Decentralised sector agencies and municipalities
- Relevant United Nations agencies, namely United Nations Children Fund (UNICEF), World Health Organization (WHO), etc.
- International Water Management Research Agencies
- Non-governmental organisations (NGOs) and Community Based Organisations (CBOs) working in the areas of WASH and health

Suggested Resources

Acknowledgements

AfDB Sector Brief: WASH and Nutrition is a product of the Banking on Nutrition Partnership, an initiative of the African Development Bank (AfDB), undertaken with the support of Aliko Dangote Foundation and Big Win Philanthropy and with technical assistance provided by Nutrition International (Canada).

This work was overseen by AHHD, with Babatunde Olumide Omilola (Manager, Public Health, Security and Nutrition Division) leading, and support from Ann Defraye (Senior Nutrition Officer). Francis Aminu (Aliko Dangote Foundation) and Adetokunbo Oshin (Big Win Philanthropy) provided leadership on behalf of the other members of the Banking on Nutrition Partnership.

Technical assistance was provided through Nutrition International’s NTEAM (Nutrition Technical Assistance Mechanism). NTEAM provided project design and oversight, programme management, and the development of knowledge products. Marian Amaka Odenigbo (Senior Technical Advisor – Multi-sectoral Nutrition) led technical guidance with inputs provided directly by Sergio Cooper Teixeira, Charlotte Dufour and Angela Kimani.

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