



# Factors Associated with Access to Water and Sanitation and Essential Hygiene Practices A Policy Brief

## Executive Summary

Over the last 5 years, Zambia has made improvements in nutrition, but the country continues to have a high proportion of undernourished children.<sup>1</sup> Access to water, sanitation, and hygiene (WASH) and essential hygiene practices are critical in preventing diarrhoea and childhood stunting. The Government of the Republic of Zambia has set goals for 100% of Zambians to have access to clean water and 90% of Zambians to have access to improved sanitation by 2030;<sup>2</sup> however, the current reality falls far short. The 2019 Baseline Survey of the First 1000 Most Critical Days Programme Phase II (MCDP II), which targeted 30 districts across Zambia, found that only 37.7% of households had clean drinking water, 20.5% had access to an improved sanitation facility, and less than 5.6% of households practice essential hygiene.<sup>1</sup> Overall, the Baseline Survey found that access to WASH and essential hygiene practices was higher in urban and peri-urban areas, compared to rural areas, and urban areas had a lower percentage (24.8%) of stunting among children under 2 years of age, compared to rural areas (32.7%).<sup>1</sup> These findings reveal the need for national and programmatic interventions to improve access to WASH and essential hygiene practices and to address the impact of WASH on nutritional outcomes for mothers and children. This policy brief proposes several recommendations to reduce stunting rates and reach the national goals by 2030.

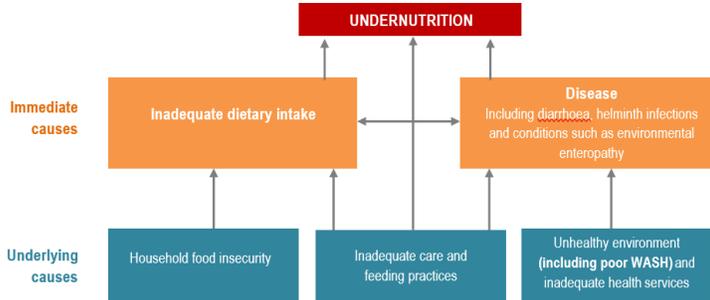


United States Agency for International Development/Zambia

## Introduction

Studies have investigated the link between WASH, essential hygiene practices, diarrhoea, and undernutrition in Zambia (Figure 1).<sup>3,4</sup> Chronic diarrhoea is linked to undernutrition due to nutrient malabsorption and the reduced ability of the human gut to serve as a barrier against disease-causing organisms.<sup>5</sup> Poor access to sanitation infrastructure (e.g., improved pit latrines) and clean water can increase diarrhoeal cases in a community.<sup>6,7</sup> Furthermore, open defecation, along

**Figure 1: Undernutrition and WASH**  
Conceptual framework of causes of undernutrition



Source: World Health Organization, UNICEF, United States Agency for International Development. (2015). *Improving Nutrition Outcomes with Better Sanitation and Hygiene*. Available at: [http://www.unicef.org/media/files/IntegratingWASHandNut\\_WHO\\_UNICEF\\_USAID\\_Nov2015.pdf](http://www.unicef.org/media/files/IntegratingWASHandNut_WHO_UNICEF_USAID_Nov2015.pdf)

with children's exposure to animal or human faeces, and poor handwashing practices by children or caregivers can also result in increased rates of diarrhoea.<sup>6</sup> After these diarrhoeal-causing microbes enter the human gut, they can cause environmental enteric dysfunction and impact child growth and early child development, possibly affecting stunting in low-income contexts.<sup>8,9</sup> WASH interventions have been effective in interrupting these pathways.<sup>8,9</sup>

Improving WASH conditions and practices in Zambia is important to reduce the transmission of diseases and improve child growth and development, because disease and stunting can later negatively impact socio-economic livelihoods of Zambians.<sup>1,9</sup> The purpose of this brief is to highlight the gaps in WASH and essential hygiene practices, as detailed in the MCDP II Baseline Survey report, and suggest policy recommendations to improve WASH accessibility and essential hygiene practices, reach nationally set standards, and contribute to improved conditions for optimal child growth and development, including stunting reduction in Zambia.

## Policy Context

In 2006, Zambia adopted the National Development Plan 2030, Vision 2030, to improve the socio-economic livelihoods of the Zambian people. The plan's goals, among other priorities, include improving access to a clean and safe water supply to 80% of Zambians by 2015 and 100% of Zambians by 2030, and improving access to sanitation for 68% of Zambians by 2015 and 90% of Zambians by 2030.<sup>2</sup> However, by 2015, only 68% of households in Zambia had access to improved sources of drinking water, and only 40% of households had access to improved sources of sanitation.<sup>1</sup> Access to clean and safe water supplies and improved sanitation facilities is higher in urban and peri-urban areas, compared to rural areas.<sup>1,2</sup>

The Ministry of Water Development, Sanitation, and Environmental Protection was established in 2016 to harmonise water supply and sanitation initiatives and water resource management and oversee national WASH policies, strategies, and programmes.<sup>10,11</sup>

The MCDP II strategy, developed in 2017 by the National Food and Nutrition Commission in collaboration with other nutrition stakeholders in Zambia, includes several priority WASH interventions to increase WASH practices and lower the rates of diarrhoea and stunting among young children. These WASH interventions (access to clean and safe water, food and personal hygiene, sanitation, and overall clean environment) target behaviours directly linked to essential hygiene practices, detailed by the MCDP II report. The target behaviours include caregivers washing hands at critical times, washing children's hands after going to the toilet and before eating, a clean and sanitary environment free from animal and human faeces, especially where children play, use of improved latrines, and household water treatment. Priority interventions to improve these behaviours are focused on strengthening Community-Led Total Sanitation (CLTS) interventions for improved sanitation, increased access to and sustainability of improved water services and service delivery, and promotion of safe environments for children.<sup>12</sup>

### National strategies and plans to improve WASH

Zambia has adopted and implemented the following strategies and programmes to address WASH:

- National Urban Water Supply and Sanitation Programme 2011–2030
- National Rural Water Supply and Sanitation Programme 2007–2016
- National Water Supply and Sanitation Capacity Development Strategy 2015–2020
- National Urban and Peri-Urban Sanitation Strategy 2015–2030
- 7th National Development Plan 2017–2021
- Open Defecation Free Zambia Strategy 2018–2030

## MCDP II Baseline Survey Findings

Overall, the 2019 MCDP II Baseline Survey found that access to clean water and improved sanitation, and the practice of essential hygiene actions are very low in the 30 priority MCDP II districts. About 37.7% of households had access to basic drinking water, although this was much higher in urban households (60.1%) than rural households (27.2%). A total of 72% of households had an improved water source within 30 minutes or less, with 83% of urban households and 66% of rural households reporting being 30 minutes or less to an improved water source.

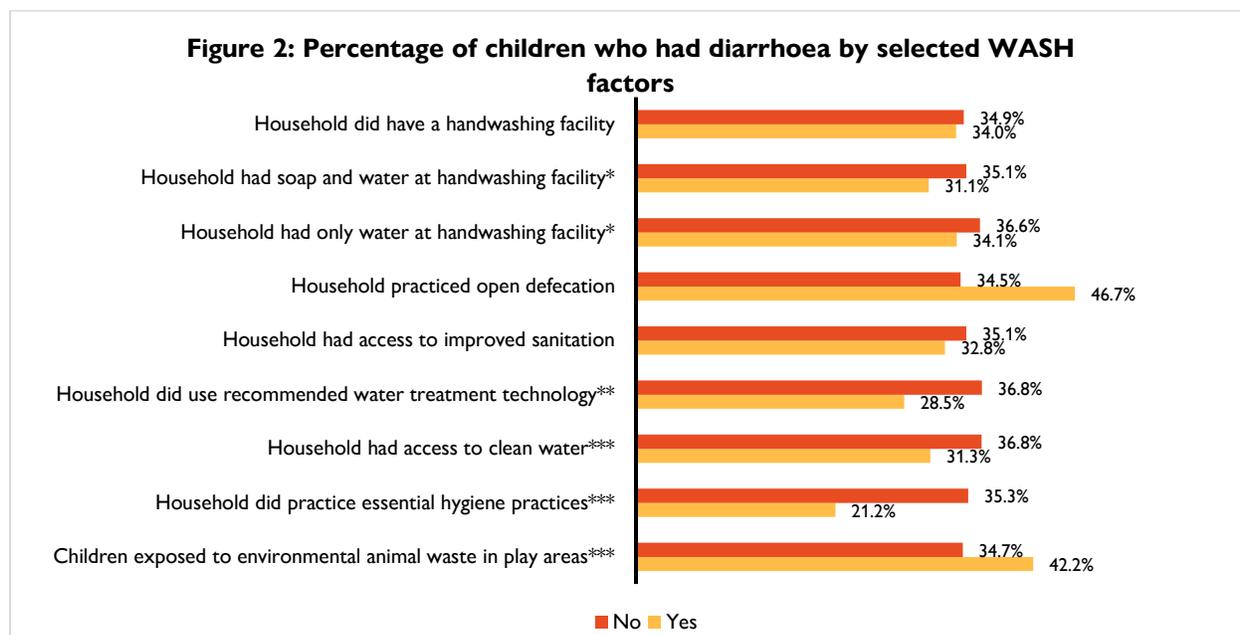
Only 20.5% of households had access to an improved sanitation facility, and urban households (40.3%) had greater access, compared to rural households (11.4%). A total of 14% of households practiced open defecation (1% of urban households and 21% of rural households). The survey found that only 5.6% of households practiced essential hygiene, with 15.8% of urban households and 0.9% of rural households practicing these behaviours.

In the 2 weeks leading up to the survey, 34.7% of households had children who had diarrhoea, with the highest prevalence in the following districts: Kaputa, Nchelenge, Shang'ombo, Katete, and Mongu.<sup>1</sup> Figure 2 shows the percentage of children with diarrhoea by selected WASH factors, with the following factors having a statistically significant relationship ( $p < 0.000$ ) with diarrhoea in children: children exposed to environmental animal waste in play areas, household did not practice essential hygiene practices, household did not have access to clean water, household did not use recommended water treatment technology, and household did not have both soap and water at handwashing facility.

**Access to basic water**

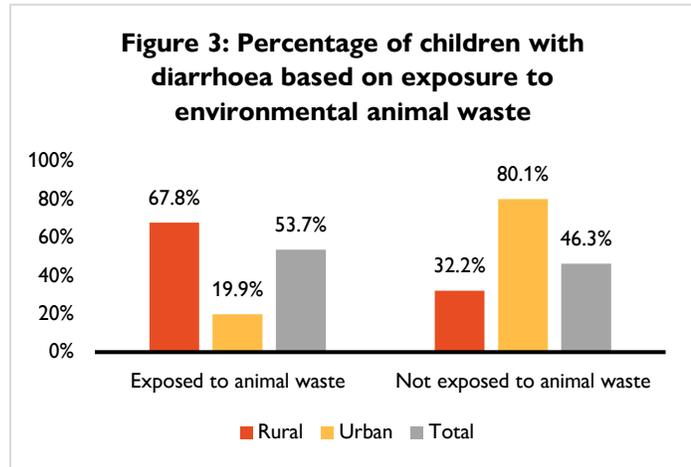
Households were counted as having access to basic drinking water if they met all the following criteria:

- They received water from a safe [improved] water source:
  - Tube or borehole
  - Protected shallow well
  - Harvested rainwater
  - Piped water/public tap
  - Protected spring
- The water was usually accessible.
- They could get to the water source [improved water source] in 30 minutes or less.

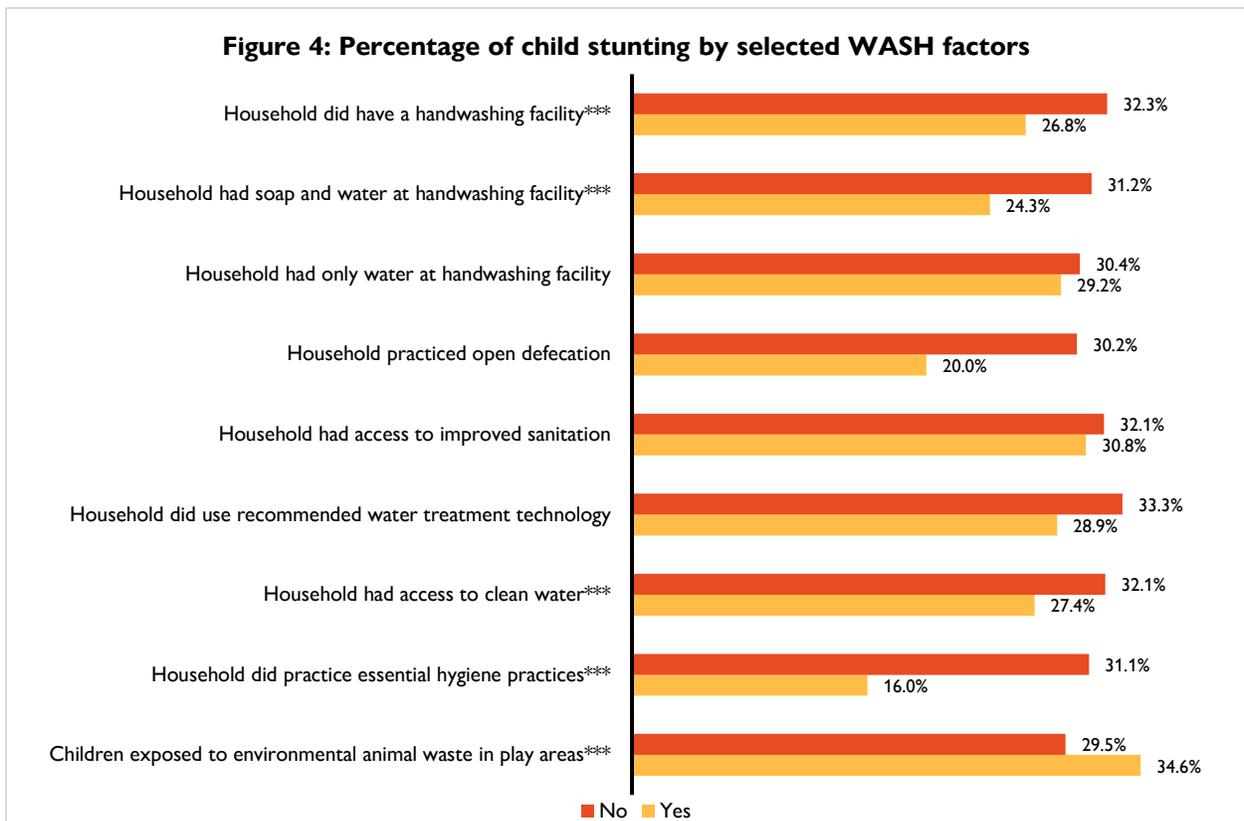


Notes: \* significant at  $p < 0.05$ , \*\* significant at  $p < 0.01$ , \*\*\* significant at  $p < 0.000$

There was also a significant association between exposure to environmental animal waste in a child's play areas and occurrence of diarrhoea, with higher percentages occurring among rural children (67.8%), compared to urban children (19.9%) (Figure 3). Exposure to contaminated environments, such as animal waste, negatively impacts the human gut's ability to absorb nutrients, which increases incidence of disease, resulting in compromised nutrition, child growth, and development.<sup>9</sup> The MCDP II Baseline Survey explores the association of diarrhoeal incidence with



stunting, because the main pathway of WASH conditions that impacts child health is through incidence of illness. Examining diarrhoeal incidence by child stunting status shows that more severely stunted children (<-3SD) had diarrhoea (39%), compared to those who were not stunted (>-2SD) (33%).<sup>1</sup> Figure 4 shows the percentage of child stunting by environmental animal waste exposure and selected WASH factors, with the following indicators having a statistically significant relationship ( $p < 0.000$ ) with stunting in children: exposure to environmental animal waste, not practicing essential hygiene practices, not having access to clean water, not having access to improved sanitation, not having soap and water at a handwashing facility, and not having a handwashing facility.



Notes: HH=household; \* significant at  $p < 0.05$ , \*\* significant at  $p < 0.01$ , \*\*\* significant at  $p < 0.000$

## Discussion

Further review of the literature identified common barriers to essential hygiene practices in Zambia, which differ by region. In rural areas, the lack of latrines was a barrier to latrine use, leading to many community members practicing open defecation. In addition, a common taboo in rural areas prohibits people from using the same toilet as their in-laws, members of the opposite sex, and family members of different generations. In urban or peri-urban areas, a barrier to proper essential hygiene practices was inadequate latrines.<sup>13,14</sup> Peri-urban areas mostly had unlined pit latrines, which allowed waste to contaminate groundwater sources. These latrines were often poorly cleaned and heavily used by community members, highlighting a need for better access to improved sanitation facilities and safely managed sanitation services.<sup>6,15</sup>

CLTS is prioritised in Zambian policies and has been proven to be an effective way to improve sanitation behaviours at the community level. In one study from rural Zambia, a CLTS intervention motivated community members to construct and use latrines, decreasing the number of those practicing open defecation. Traditional leaders encouraged the new sanitation practices, demonstrating the successful influence that hierarchy can have on improved sanitation behaviours. This intervention was also very effective with children, who changed their behaviours based on the songs and dances learned during the CLTS intervention.<sup>13</sup> The goal of CLTS is to trigger changes in villages or communities. Subsequently, respected community members who serve as “community champions” follow up to reinforce the changes, and then villages or communities are given a certificate when they are open defecation free.<sup>13,21</sup>

In rural areas, there were high instances (64%) of children exposed to animal or human waste in their play environments, in which the ingestion of faeces was common. Open defecation and animal debris in child play areas can also contribute to microbial ingestion.<sup>8</sup> This can be addressed by creating safe play areas for young children, by constructing enclosures from local materials or plastic enclosures that can be cleaned and prevent access to animals. Barriers to creating a safe enclosure for children to play in included obtaining materials for construction, along with the difficulty of setting up and cleaning plastic enclosures.<sup>16</sup>

Although Zambia has adopted policies and plans to address WASH accessibility nationally, the World Health Organization assesses that the country has allocated less than 50% of the required financial resources to implement its national drinking water and sanitation plans. Government records show that it has provided only 50% to 75% of the necessary financial resources towards achieving national urban sanitation, urban drinking water, and hygiene targets, and less than 50% to reach rural sanitation and rural drinking water targets.<sup>17</sup> Further, in 2019, the government budget allocation of USD 91.1 million for WASH was not sufficient to cover the national expenditure of USD 254.3 million.<sup>17</sup> In fact, contributions by external grants of USD 209.1 million and household users of USD 92.6 million were higher than government contributions of USD 45.2 million.

Strong mechanisms for monitoring and reporting on water and sanitation indicators nationally and globally are necessary to measure the progress and sustainability of WASH interventions. Several factors impact sustainability, including policy adoption, infrastructure, capacity building, education, and financing, and routine, quality, and timely data are necessary to inform effective decision-making.<sup>18</sup> In Zambia, data are available and used for making a majority of decisions related to drinking water sector review and planning purposes, development of drinking water and sanitation national standards and regulations, and targeting of surveillance activities for drinking water and sanitation.<sup>13</sup> Even though the data are available, they are only used for a

minority of decisions related to sanitation sector review and planning purposes, as well as water and sanitation resource allocation.

## Recommendations for Policies

WASH practices are associated with child nutrition due to links with transmitting diseases such as diarrhoea. Based on the findings from the 2019 MCDP II Baseline Survey report and the literature, the following recommendations for policy and programmes are proposed:

**Promote and emphasise the importance of all essential hygiene practices, including access to clean drinking water, availability of soap and water at handwashing facilities, and access to clean latrines and environments, among all households.** Access to clean drinking water, soap and water at handwashing stations, improved latrines, and clean environments remain a gap in Zambia, and efforts are necessary to reach national goals. In addition to promoting behaviour changes among the population, the government needs to invest further to increase access to WASH in both urban and rural areas.<sup>8,19</sup> For urban areas, there were an inadequate number of latrines and clean water sources to safely accommodate communities in these locations.<sup>6,15</sup> Urban and peri-urban communities need increased access to clean and improved latrines to work towards universal access to safely managed sanitation, which is a United Nations Sustainable Development Goal.<sup>17</sup> The national government should continue to prioritise the goals set out in both the National Urban Water Supply and Sanitation Programme and the National Rural Water Supply and Sanitation Programme to increase coverage for clean and safe water supply and sanitation.<sup>2,20</sup>

**Promote the access to and use of clean and improved sanitation facilities.** Access to and use of clean and improved latrines is low, particularly among rural populations. In addition to increasing coverage of clean and improved latrines, latrine use should be promoted. CLTS can be an effective way to improve sanitation behaviours at the community level, especially in rural areas, with the collaboration of traditional leaders. CLTS has shown success in changing sanitation behaviours among children and has increased the number of households using a pit latrine with a slab, decreased the number of households practicing open defecation, and increased the number of households with a place for washing hands.<sup>21</sup>

**Support safe environments for children through messaging to establish safe play areas, pen animals and poultry, and maintain clean homesteads—especially in districts reporting high levels of animal waste around homesteads.** In addition to improving latrine use, public messaging to increase the use of clean play areas for children can help decrease the number of children who experience diarrhoea and ingest harmful microbes. Fencing animals, separating young children's play areas from animals, and keeping these areas free from animal debris can interrupt the faecal-oral pathway that often exposes children to these harmful microbes. The use and maintenance of these areas can reduce the rates of diarrhoea and diseases caused by harmful microbes, which, in turn, can decrease stunting.<sup>8,16</sup>

**Strengthen government capacity to sustain WASH improvements.** Using data to inform the majority of decisions related to resource allocation for drinking water and sanitation would ensure sustainable access to WASH. In rural areas, weak institutional capacity at district and sub-district levels hinders increasing access to WASH.<sup>22</sup> This includes understaffing, inadequate technical capacity, and frequent staff turnover, leading to less investment in implementation. The government could also build capacity at the district and local authority levels through short training courses in WASH for district and local staff involved in the rural sector, non-WASH community development staff, and other extension workers in WASH.<sup>23</sup>

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- <sup>1</sup> United States Agency for International Development Scaling Up Nutrition Learning and Evaluation. (2019). *Baseline Survey of the First 1000 Most Critical Days Program (MCDP) II*.
- <sup>2</sup> Republic of Zambia. (2006). *Vision 2030*. Available at: [http://zambiaembassy.org/sites/default/files/documents/Vision\\_2030.pdf](http://zambiaembassy.org/sites/default/files/documents/Vision_2030.pdf)
- <sup>3</sup> World Health Organization. (2019). *Drinking-water*. Available at: <https://www.who.int/news-room/fact-sheets/detail/drinking-water>
- <sup>4</sup> World Health Organization & UNICEF. (2019). *Water, Sanitation, Hygiene and Waste Management for COVID-19*. Available at: <https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-covid-19>
- <sup>5</sup> World Health Organization. (2014). *Global Nutrition Targets 2025: Stunting Policy Brief (No. WHO/NMH/NHD/14.3)*.
- <sup>6</sup> Hubbard, S.C., et. al. (2020). Household illness and associated water and sanitation factors in peri-urban Lusaka, Zambia 2016-2017. *Clean Water*, 3, 26.
- <sup>7</sup> Mshida, H.A., Kassim, N., Mpolya, E., & Kimanya, M. (2018). Water, sanitation, and hygiene practices associated with nutritional status of under-five children in semi-pastoral communities Tanzania. *American Journal of Tropical Medicine and Hygiene*, 98(5), 1242-1249.
- <sup>8</sup> Reid, B., et. al. (2018). Characterizing potential risks of fecal-oral microbial transmission for infants and young children in rural Zambia. *American Journal of Tropical Medicine and Hygiene*, 98(3), 816-823.
- <sup>9</sup> Ngure, F.M., Reid, B.M., Humphrey, J.H., Mbuya, M.N., Pelto, G., Stoltzfus, R.J. (2014). Water, sanitation, and hygiene (WASH), environmental enteropathy, nutrition, and early child development: Making the links. *Ann N Y Acad Sci*, 1308, 118–28.
- <sup>10</sup> World Health Organization. (2019). *Zambia: Sanitation Policy and Planning Framework Case Study for Discussion*.
- <sup>11</sup> Republic of Zambia. (2017). *7th National Development Plan 2017-2021*. Available at: <https://www.mndp.gov.zm/wp-content/uploads/2018/05/7NDP.pdf>
- <sup>12</sup> National Food and Nutrition Commission. (2017). *The First 1000 Most Critical Days Programme (MCDP II) “Zambia’s Five Year Flagship Stunting Reduction Programme” 2018-2022*.
- <sup>13</sup> Lawrence, J.J., et. al. (2016). Beliefs, behaviors, and perceptions of community-led total sanitation and their relation to improved sanitation in rural Zambia. *American Journal of Tropical Medicine and Hygiene*, 94(3), 553-562.
- <sup>14</sup> Ahearn, L. (2019). *CLA Case Analysis Deep Dive: Zambia’s Community-Led Total Sanitation Program*. USAID LEARN/Dexis Consultant Group.
- <sup>15</sup> Nyambe, S., Agestika, L., & Yamauchi, T. (2020). The improved and unimproved: Factors influencing sanitation and diarrhea in a peri-urban settlement of Lusaka, Zambia. *PlosOne*, 15(5).
- <sup>16</sup> Reid, B., et. al. (2018). A community-designed play-yard intervention to prevent microbial ingestion: A baby water, sanitation, and hygiene pilot study in rural Zambia. *American Journal of Tropical Medicine and Hygiene*, 99(2), 513-525.
- <sup>17</sup> World Health Organization. (2020). *Zambia Highlights Based on Country-reported GLAAS 2018/2019 Data*. Available at: [https://www.who.int/water\\_sanitation\\_health/publications/glaas-report-2019/en/](https://www.who.int/water_sanitation_health/publications/glaas-report-2019/en/)
- <sup>18</sup> UN-Water. (2019). *UN-Water SDG 6 Public Dialogue Report*.
- <sup>19</sup> World Health Organization. (2020). *Hygiene- UN-Water GLAAS Findings on National Policies, Plans, Targets and Finance*.
- <sup>20</sup> Ministry of Local Government and Housing. (2015). *National Water Supply and Sanitation Capacity Development Strategy (2015-2020)*. Available at: [https://www.mwdsep.gov.zm/?wpfb\\_dl=836](https://www.mwdsep.gov.zm/?wpfb_dl=836)
- <sup>21</sup> Yeboah-Antwi, K., et. al. (2019). Improving sanitation and hygiene through community-led total sanitation: The Zambian experience. *American Journal of Tropical Medicine and Hygiene*, 100(4), 1005-1012.
- <sup>22</sup> WaterAid. (2015). *Zambia Country Strategy 2016-2021*. Available at: <https://washmatters.wateraid.org/publications/country-programme-strategies-2016-2021>
- <sup>23</sup> International Water Association. (n.d). *Mind the Gap Briefing note Zambia*. Available at: <https://iwa-network.org/projects/human-resource-capacity-gaps-study/>



## ABOUT SCALING UP NUTRITION Zambia

The Government of the Republic of Zambia (GRZ) is a member of Scaling Up Nutrition (SUN)—a global movement uniting governments, civil society, businesses, and citizens in a worldwide effort to end undernutrition. Phase 1 of the Zambia SUN programme began in 2013 with the goal to reduce stunting among children less than 24 months old in 15 districts.

Currently in its second phase, SUN has increased from 15 to 30 districts, coordinated by the National Food and Nutrition Commission of Zambia, and supported by a variety of partners and donors, including USAID/Zambia who supports the SUN programme through the SUN Learning and Evaluation (SUN LE) project.

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### Authors / Contributing Authors:

- Anika Hannan, Monitoring and Evaluation Specialist, ICF
- Allison Schmale, Senior Monitoring and Evaluation Specialist, ICF
- Mona Mehta Steffen, Senior Monitoring and Evaluation Lead, ICF
- Lwendo Moonzwe Davis, Manager - Monitoring, Evaluation and Research, ICF
- John Manda, Learning and Dissemination Advisor, SUN LE (ICF)
- Patricia Sakala, Strategic Information Advisor, SUN LE (Khulisa Management Services)
- Mathews Onyango, Chief of Party, SUN LE (Khulisa Management Services)
- Paul Mboshya, Senior Community Development Officer, MWDSEP
- Abel Manangi, Assistant Director - Sanitation, MWDSEP
- Selenia Matimelo, Principal Community Development Officer, MWDSEP

## CONTACT US

Scaling Up Nutrition Learning and Evaluation (SUN LE)

Khulisa Management Services, Inc.

4550 Montgomery Avenue, Suite 220

Bethesda, MD 20814 USA

Tel: +1 (301) 951-1835

[info@khulisa.com](mailto:info@khulisa.com)