

CLEAN WATER AND SANITATION

The Role of Dietitian-Nutritionists in Contributing to the United Nations Sustainable Development Goals

GOAL #6

Target: To ensure access to water and sanitation

GLOBAL TARGETS

- ▶ By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
- ▶ By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls those in vulnerable situation.
- ▶ By 2030 achieve universal and equitable access to safe and affordable drinking water for all
- ▶ Support and strengthen the participation of local communities in improving water and sanitation management

The purpose of this brief is to help increase awareness among dietitian-nutritionists about SDG #6 and the vital role it plays in nutrition status, to acknowledge what is currently being done to reach this goal, and to make recommendations on how dietitian-nutritionists can contribute. A growing body of evidence indicates that access to safe drinking water, sanitation, and hygiene services, commonly referred to as WASH, have positive impacts on nutrition (2).

2.4 billion people lack access to basic sanitation services such as toilets, and latrines (1).

1.9 billion people rely on drinking water that is fecally contaminated (1).

With the prevalence of unsafe drinking water and sanitation still affecting such a large population, health concerns, including malnourishment, will be affected until sustainable solutions are identified.

How Does Access to Water and Sanitation Support Nutrition?

Lack of clean water, sanitation, and hygiene can increase the risk of infectious diseases and worsen states of illness, including those that affect nutrition status. Contaminated water poses food safety concerns, for example, reusing wastewater from cleaning one food item to the next can cross contamination the products and increase the risk of foodborne illnesses (3, 4).

A recent multi-country review of 66,000 healthcare facilities in 54 low and middle income countries showed that 38% of health care facilities do not have access to a water source and 19% do not have

sanitation procedures that separate human excreta from human contact (2). In addition, 35% do not have access to both water and hand soap for handwashing (2).



3 in 10 people lack access to safely managed drinking water services (1)

There are several populations that are particularly vulnerable: children, Indigenous communities, and women. Two of the immediate causes of childhood undernutrition are inadequate dietary intake and infectious diseases such as diarrhea (5). Diarrhea, intestinal parasitic infections, and environmental enteropathy can be caused or worsened by lack of access to WASH (2), and diarrhea impairs nutritional status through the loss of appetite, malabsorption of nutrients, and an increase in metabolism (2). 50% of cases of undernutrition are linked to diseases and infections caused by unsafe drinking water, poor sanitation and hygiene (6). While there has been substantial success in efforts to achieve this Sustainable Development Goal, these efforts have not targeted the Indigenous communities which are over-represented among the world's poorest populations (7). There are a multitude of factors contributing to the unsafe drinking water in these communities, including contamination from logging, mining, and other land use activities (7). While clean water and sanitation is considered a basic human need and a right in all communities, unsafe drinking water has contributed to costly and tragic ramifications on human health, especially Indigenous (7). Women are also disproportionately affected by lack of access to clean

water (7). In many countries, women are responsible for providing household water by retrieving it several times a day from a far distance (7). This increases their physical activity and therefore their nutrient and energy intake requirements. As we work toward ensuring access to water and sanitation for all, we must focus on those disproportionately affected: children, Indigenous communities, and women.

The Advanced Aboriginal Water Treatment Team (AAWTT) ⁽⁷⁾

The AAWT is a volunteer-run team that advocates for safe drinking water for all; they support research and development, raise awareness of health concerns caused by poor drinking water, and develop outreach programs. The AAWT was founded by five scientists from Russia, Scotland, Japan, and Canada in 1997 who worked on developing partnerships with rural communities in Canada and around the world. Now they work directly with communities, one at a time, to educate leaders and citizens about safe water and empower them to overcome their challenges sustainably.

Framework for Action

Ensuring access to water and sanitation requires action at the policy, health-systems, academic, and community levels, and there are opportunities for action from dietitian-nutritionists in each. Establishing trusting relationships with colleagues and clients at all of these levels is key to success at all levels.

Academic Level

In undergraduate nutrition training, there is currently very little in the curriculum about how dietitian-nutritionists can impact clean water and sanitation resource availability, and what is included is primarily theoretical. More in-depth and practical knowledge on existing WASH interventions is needed, and the relationship between nutrition and the ongoing unsafe water conditions that are present both globally and locally, must be better emphasized.

Policy Level

Dietitian-nutritionists can contribute to policies that address clean water and sanitation. With dietitian-nutritionists' increasing knowledge of clean water and the consequences of not having access to such, they are well positioned to advocate for policies that support WASH and prioritize populations that are disproportionately affected. Dietitian-nutritionists can also collaborate with public health on the promotion and advocacy of basic hygiene practices, such as handwashing with soap (2). Not all activities that cause water pollution fall under the jurisdiction of nutrition and health practitioners and so collaborative approaches are imperative (7). Such activities include poorly managed

application of pesticides, water irrigation, and fertilizers (3). With dietitian-nutritionists' unique skill set in project and team management, leadership, and budgeting, they are well positioned to work with stakeholders such as agricultural policy makers, planners, and engineers. Collaborative approaches to creating policies, infrastructure, and water systems that support health are favourable, and achievable.

Health-Systems Level

Dietitian-nutritionists can advocate for, and develop policies within, health-systems (such as hospitals) to support clean water and proper hygiene. They have the unique opportunity to relay information, tools and tips about personal hygiene, food safety, clean water, and sanitation, to their clients. For example, studies have shown that point-of-use chlorine drinking water treatment has reduced the risk of child diarrhea, which will have a positive impact on nutritional status (9).

Community Level

Dietitian-nutritionists' strong communication skills can promote and improve WASH practices (2). For example, where access to safe water is a problem, dietitian-nutritionists can promote the consumption of foods that are naturally high in water such as fruit and vegetables. In areas that are water stressed, nutrition-sensitive WASH practices such as this can conserve water resources (2).

CALIFORNIA WATER BOARDS: RECYCLED WATER POLICY ⁽⁸⁾

The California Water Boards Recycled Water Policy promotes water conservation by facilitating the safe use of recycled water, with public and environmental health in mind. Its purpose is to increase the recycling of water from municipal wastewater sources by providing support, goals, guidance, and criteria around how to do so. It was Initially adopted in 2009, and was passed as a policy in 2013 and 2018.

The 2018 amendment includes the following principles:

- Reporting treated wastewater and recycled water requirements
- Updating requirements around quality levels for salt and nutrients
- Monitoring quality, criteria, and changes that may need to be imposed to improve the overall wastewater and recycled water quality

KEY POINTS

- ▶ Clean water and sanitation is a prevalent concern that is affecting people all over the world
- ▶ A major contributor of malnutrition is unsafe water consumption due to lack of water availability and proper hygiene and sanitation practices
- ▶ Indigenous populations, women, and children, especially those in low-income countries, are disproportionately affected by contaminated water
- ▶ There are many opportunities for dietitian-nutritionists to help improve access to water and sanitation

Key Roles for Dietitian-Nutritionists

- ▶ Increase water-sanitation-nutrition content in undergraduate nutrition training

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- ▶ Educate and advocate for policies that support WASH in communities, health centres, and households
- ▶ Collaborate across disciplines to work on clean water management that will create opportunities for improved nutrition

Scaling Up Nutrition (SUN): Assessing the Impact of Clean Water and Sanitation on Nutrition ⁽⁸⁾

The Scaling Up Nutrition movement helps countries, sectors, and stakeholders collaborate on approaching many issues, including nutrition-sensitive approaches to clean drinking water, high quality sanitation facilities, and proper hygiene. Over 50 countries are a part of the movement, and acknowledge that lack of clean drinking water and improper sanitation are major contributors to malnutrition. SUN developed nutrition strategies that included WASH interventions, and found that doing so improved hand



washing after defecation, hand washing while handling food, and water supply and distribution, for children 18 years and under.

Recommendations for Further Reading

[Improving nutrition outcomes with better water, sanitation, and hygiene: Practical solutions for policies and programmes.](https://apps.who.int/iris/bitstream/handle/10665/193991/9789241565103_eng.pdf?sequence=1)

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[Crisis on tap: Seeking solutions for safe water for indigenous peoples.](https://www.uvic.ca/research/centres/circle/assets/docs/Publications/crisis-on-tap-cahr.pdf)

<https://www.uvic.ca/research/centres/circle/assets/docs/Publications/crisis-on-tap-cahr.pdf>

[Position of the academy of nutrition and dietetics: Food and water safety.](https://jandonline.org/article/S2212-2672(14)01356-2/fulltext) [https://jandonline.org/article/S2212-2672\(14\)01356-2/fulltext](https://jandonline.org/article/S2212-2672(14)01356-2/fulltext)

[US federal emergency management agency and the American red cross. Food and water in an emergency.](https://www.fema.gov/pdf/library/f%26web.pdf)

<https://www.fema.gov/pdf/library/f%26web.pdf>

[World Health Organization: Unsafe, drinking-water, sanitation and waste management.](https://www.who.int/sustainable-development/cities/health-risks/water-sanitation/en/) [https://www.who.int/sustainable-](https://www.who.int/sustainable-development/cities/health-risks/water-sanitation/en/)

[development/cities/health-risks/water-sanitation/en/](https://www.who.int/sustainable-development/cities/health-risks/water-sanitation/en/)

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References

1. United Nations. Sustainable development goal 6. January 2020 [cited 2020 Feb 9]. Available from: <https://www.un.org/sustainabledevelopment/water-and-sanitation/>
2. World Health Organization. Improving nutrition outcomes with better water, sanitation and hygiene. 2015. [cited 2020 Feb 12]. Available from: https://www.who.int/water_sanitation_health/publications/wash-and-nutrition/en/
3. Centers for Disease Control and Prevention. Water contamination. October 2016. [cited 2020 Feb 12]. Available from: <https://www.cdc.gov/healthywater/other/agricultural/contamination.html>
4. Kirby, R.M., Bartram, J., Carr, R. Water in food production and processing: Quantity and quality concerns. *J Food Con.* 2003 June; 14(5):283-299. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S09567135200090>
5. Scaling Up Nutrition. Assessing the impact of clean water and sanitation on nutrition. September 2013. [cited 2020 Feb 12]. Available from: <https://scalingupnutrition.org/news/assessing-the-impact-of-clean-water-and-sanitation-on-nutrition/>
6. WaterAid Australia. Water and sanitation essential to fighting malnutrition. June 2016. [cited 2020 Feb 12]. Available from: <https://www.wateraid.org/au/articles/water-and-sanitation-essential-to-fighting-malnutrition>
7. Centre for Aboriginal Health Research. Crisis on tap: Seeking solutions for safe water for indigenous peoples. 2011. [cited 2020 Feb 12]. Available from: <https://www.uvic.ca/research/centres/circle/assets/docs/Publications/crisis-on-tap-cahr.pdf>



8. State Water Resources Control Board. Recycled water policy. April 2019. [cited 2020 Feb 12]. Available from: https://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/
9. Arnold, BF., Colford, JM jr. Treating water with chlorine at point-of-use to improve water quality and reduce child diarrhea in developing countries: a systematic review and meta-analysis. *Am J Trop Med Hyg.* 2007 Feb;76(2):354-64. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/17297049>