

CLIMATE ACTION

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

GOAL #13

Target: Take urgent action to combat climate change and its impacts (1)

GLOBAL TARGETS

- ▶ Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
- ▶ Integrate climate change measures into national policies, strategies and planning
- ▶ Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
- ▶ Promote mechanisms for raising capacity for effective climate change-related planning and management in middle and low income countries and island states, including focusing on women, youth and local and marginalized communities

This brief will focus on the Sustainable Development Goal #13, climate action, to emphasize how nutrition and food systems can contribute to climate action and vice versa (1).

Climate change is the biggest threat to humans worldwide and will continue to worsen if actions are not taken. From 2030 to 2050, climate change is expected to cause 250 000 deaths per year, including those caused by malnutrition, malaria, diarrhea, and fever (2). With growing greenhouse gas emissions, the climate is changing at rates much faster than expected (1). Carbon dioxide (CO₂) levels are at their highest of 412 parts per million (1), temperatures are predicted to rise 2.5°C to 10°C over the next century, arctic ice has decreased to the lowest on record (3), and sea levels are predicted to be 24–30 cm higher by 2065 and 40–63 cm by 2100 (4).

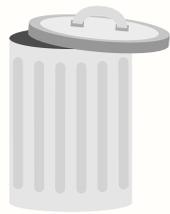
Global emissions of carbon dioxide have **increased by almost 50%** since 1990 (1)

Climate-related and geographical disasters have claimed an estimated **1.3 million lives** (1)

How Does Climate Action Impact Food Systems and Nutrition, and Food Systems and Nutrition Impact Climate Action?

The current food system is dramatically affecting climate changes as production processes contribute to greenhouse gases and contaminants. In turn, climate changes are affecting food systems dramatically as well, by rising tides, increasing migration of fish, and raising temperatures that increase risk of heart diseases. Food production is the main contributor to global environmental

change (6). To combat this, action must be taken to reduce food waste, use sustainable food production processes, and encourage plant-based diets (i.e., diets lower in processed foods, dairy, poultry, red meat, refined sugars) (6). Adopting more sustainable diets would cut food-related emissions by 29%, and that decline would rise to 63% with vegetarian diets and to 70% with vegan diets (7). By 2050, greenhouse gas emissions could be reduced by 70% as a result of diet shifts (7).



Throwing away less
food would be
equivalent to taking
511 million
cars off the roads ⁽⁵⁾

Agriculture is contributing approximately 23% of CO₂, methane, and nitrous oxide emissions to the environment (2) and heightened CO₂ levels can affect the quality of nutrients in food, therefore affecting nutritional status and human health. When crops such as wheat, rice, and legumes, are grown in areas with high levels of CO₂ they may have lower concentrations of zinc, iron, and protein, which are essential for development and growth (8). In 2010, 667 million people were attaining 60% of their zinc and iron from grains and legumes that were grown in high CO₂ environments (8). Much of the population of India relies heavily on these products and are therefore at a higher risk for nutrient deficiencies and malnutrition (8).

The risks of hunger and malnutrition could increase by up to 20% by 2050 if people are not prepared to adapt to climate change (9). Shifting weather patterns are threatening food systems all over the world, including the marine ecosystem. This impacts ocean tides, temperature, and fish activity, which all largely impact diet and health.

40% of the world's population depend on fish as a main source of protein, therefore, combating the environmental impacts on marine ecosystems can contribute to maintaining and improving human health for present and future generations (10). Rising ocean tides as a result of climate change are affecting food availability as well. Oceans cover roughly 70% of the planet and more than half of the global population reside within 60km of the sea (2). Sea levels have been rising as a result of global warming (4) - impacting wildlife, coral reef (11) and human habitat. People sometimes have to move due to rising sea levels or other natural disasters. They then have to rely on different food systems for survival. Such shifts increase reliance on westernized food systems and decrease reliance on traditional diets, enhancing the threat of non-communicable diseases, and negative impact on mental health (2).

Ocean temperatures are also rising as a result of climate change, causing marine species to migrate to colder areas and affecting fish growth (11). This especially affects access to safe nutritious food for residents of low and middle income small islands, and northern communities who rely heavily on fish for their main source of food. This again causes a shift to a more westernized diet. The change in temperatures and precipitation rates can also make it more difficult for families to grow traditional foods, especially for those living in low and middle income countries that rely on self-production. These incidents have increased the prevalence of malnutrition in these countries, which causes 3.1 million deaths each year (9).

With rising temperatures many countries are experiencing extreme heat waves and so climate-related natural disasters have already claimed approximately 1.3 million lives (1). Warmer global temperatures also increase the risk of cardiovascular and respiratory disease (2), and the impact of climate change is predicted to increase health costs from \$2-4 billion a year by 2030 (2). These are just a few examples of how climate action and food systems have a cyclic relationship and dramatic impact on planetary and human health. Climate change is not only affecting agriculture, temperature, and water levels, it is also affecting the social

determinants of health and environmental factors (air, sanitary water, shelter, and adequate nutritious food) (2). There are many opportunities for a shift toward more sustainable food systems.

Framework for Action

Taking urgent action to combat climate change and its impacts 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 levels is key to success.

Policy Level

The Intergovernmental Panel on Climate Change (IPCC) provides policymakers with statistics on climate change and information on its risks on human health (14) and dietitian-nutritionists are well positioned to use this information in practice. Dietitian-nutritionists can also advocate for policies such as those that reduce or eliminate single-use plastic, increase the consumption of plant-based proteins, or overall encourage more sustainable practices in various areas of nutrition. Policy changes that improve food security, nutritional status, and natural resources are essential in the transition towards a more sustainable food system (13).

GREEN CLIMATE FUND

The Green Climate Fund was created by the United Nations Framework Convention on Climate Change to help developing countries decrease their greenhouse gas emissions and adapt to climate change. In 2014, 10.3 billion dollars was collected from developed nations for the fund. In May of 2019, 28 countries were using the fund for creating national support and policy plans for climate action; an example of such being Senegal's use of the fund to help community members adapt to increasing soil salinization (12).

Academic Level

Sustainable food systems are an important aspect of nutrition that should be included in dietetic training and post-secondary education. Doing such empowers students to pursue work in related fields and contribute to climate action and improved nutrition practices. Lessons on the environmental effects of animal consumption, specifically red meat and greenhouse gas emissions, and food waste reduction practices, are especially important (5). The amount of food that is being wasted today could be used to feed the entire world from now to 2050 without converting any forests to farmland (5). Incorporating food waste education in dietetic training could better position dietitian-nutritionists to work toward combating such and improving food security, quality of food and nutrition, and the reduction of CO₂ (13).

Health-Systems Level

Dietitian-nutritionists working in food service and health care institutions can source, or advocate for sourcing, sustainable products that have lower environmental impacts. Such products include minimally processed foods and minimal plastic packaging. There are also opportunities for dietitian-nutritionists in these settings to host and promote educational programs that emphasize the importance of adopting more sustainable diets and practices.

Community Level

Dietitian-nutritionists can create and implement community initiatives that can help combat the impacts of climate change. These may be, for example, sustainable cooking classes, information sessions about single-use plastic, and interactive “How Sustainable are You?” booths. Educating the public and engaging communities can help individuals recognize their responsibility to climate action.

KEY POINTS

- ▶ Climate change is dramatically impacting food systems and food systems are dramatically impacting climate change. Urgent action is needed to break the cycle.
- ▶ Food production is the main contributor to global environmental change
- ▶ Dietitian-nutritionists can improve the availability of, and demand for, sustainable food options such as plant based products. Doing such can reduce food production greenhouse gas emissions by up to 70%.
- ▶ Actions at policy, academic, health-systems and community levels are critical for changing the relationship between food systems and climate change, and dietitian-nutritionists can play integral roles at each level.

PAN-CANADIAN FRAMEWORK ON CLEAN GROWTH AND CLIMATE CHANGE

The Pan-Canadian Framework on Clean Growth and Climate Change was developed in collaboration with indigenous peoples to work toward meeting Canadian emissions reduction targets, growing the economy, and building resilience to climate change (15). The framework includes pricing carbon dioxide pollution and reducing such across all sectors. There is a focus on reducing emissions from transportation, agriculture and food waste, mitigating climate-related disasters, and providing education on sustainable water management, human health, and traditional diets. As a part of the framework, the Atlantic Climate Adaptation Solutions Project and Indigenous populations work to support susceptible coastline communities and plan for climatic changes (15). These initiatives improve access to resources, tools, and practices that can help combat the impacts of climate change in vulnerable coastal areas in Atlantic Canada.



AL-KAWTHAR SECONDARY SCHOOL PROCESS OF CLIMATE ACTION

Al-Kawthar Secondary School in Beirut, Lebanon, is contributing to climate change in their school and inspiring families to incorporate sustainable practices into their lifestyles. Students, teachers, and families are participating in tree-planting, recycling programs, water conservation activities, visiting local forests, and hosting educational workshops (16). Al-Kawthar Secondary School has shared their experiences in Lebanon and worldwide, inspiring other projects and learning opportunities that are contributing to climate action (16).

Key Roles for Dietitian-Nutritionists

- Advocate for policies and programs that reduce the impact of climate change on nutrition such as “climate-smart, nutrition-sensitive” agricultural policies
- Advocate for policies and programs that reduce the food system's negative impacts on climate, such as implementing plant-based menus and food waste reduction strategies in institutions
- Provide nutrition education that helps combat climate change

Recommendations for Further Reading:

Food and Agriculture Organization of the United Nations. Food Security and Nutrition in the age of Climate Change.
<http://www.fao.org/3/ca1334en/CA1334EN.pdf>

Climate Change and Land. Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/srccl/>

Food Climate Research Network. Analysis and valuation of the health and climate change co-benefits of dietary change.
<https://www.pnas.org/content/pnas/113/15/4146.full.pdf>

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References

1. United Nations. Sustainable Development Goal 13. February 2020 [cited 2020 Feb 8]. Available from: <https://sustainabledevelopment.un.org>
2. World Health Organization. Climate change and health. February 2018. [cited 2020 Feb 8]. Available from: <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>
3. The Effects of Climate Change. (2020). NASA Global Climate Change. Retrieved from <https://climate.nasa.gov/effects/>
4. United Nations. Climate change. February 2020 [cited 2020 Feb 8]. Available from: <https://www.un.org/en/sections/issues-depth/climate-change/>The Washington Post.
5. The climate impact of food in the back of your fridge. 2018 [cited 2020 Feb 28]. Available from [https://www.washingtonpost.com/news/theworldpost/wp/2018/07/31/food-waste/Willet, W., Rockstrom, J. Loken, B., Springman, M., Lang, T., Vermeulen, S., Murray, C. J. \(2019\).](https://www.washingtonpost.com/news/theworldpost/wp/2018/07/31/food-waste/Willet, W., Rockstrom, J. Loken, B., Springman, M., Lang, T., Vermeulen, S., Murray, C. J. (2019).)
6. Food in the anthropocene: The EAT-lancet commission on healthy diets from sustainable food systems. The Lancet. doi: [http://dx.doi.org/10.1016/S0140-6736\(18\)31788-4](http://dx.doi.org/10.1016/S0140-6736(18)31788-4)
7. Food Climate Research Network. Analysis and valuation of the health and climate change cobenefits of dietary change. February 2016 [cited 2020 Feb 12]. Available from: <https://www.fcrrn.org.uk/research-library/analysis-and-valuation-health-and-climate-change-cobenefits-dietary-change>
8. Climate Change and Land. Intergovernmental Panel on Climate Change. [cited 2020 Feb 8] Available from: https://www.ipcc.ch/site/assets/uploads/sites/4/2019/11/05_Chapter-2.pdf
9. World Food Program. Climate Action. 2020 [cited 2020 Feb 12]. Available from: <https://www.wfp.org/climate-action>
10. IUCN. The ocean and climate change. 2020 [cited 2020 Feb 12]. Available from: <https://www.iucn.org/resources/issues-briefs/ocean-and-climate-change> Pink, J. (2018).
11. 5 ways that climate change affects the ocean. Conservation International. Available from: https://www.conservation.org/blog/5-ways-that-climate-change-affects-theocean?gclid=EAlalQobChMI3qmV7b_C5wIVCsDlCh2x6AwNEAAYASAAEgLf3vD_BwE
12. Green Climate Fund. 2020 [cited 2020 Feb 10]. Available from: <https://www.greenclimate.fund/>
13. Food and Agriculture Organization of the United Nations. Food Security and Nutrition in the age of Climate Change. September 2017 [cited 2020 Feb 10]. Available from: <http://www.fao.org/3/ca1334en/CA1334EN.pdf> PCC.
14. The Intergovernmental Panel on Climate Change. 2020 [cited 2020 Feb 12]. Available from: <https://www.ipcc.ch/>
15. Government of Canada PS and PC. Information archivée dans le Web. [cited 2020 Feb 12]. Available from: http://publications.gc.ca/site/archivee-archived.html?url=http://publications.gc.ca/collections/collection_2017/eccc/En4-294-2016-eng.pdf
16. United Nations Educational, Scientific and Cultural Organization. Getting climate-ready: a guide for schools on climate action. 2019 [cited 2020 Feb 12]. Available from: <https://en.unesco.org/themes/education/sdgs/material/13>
17. Michigan State University. Learning about climate change can help youth become active global citizens. June 2017 [cited 2020 Feb 12]. Available from: https://www.canr.msu.edu/news/learning_about_climate_change_can_help_youth_part_2