Dome sweet dome

Canadian Geographic's March/April 2017 issue examines a new way to grow produce in the North by using a structure called a "growing dome", an initiative by the not-for-profit Growing North organization. This dome could help feed isolated communities in Canada's North, where a huge percentage of households do not have secure access to food. With your students, use the infographic and the following questions to explore this exciting concept and learn how the domes work.

Check for understanding

1. Where did Growing North build their first dome? What might be some of the reasons for this choice of location?

2. a) What are some of the challenges that people in Canada's North face regarding their ability to feed themselves? Explain each challenge.

   b) Explain how the growing dome could help surmount these challenges.

3. In your own words and with a sketch, explain the numerous features and advantages of using a growing dome.

Answer (with sketches)

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Extend your geographical thinking

1. **Where to put a greenhouse and a "growing dome"**
   Research the features of a greenhouse. Compare and contrast a greenhouse to a "growing dome" using a table or a Venn diagram. What would be ideal locations for each? Justify your choices. Find a community that is best served by a greenhouse and one best served by a dome. Using Google My Maps, map out these locations by adding markers on the map. Add text and pictures to justify your choices. Add Naujaat, Nunavut, to your map.

2. **Call to action**
   Explore the *End the Price Hike* website about the exorbitant price of food in Canada's North and the challenges this poses to families in the North. Look for more information on the other websites listed below. Brainstorm with a partner for ways that you could help. A few examples could include writing a letter or an email to your member of Parliament and starting a campaign to encourage others to do the same. Or you could plan a fundraising campaign to raise money for emergency food relief programs such as northern food banks and soup kitchens.

3. **The cost and how it gets here**
   Using the food items in the interactive map from The Globe and Mail, plan a dinner for four people. Check off all the items that you need to buy and compare the prices of your grocery bill in the different locations. Which is the most expensive? The least? Why? Be sure to click on the Show Routes button to see how the food is transported. Using the scale on the map, rank the communities based on the distance required to transport the food goods. Do you notice a trend in pricing based on this?

Resources

- Nutrition Nord Canada
- Growing North
- Feeding Nunavut
- The high cost of food on First Nations reserves
- Feeding My Family
- Food Secure Canada
- Feeding Nine Billion Video 1: Introducing Solutions to the Global Food Crisis by Dr. Evan Fraser

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A new way to grow produce in the North

By Michela Rosano

Whatever you do, don't call it a greenhouse.

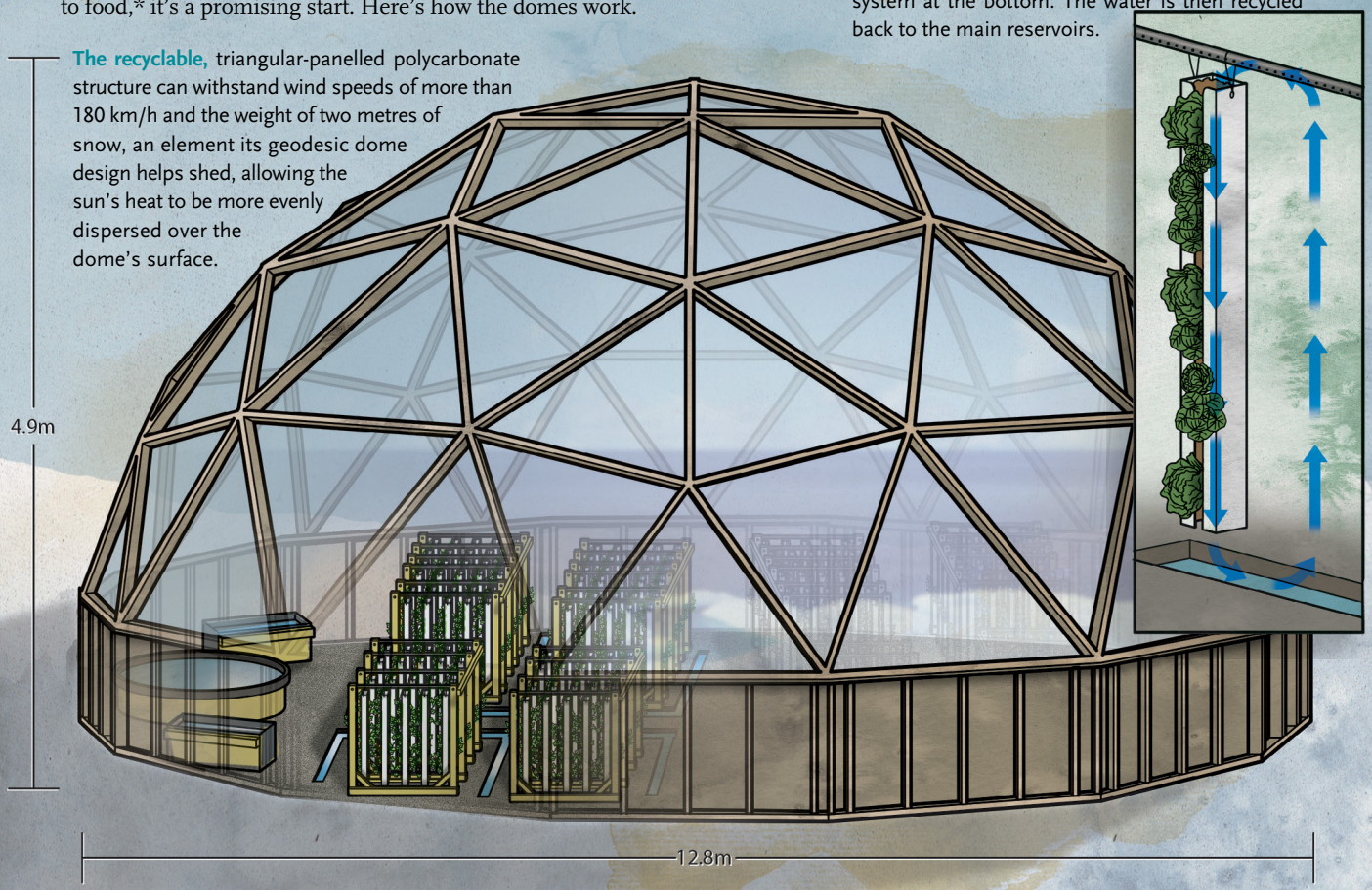
It's a *growing dome*, and it could play a key role in changing the food system in Canada's North, a region where high costs, low incomes, climate change and a shift away from subsistence hunting are among the factors playing havoc with people's ability to feed themselves.

Growing North, the not-for-profit organization behind the concept, wants to mitigate the effects of those factors by empowering Inuit communities to grow their own fresh produce. After two years of research and community consultations, in October 2015 Growing North built its first dome in Naujaat, Nunavut, a community of 1,082 on the shore of Repulse Bay. By the end of its test growing season in November 2016, the dome had yielded about 45 kilograms of produce. That may not sound like much, but in a territory where 60 per cent of children and 46.8 per cent of households don't have secure access to food,* it's a promising start. Here's how the domes work.

At full capacity, the dome's hydroponic towers and dirt beds will yield more than 9,000 kilograms of food, accounting for 62 per cent of Naujaat's otherwise imported produce. A heat-and-power unit that burns organic material and wood pellets will extend the current growing season (April to November) year-round by generating electricity for lights and a water heater throughout the winter.

The hydroponic towers are about 1.5 metres tall and can yield two to three times more food than growing horizontally. Water is pumped out of one of the two hydroponic reservoirs to the top of the towers, where it drips through and is collected in a gutter system at the bottom. The water is then recycled back to the main reservoirs.

The recyclable, triangular-panelled polycarbonate structure can withstand wind speeds of more than 180 km/h and the weight of two metres of snow, an element its geodesic dome design helps shed, allowing the sun's heat to be more evenly dispersed over the dome's surface.



*Source: Tarasuk, V, Mitchell, A, Dachner, N. (2016). Household food insecurity in Canada, 2014. Toronto: Research to identify policy options to reduce food insecurity (PROOF). Retrieved from proof.utoronto.ca.

Learn about other food security projects in the North at cangeo.ca/ma17/foodsecurity.

The growing dome can stay up to 30 C warmer than the outside temperature with as little as four hours of sunlight. A reflective barrier on the north wall of the dome directs the sun's rays into a pool of water that traps the heat. A solar-powered central air system circulates the heat through the dome, keeping it warm even when the sun goes down.

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