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The Straits Times: Three ways to help turn every day into Earth Day

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ON APRIL 22, thousands of people around the world participated in events to celebrate Earth Day, demonstrating their commitment to protect the environment. In Singapore, people planted trees as part of the Million Trees Project. Changes in our everyday activities, including reducing pesticide use in our gardens or committing to eat more locally sourced foods, can make a big difference.

Although agriculture is often blamed for water scarcity and rising greenhouse gas emissions, farming is also emerging as a solution to global problems. Sustainable farming practices can help mitigate climate change, improve soil fertility and preserve biodiversity.

Through our research for Worldwatch Institute's Nourishing The Planet project (www.NourishingthePlanet.org), we travelled to 25 countries across sub-Saharan Africa, highlighting innovations that offer effective models that can be scaled up and replicated beyond Africa.

We offer three recommendations that showcase agriculture's untapped potential to address some of our most urgent environmental challenges.

Reducing food waste

In 2008, Singaporeans threw away 0.6 million tons of food waste, only 12 per cent of which was recycled. Large quantities of food rotting in landfills emit methane, a greenhouse gas that is more potent than carbon dioxide.

In Singapore, local organisations help redistribute waste to keep it out of landfills. Waste Is Not Waste connects businesses getting rid of unwanted items with organisations that can use those materials. Food For All has a food rations matching service to connect food suppliers and community food programmes. Food From The Heart distributes unsold bread from hotels and bakeries to hungry people and welfare organisations, serving over 11,000 people a month.

In developing countries, 15 per cent to 20 per cent of food is lost each year, decreasing farmers' incomes and increasing malnutrition. But regionally appropriate storage and preservation techniques are helping farmers protect their harvests. In West Africa, farmers have saved around 100,000 fruits by using solar dryers to dry mangoes, papaya and other fruit.

Increasing local food biodiversity

The shift from local and indigenous foods to monoculture crops, including maize, wheat, soya beans and rice reduces biodiversity, threatens local economies and undermines the community's cultural identity.

For countries that import most of their food, like Singapore, a lack of food production for local consumption can mean vulnerability to foreign markets and speculation. But in many places, local and diverse food is gaining ground and beginning to thrive. In Senegal, for example, women farmers are switching back to traditional varieties of fruit, including karkade, pain de singe, tamarindo and ditakh that they process into value-added products, such as juices and jam.

Using agriculture to cope with climate change and build resilience

As climate change takes hold, erratic temperatures, shifting growing seasons, and frequent drought will reduce soil fertility and crop yields.

Singapore will likely be impacted by climate change in many ways, including land loss, flooding, increased temperatures and reduced water resources.

But agroforestry and intercropping can help mitigate climate change, while also boosting soil quality and improving water management. By planting trees among crops, stewarding nearby forests, and keeping soils planted with crops for more of the year, African farmers can sequester 50 billion tons of carbon dioxide over the next 50 years. This is equivalent to eliminating an entire year of the world's greenhouse gas emissions – a generous contribution from a region that emits only a small share of these gases.

Urban populations are expanding at an unprecedented rate. The United Nations estimates that more than 65 per cent of the global population will live in cities by 2050. In Vancouver, New York and Nairobi, communities are turning to urban agriculture as a solution that is not only helping to boost food self-sufficiency, but also helping to raise incomes, empower women and improve urban environments.

Although it is known as the Garden City, Singapore devotes less than 3 per cent of its land to agriculture, and its farmers grow less than 10 per cent of the country's food. But there is a lot of space for food – rooftop space, for example, is about 1,000ha. Taking into account balcony spaces and some ground areas between apartments, Professor Lee Sing Kong from Nanyang Technological University estimates that Singapore could become self-sufficient in vegetable production by expanding urban farming.

Innovative methods make urban farming easier. Singapore's Agri-Food and Veterinary Authority has created a high-rise farm system for spare warehouse space or any tight areas, where vegetables in soil-filled trays can be stacked up to 10 shelves high, and can be grown indoors with LED lighting. The National Parks Board's Community In Bloom programme encourages residents to start community gardening by providing land.

By focusing on agriculture to not only alleviate hunger and malnutrition, but also to achieve our environmental goals, we can make every day Earth Day.

The writers are from the Washington-based environmental group Worldwatch Institute, where the former is co-director of the Nourishing The Planet project and the latter is a research intern.