

FORUM:	United Nations Commission on Science and Technology for Development
ISSUE:	Measures to Combat Food Insecurity Using Technology in Developing Nations
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Introduction

As part of the 2030 Agenda for Sustainable Development, Goal 2 aims to end hunger, achieve food security and improved nutrition and promote sustainable agriculture. Food security – defined by the United Nations’ Committee on World Food Security – refers to the state where all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life. However, the reality today seems to be far from achieving this goal. Although enough food is grown to feed all 7.9 billion people on Earth, more than 820 million people – about 1 in 9 – do not have access to enough food to maintain good health chronically. Factors such as climate change, conflict, and disasters have resulted in a significant proportion of the world population being displaced from their homes, particularly in developing nations, thereby threatening physical, social, economic, and political stability and broadening inequalities. To achieve a world free from hunger and malnutrition by 2030, transforming food systems and increasing the affordability of healthy diets seem to be a matter of importance and imperative necessity to all countries.



*Sustainable Development Goal 2:
Zero Hunger*

Background

Hunger is one of the greatest challenges the world has face ever since the beginnings of human history. From early on, parts of the world have often experienced prolonged periods of hunger. Eradication of hunger and poverty has been a persistent goal for the United Nations as stated both in the Sustainable Development Goals and Millenium Development Goals. Though significant advancements in agriculture and food industry has been made and food systems have undergone transformative shifts in the recent years, such problems still exist today. Hunger and poverty prevails even in a developed nation such the



United States with more than 35 million Americans struggle against hunger, let alone those suffering in developing nations such as Haiti, Madagascar, and Mozambique. In addition, on 21st of February 2017, the United Nations officially declared parts of South Sudan as being in famine. Chronic hunger is increasing by 10 million people each year. If these rates continue, more than 840 million people will be food insecure by 2030, far from being able to meet the goal of zero hunger.

Problems Raised

Impacts on Agriculture Production and Crop Stability

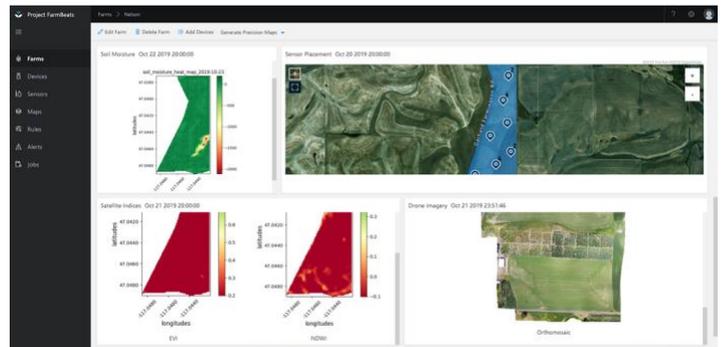
Food security is increasingly at risk due to climate change. Climate change is transforming the entire food systems, changing way humans produce and purchase food. A report from Concern Worldwide US has shown that countries with high-levels o in the equatorial tropics, every 1°C rise in mean temperature causes a 10% drop in crop yields. A reduction in the yields of major crops results in an increase in food prices, which makes it more difficult for those who are poor. Moreover, increased levels of carbon dioxide emission reduce the nutritional value of crops, thereby worsening the quality of food that are available. Climate change is said to be a threat multiplier for hungry and undernourished people.

International Actions

Azure FarmBeats

Azure FarmBeats is a business to business cloud service, provided by Microsoft, available in Azure Marketplace. The application is based on artificial intelligence (AI) and machine learning (ML) technology which allows the collection of agricultural datasets and provides AI-suggested solutions tailored to each circumstance. With the free preview of Azure FarmBeats available online

coupled with accompanying technologies –such as drones and sensors – the users are provided with aerial imagery and a report on farm health based on vegetation index and water index. In addition, various indicative measurements such as availability of sunlight, soil moisture, nutrients, and wind can be recorded to provide real-time insights to infield variations that are taking place when and where. Azure FarmBeats has extended its project beyond the borders of the United States and it has been available for



Data analysis and modelling using drone imagery and sensor on Azure FarmBeats

use worldwide. By using data-driven agriculture, Azure FarmBeats aims to make farming more productive, cost-efficient, and eco-friendly for all.

World Summit on Food Security

In 1974, the first food summit known as the “World Food Conference” was convened by the Food and Agriculture Organization of the United Nations (FAO) in Rome, Italy. Ever since its first convention, three other conferences took place with the most recent event taking place in 2009. At the 2009 World Summit on Food Security sixty representatives gathered and agreed to implement the declaration pledging renewed commitment to end hunger on Earth as soon as possible.

Key Players

United Nations World Food Program (WFP)

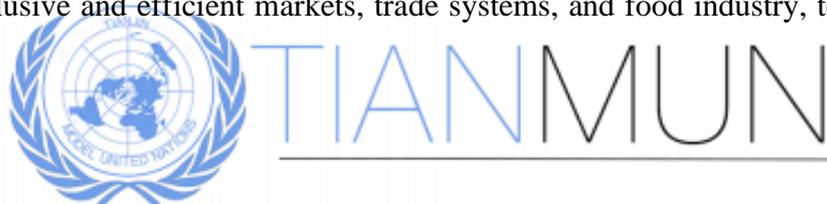
The World Food Program is the world’s largest humanitarian organization set up by the United Nations to address the problem of hunger and provide food assistance to those in need internationally. WFP is active over 80 countries with more than 15,000 staff members aiding approximately 80-100 million people annually. The organization has a large network of supply chain which consists of 5,000 trucks, 70 aircraft, and 20 ships – making it possible to distribute 3.5 million tons of food each year. It focuses on trying to improve the quality and nutrition of life in the region most in need, as well as promoting self-dependence for sustainability. For example, the WFP launched several projects like “Food For Assets” and “Fight Hunger: Walk the World” as an initiative to increase food security by providing both short-term supplies together with long-term solutions such as construction or rehabilitation of assets that fosters sustainable agriculture.



A World Food Program campaign to promote and support food security

International Food Policy Research Institute (IFPRI)

The International Food Policy Research Institute (IFPRI) is a non-profit research organization of Consultative Group on International Agricultural Research (CGIAR). With more than 600 members of staff working across more than 50 countries, IFPRI provides research-based solutions to policy makers aiming to sustainably minimize poverty and end hunger, as well as malnutrition, in developing countries. IFPRI has five strategic areas of research which include promoting climate-resilient and sustainable food supply and establishing inclusive and efficient markets, trade systems, and food industry, to name a few. IFPRI



works at regional, national, and global scale to assist in reshaping the food systems to ensure secure availability of food to all.

Possible Solutions

Using Genetically Modified (GM) crops

Genetic modification (GM) is a technology that involves inserting a segment of DNA into the genome of an organism. This genetic engineering technology is designed to introduce a desired trait to the plant which the organism does not inherently possess before modification. For example, GM crops can be engineered to be resistant to chemical treatments, diseases, environmental conditions, and pests, as well as being able to improve their nutritional value. These GM crops also produce higher yields and can survive through extreme weather conditions such as droughts, flood, and heavy snow, securing the availability of food for an increasing demand. Moreover, it can be modified to produce crops with prolonged shelf life which allows easier transportation of food to remote regions by improving the qualities of food.



Genetically Modified Golden Rice with higher nutritional value as compared to normal rice.

Though concerns and opposition to GM crops do exist, it seems that GM technology is helping farmers to adapt to the problems raised by climatic variations. GM crops could be vital in making our agricultural infrastructure more resilient when faced with climate change.

Glossary

Famine

Extreme scarcity of food.

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