

Food and Agriculture Organization

MetMUNC XLV III

Topic: Improvement of Agricultural

Output

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**Food and Agriculture
Organization of the
United Nations**

Recently, there has been an increased sensitivity of crops towards factors such as climate, pests, and the soil, which is responsible for a dangerous decrease in global agricultural output. Agriculture is highly unpredictable, but assessing patterns and previous data can provide insight into agricultural productivity and help guide the decisions made by farmers. Agricultural statistics are almost always reported on a geopolitical basis, but analysts are increasingly placing agricultural production in farming space. This change in thought is directly referring to the biological aspects of the changing agriculture. The deterioration in agriculture productivity can result in immense struggles, when the demand from the population and income rises.¹

FAO reports indicate that in order to meet agriculture demands for a population of 9.73 billion by the year 2050, the world will need to produce 50 percent more food than it did in 2012.

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| | 2005/07 | 2050 | 2005/07 2012 | 2013-2050 |
|--|---------|-------|-----------------|-----------|
| World | | | | |
| As projected in AT2050 | 100 | 159.6 | 14.8 | 44.8 |
| With updated population projections (UN, 2015) | 100 | 163.4 | 14.8 | 48.6 |
| Sub-Saharan Africa and South Asia | | | | |
| As projected in AT2050 | 100 | 224.9 | 20.0 | 104.9 |
| With updated population projections (UN, 2015) | 100 | 232.4 | 20.0 | 112.4 |
| Rest of the world | | | | |
| As projected in AT2050 | 100 | 144.9 | 13.8 | 31.2 |
| With updated population projections (UN, 2015) | 100 | 147.9 | 13.8 | 34.2 |

¹ https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=1001&context=card_books#page=92

² <http://www.fao.org/3/a-i6583e.pdf>

Figure 1: Percent of agriculture increase necessary to meet 2050 demands

It is

predicted that the demands needed to be met are not difficult to achieve, as previous data shows that between 1961 and 2011, global agricultural output more than tripled. In low income areas such as sub-Saharan Africa and South Asia, livestock has been one of the fastest growing areas of industry. Since the 1970s, the per capita consumption of dairy and oils has doubled and meat has tripled, which shows that agricultural output is capable of increasing to keep up with a growing population. The problem, however, lies in the yield, or amount of crops produced, which remains low with the increased efficiency.³ The Green Revolution was a time where there was an increase in grain production and higher yields resulted with the aid of chemical fertilizers.⁴ Research has uncovered that the grains that had an increased yield lead to land degradation, salinization of irrigated areas, over-extraction of groundwater, the buildup of pest resistance, and a decrease in biodiversity. Unfortunately, water scarcity, rising global temperatures and unpredictable changes in the climate still remain a factor in keeping the harvest rates low, despite

| Country group | Wheat | Rice | Maize |
|---------------------|-------|------|-------|
| Low-income | 1.82 | 3.3 | 1.54 |
| Lower middle-income | 2.74 | 3.65 | 2.74 |
| Upper middle-income | 2.67 | 5.28 | 4.41 |
| High-income | 3.5 | 6.64 | 8.99 |
| World | 2.92 | 4.16 | 4.87 |

Green Revolution efforts.⁵

³ <http://www.fao.org/3/a-i6583e.pdf>

⁴ <https://www.britannica.com/event/green-revolution>

⁵ <https://hbr.org/2016/04/global-demand-for-food-is-rising-can-we-meet-it>

Figure 2: Annual Average Crop Yields (tonnes/ha)

Since the 1990s, average annual increases in the yields of maize, rice, and wheat at the global level have been slightly more than 1 percent, much lower than in the 1960s, while those of soybeans and sugarcane have been below 1 percent. Yields of wheat and rice in low-income countries are currently about half those in high-income countries. With this data the yield gaps were calculated and in most low income countries exceed 50 percent. This large distribution could be caused due to a lack of equipment and modern technology to aid with the current situations.⁶

In many countries, the economy revolves around agriculture, but the outputs in each of these countries are decreasing. In Somalia, 60.2% of the GDP depends on agricultural output. The most popular form of farming is indigenous farming, which involves rain-fed cultivation and minimal irrigation-based cultivation being practiced along the Jubba and Shabelle rivers. The

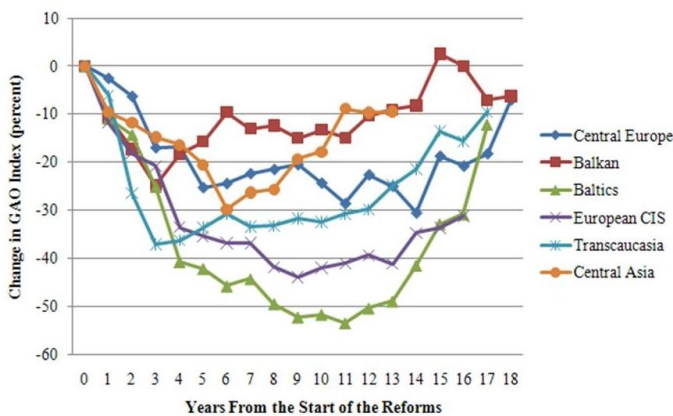


Figure 3: This shows the change in agriculture over the last 2 decades.

most popular crops are sugar and bananas.

Unfortunately, a civil war has ravaged the crop sector of the nation and agricultural output has gone into sharp decline over the last two years.

⁷ Additionally, in the Baltic states and the European CIS, agricultural output decreased to about 50% to 60% from the original output at 0 changes in the GAO (Government

Accountability Organization) index. In Central Europe and Central Asia, output declined by 25% to 30%. Output stabilized and started to recover in the mid 1990s in Central Europe and later in

⁶ <http://www.fao.org/3/a-i6583e.pdf>
⁷ <https://www.worldatlas.com/articles/countries-most-dependent-on-agriculture.html>

the other regions. Currently, agricultural output is close to the pre-reform output level in most countries, yet it is still below the original starting point of stability.⁸ A large majority of this crisis resides in African countries that directly rely on agriculture to feed their people. In order to remedy this issue, countries can turn to agricultural intensification. Methods of intensification include reducing pesticides, lowering greenhouse gas emissions, and maintaining public health goods including clean water. Sustainable intensification often uses micro-dosing, by which farmholders use bottle caps to measure out fertilizers. This increases yields and reduces the risk of toxic chemicals in the drinking water. One difference in this from typical techniques is that it calls for cooperation and organization in many of these rural areas. In this method, farmers can deposit grains into “banks” and later in the year farmers can access it or sell it for a higher price or to re-harvest their goods. This type of system is operated by the Kenya Agricultural Commodity Exchange, which is a private-sector firm that provides farmers with prices and other market intelligence through texts.⁹ While this specifically applies directly to the issue in Africa, it can be modified to adjust to the needs of other countries undergoing the same issue.

In essence, rising agricultural productivity allows for better food prices and a more secure place in terms of hunger and the absence of food. The increase effectively raises real rural and urban wages, since food is a major component of wage goods, and benefits landless and other rural food-deficit households. FAO states that, “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” This refers to the four divisions of food security which includes the availability of food, economic and physical access to food,

⁸ <http://www.choicesmagazine.org/magazine/article.php?article=93>

⁹ <https://www.theguardian.com/global-development/poverty-matters/2013/apr/18/africa-food-crisis-growing-crops-sustainably>

meeting nutritional requirements, and stability of these three aspects over time.¹⁰ The four aspects are what will help stabilize the food deficit in many countries, a goal the FAO strives to achieve.

¹⁰ https://unctad.org/en/PublicationChapters/lde2015_ch2_en.pdf

Questions to Consider:

1. What is the agricultural output percentage in your country?
2. If it is a negative output, what is your country doing to remedy this issue?
 - a. If they are resolving the problem, is it effective?
3. In what ways does the agricultural issue revolve around the people and the economy of the country?
4. How does climate change impact agricultural output?
5. Are you seeking help from larger countries with a successful output rate to address this issue.

Helpful Links:

- <http://www.fao.org/3/a-i6583e.pdf>
- [https://www.theguardian.com/global-development/poverty-matters/2013/apr/18/africa-fo
od-crisis-growing-crops-sustainably](https://www.theguardian.com/global-development/poverty-matters/2013/apr/18/africa-food-crisis-growing-crops-sustainably)
- <https://www.worldatlas.com/articles/countries-most-dependent-on-agriculture.html>
- <https://www.britannica.com/event/green-revolution>
- <https://www.worldatlas.com/articles/countries-most-dependent-on-agriculture.html>
- <https://hbr.org/2016/04/global-demand-for-food-is-rising-can-we-meet-it>

