

Committee: Environment Sub-Commission 1

Issue: Promoting ecological sustainability within the food system

Student Officer: Dünya Gürses

Position: Deputy President

INTRODUCTION

Today nearly a billion people around the world suffer from malnutrition and hunger while a third billion suffer from obesity and over-consumption. This situation results in an imbalance in the food system with some parts of the world not even having as much food as some parts waste. However, the inequality in the food distribution is not the only problem the food system faces.

The world's increasing population is yet another factor that threatens sustainability within the food system. With an expected 1.1 % annual human population growth, the demand for crops, land and energy sources will be increasing rapidly, endangering ecological sustainability which means that future generations may not be able to access as much food as the present generations do. That is why promoting ecological sustainability is extremely vital for the future of the world and making sure that the present generation does not overuse natural resources and non-renewable energy sources.

The food system is affected by environmental factors, therefore, any shift in the environment has a direct impact on the food system. For example, a plant that was produced in a certain region may not be able to be produced in the same region due to climate change. Water pollution, air pollution and especially soil pollution also create disturbances within the food system. The protection of biodiversity is yet another necessary measure that has to be taken for the sustainability of the system. Consequently, when talking about sustainability within the food system all environmental issues should be addressed.

The issue of promoting ecological sustainability is a very broad topic which needs detailed research and through, long-lasting solutions. Although it is a very complex issue connected to many variables it can be simplified into two aspects. The first aspect is combating famine in poor countries but also combating obesity in well-developed states. Worldwide hunger should definitely be addressed as well as over-consumption. The second

aspect is making sure that future generations can benefit from the same food sources as present generations do, which branches into all types of environmental issues. Energy sources should be used wisely as energy is essential in the production of food. Climate change and pollution should also be combated since they affect the food system. Finally, food governance, which includes the food-related interactions between countries such as

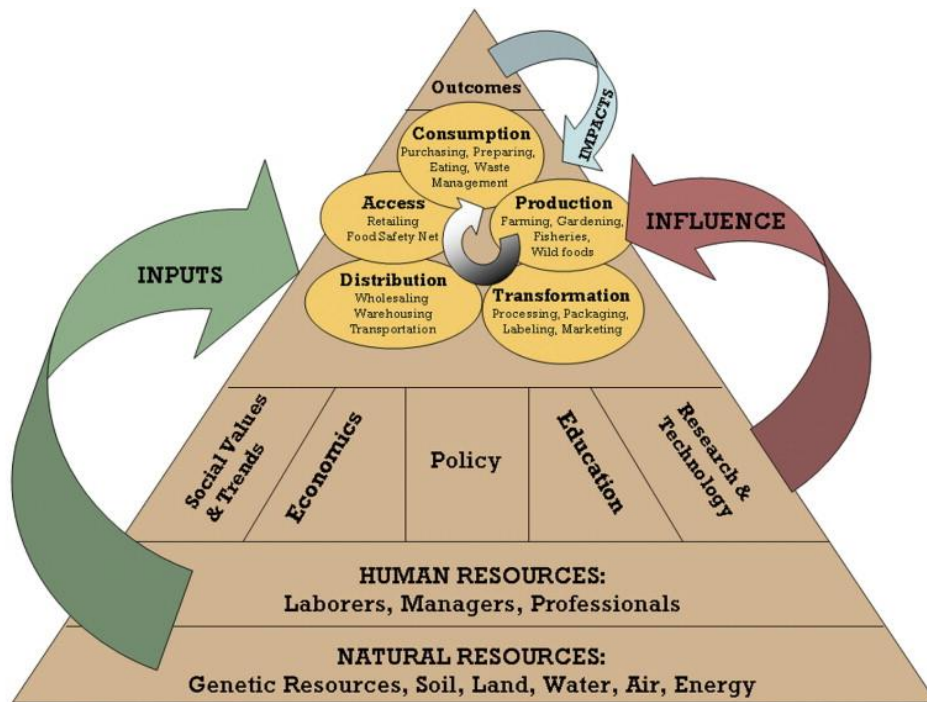


Figure 1: Food system sustainability

trade deals, is an important influence on the issue.

The food security, which is the state of having access to nutritious and sufficient food, is pivotal when achieving environmental, social and economic goals of the world. It is incredibly significant that ecological sustainability within the food system is achieved not just for the future generations but for the environment and for the millions suffering from hunger. As stated by The Oxford Martin Programme on the Future of Food, “the international governance of the food system must be designed so that globalization benefits food security, the environment and the poor.”¹

¹ “What Can Be Done?” What Can Be Done? | Future of Food, 11 Aug. 1970, www.futureoffood.ox.ac.uk/what-can-be-done.

DEFINITION OF KEY TERMS

Ecological sustainability

Two approaches are present when defining ecological sustainability. The first and most widespread one is assuming that ecosystems are in balance and therefore defining ecological sustainability as ecosystem health, which is in broader terms, present generations using natural resources wisely so that the future generations can benefit from the same opportunities they had based on the knowledge that humans can overuse resources. The second and newer approach accepts that ecosystems are loosely defined and in constant fluctuation, resulting with a definition which is far more complex and virtually unattainable.

Food system

Food system can be best defined as the path that food travels starting from its production to ending with its consumption. This path includes processing, transport and such. The definition also includes its sustainability which is the degree that food is wasted. Food system is affected by changes in the environment.



Figure 2: Key components of the food system.

Biodiversity

In simplest terms, biodiversity is the variety of life. It can be studied in different levels and habitats, big and small.

Ecosystem

An ecosystem consists of communities living together within their physical environment. It is the lowest level of life in which biotic and abiotic factors are both present. Ecosystems also include food webs and energy flows.

Climate change

Climate change is a long-term difference in the typical weather of a region due to the atmospheric temperature change. Observations prove that Earth's temperature is increasing which may lead to big impacts on the environment. Scientists say that burning of fossil fuels plays a big role in the unnatural climate change the world faces today.

Greenhouse gases (GHG)

GHG are gases that trap heat in the atmosphere. They are usually produced by the burning of fossil fuels and include carbon dioxide, methane and nitrous oxide.

Ecological footprint

The World Wide Fund for Nature defines ecological footprint as “the amount of environment necessary to produce the goods and services necessary to support a particular lifestyle.”² Ecological footprint also refers to a measure of sustainability and can be used for country-wise rankings.

Famine

A famine can be defined as very significant lack of food and water. A famine is far more extreme than hunger and is the reason of massive loss of life. There is a current famine in South Sudan.

BACKGROUND INFORMATION

As this issue is very broad and complex, it is not easy to list out all the important factors. This document talks about the major aspects of the issue however, there might be many more minor factors to be explored.

Hunger as a global issue

Hunger, differently from its more extreme version famine, is a silent symptom of poverty. Countries, which produce the majority of world’s food stock, are usually the ones who suffer from hunger the most. The most undernourished countries include, Burundi, Eritrea, Comoros, Timor Leste, Sudan and Chad. Most countries, which suffer from hunger, are in sub-Saharan Africa. The causes of hunger are very diverse and are not only limited to war and poverty. Climate change and lack of access to water are some of them. Although many organizations and states are working to end hunger and it is one of the 2030 Sustainable Development Goals, hunger is still a global issue, affecting nearly a billion people. Hunger should definitely be combated when addressing the issue of promoting ecological sustainability within the food system.

Obesity

² “Ecological Footprint.” WWF, wwf.panda.org/about_our_earth/teacher_resources/webfieldtrips/ecological_balance/eco_footprint/.

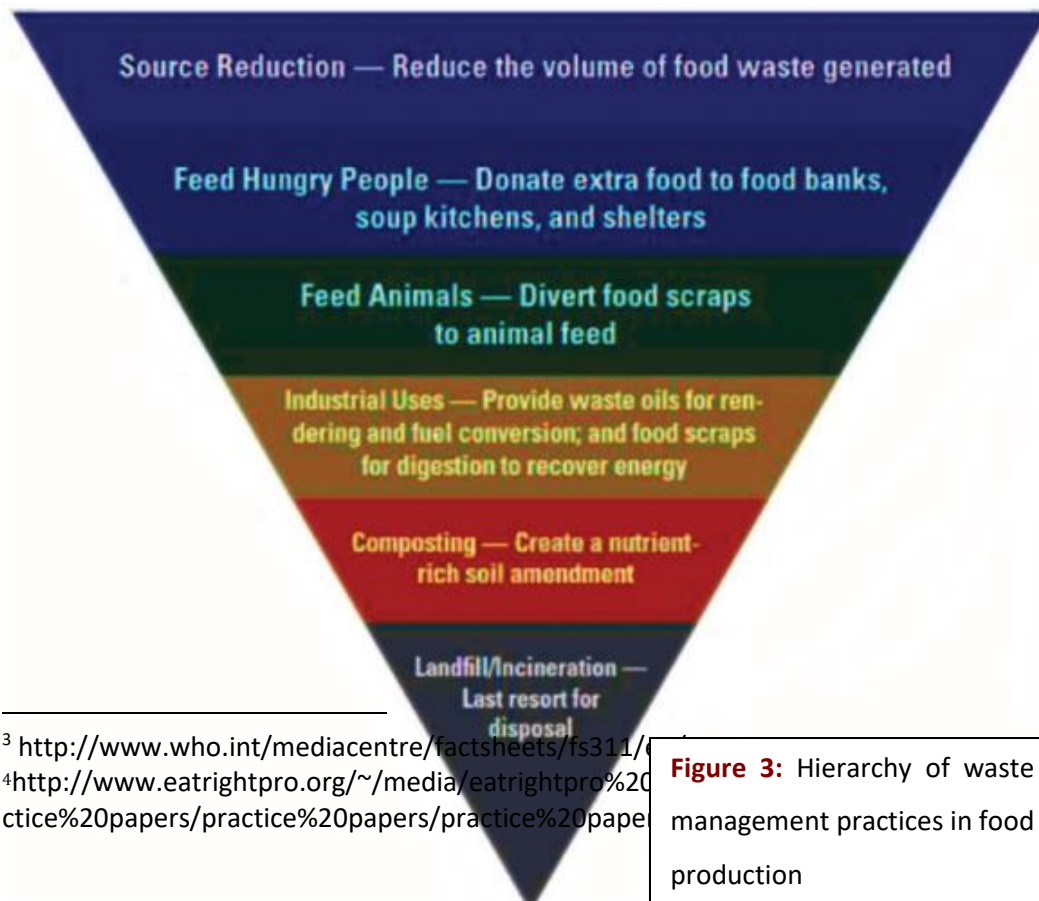
Obesity is defined as having a body mass index over 30 and is a serious health issue caused by various reasons, one of them being over-consumption. Obesity is a relatively new phenomenon and has been rapidly increasing in the last decade due to increased food consumption and industrialization in the western world. It creates an imbalance within the food system just as much as hunger does due to their extremities and that is why it should be discussed when tackling the issue. “Most of the world's population live in countries where overweight and obesity kills more people than underweight.”³ That is why it should be taken seriously and seen as a threat to ecological sustainability.

Dietary Guidance

A method of combatting obesity and over-consumption is through getting dietary guidance from dietetic technicians (DTRs) and registered technicians (RDs). DTRs and RDs have an opportunity to shape the food system and “are uniquely positioned to meet the growing needs of clients seeking guidance on food choices as they relate to ecological sustainability.”⁴

Waste Management

Waste management is a way of recycling food and minimizing food waste. It is a great method to be used when promoting ecological sustainability within the food system. It is not widely used but is definitely an efficient way of ensuring balance in the food system.



³ <http://www.who.int/mediacentre/factsheets/fs311/>

⁴ <http://www.eatrightpro.org/~media/eatrightpro%20practice%20papers/practice%20papers/practice%20paper>

Figure 3: Hierarchy of waste management practices in food production

Energy Sources

Energy sources can be grouped into two groups as renewable sources and non-renewable sources. Energy sources play a big role in the production of food and that is why their consumption should be wise and planned. Non-renewable energy sources, also known as fossil fuels, are being overused and are in danger of being completely consumed in a not very distant future. A source that present generations have but can not be yielded to future generations is not ecologically sustainable. The usage of fossil fuels, although preferred for their low price and convenience, should be limited. The usage of renewable sources should be promoted for the good of the planet as fossil fuels also create greenhouse gases which lead to climate change and disturbances within the food system. Renewable energy sources include geothermal, wind energy, solar energy and tidal power. They are produced from sources readily found in the environment however, they require a certain level of technology to be able to be produced. Non-renewable energy sources include petroleum, natural gas and coal.

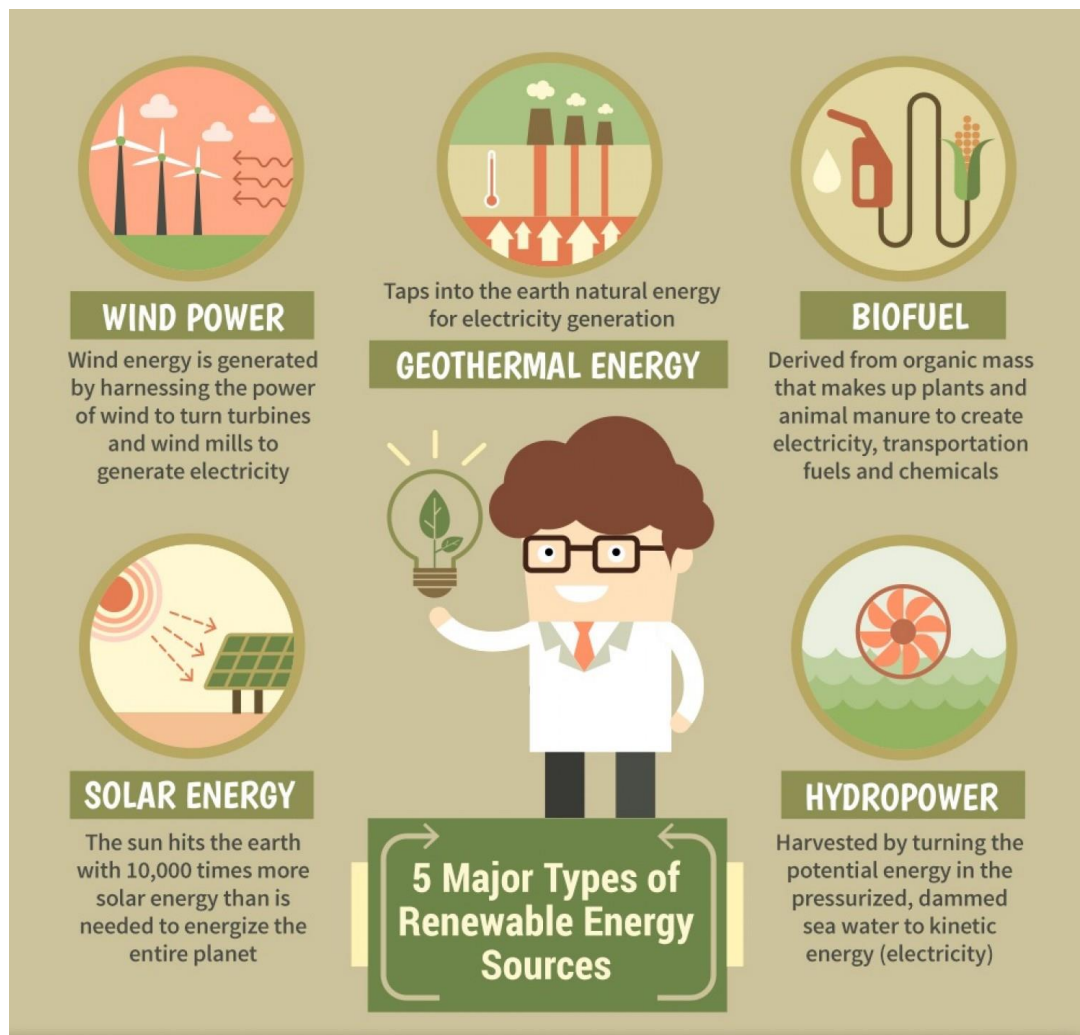


Figure 4: 5 major types of renewable energy sources.

Climate Change

Climate change is one of the important factors that affect the food system. Reducing the emission of GHGs could be mentioned when tackling the issue. One of the important things to be kept in mind when talking about climate change is the Paris Agreement signed by 55 countries aimed to reduce GHGs and decrease the temperature increase. However, it is also of great importance that the president of the United States, a country in control of a large part of world's industrial sector, Donald Trump has announced that the US will be withdrawing from the agreement, lessening the importance of the deal as well as hardening the process of combating global warming.

MAJOR COUNTRIES AND ORGANISATIONS INVOLVED

China

China is one of the biggest carbon producers in the world and a very polluted country. Recently, China has started a big campaign to increase the use of renewable energy sources. They have built the world's largest solar panel on water. They have signed the Paris climate accord and thereby agreed to decrease their greenhouse gas emission. They are also working to eliminate hunger as 150 million people in China are undernourished. Obesity is another major issue in China; as the number of fast food chain restaurants increase, obesity increases. Today, China has the largest number of overweight people in the world, even more than the US.

France

Pollution is a big issue in the major cities in France. According to a study conducted by a French national health agency air pollution kills around 48,000 people each year. In fact, France has briefly topped air pollution charts back in 2015. They are a part of the Paris climate deal and are working to reduce pollution. Hunger is not a major problem in France and obesity rates are among the lowest in Europe.

Russia

Pollution poses a threat to the environment in industrial Russia and it is not the only major environmental issue Russia faces. Nuclear waste and deforestation are both equally dangerous. Russia has signed the Paris agreement however Putin, the president of Russia, has not condemned Trump, the president of the United States of America for wanting to pull out of the deal. Putin has publicly stated that he does not blame Trump for wanting to pull

out. Obesity is a problem as well. According to WHO around 60% of the adult population is overweight and around 25% are obese.

United Kingdom

Studies show that 59% of United Kingdom’s population lives in places where air pollution is dangerously high, these high levels are caused by vehicles and factories. UK has signed the Paris agreement and has taken a step to reduce pollution. Obesity is another major health issue in the UK. According to the Food and Agriculture Organization (FAO) one in four adults is obese in Britain. It is the highest obesity rate in Europe.

United States of America

USA, after China, is the second biggest carbon producer in the world. Also, after Saudi Arabia, USA has the second highest levels of carbon emission per person, that it why USA’s presence in the Paris agreement was extremely vital. However, President Trump is to withdraw USA from the deal, which will certainly make the fight against climate change harder. Also, obesity is an important issue in the USA with over 35% of the adult population being obese.

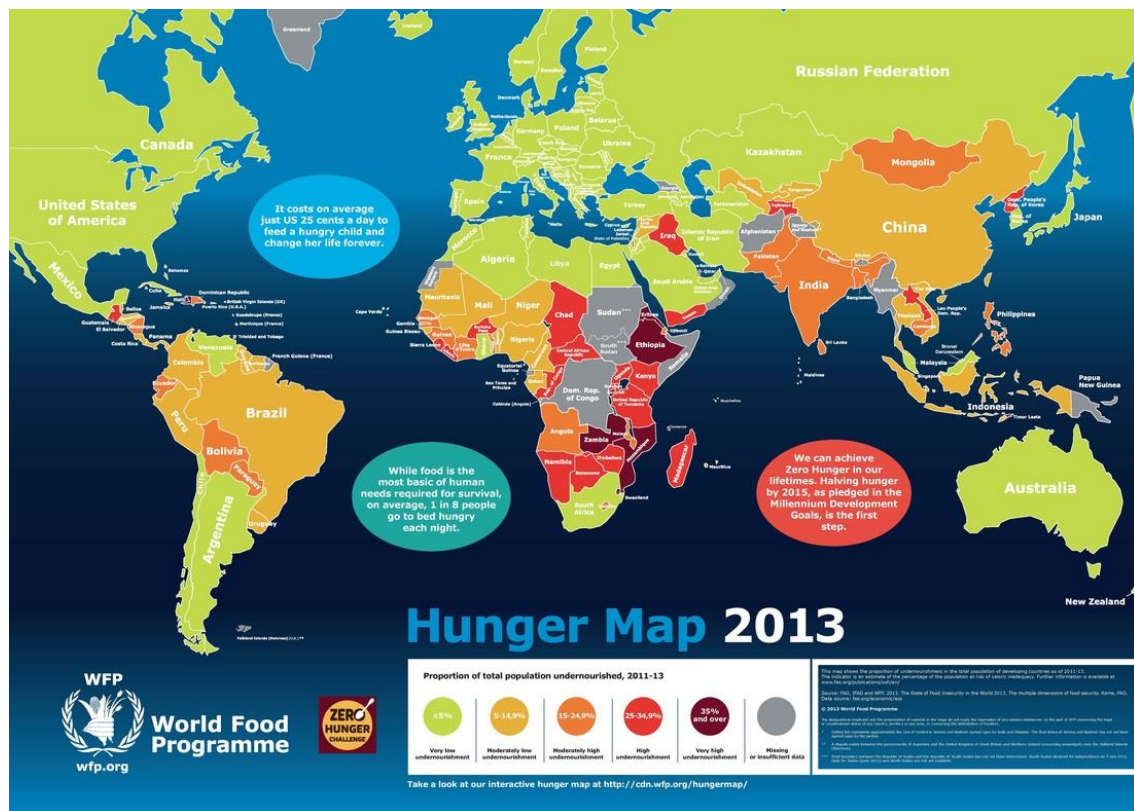


Figure 5: World Hunger map.

World Food Programme (WFP)

It is one of the major organizations battling with worldwide hunger by assisting 80 million people around the world. They respond to humanitarian crises with food assistance and implement food programs in schools. WFP works in cooperation with over 1000 international and national NGOs. Their priority is Zero Hunger, one of the goals of the 2030 Sustainable Development Goals.

World Bank

The World Bank is a UN organization, which provides financial aid and technical assistance for all types of causes, which support promoting ecological sustainability within the food system. Their causes by sector include food and energy.

Food and Agriculture Organization (FAO)

The FAO mostly works to ensure food security. Their three main goals are: “the eradication of hunger, food insecurity and malnutrition; the elimination of poverty and the driving forward of economic and social progress for all; and, the sustainable management and utilization of natural resources, including land, water, air, climate and genetic resources for the benefit of present and future generations.”⁵

International Fund for Agricultural Development (IFAD)

IFAD mostly focuses on eradicating rural poverty and hunger, targeting some of the poorest rural populations. “IFAD provides a strong global platform for discussing rural policy issues – and for increasing awareness about why investment in agriculture and rural development is critical to reducing poverty and improving food security.”⁶

⁵ <http://www.fao.org/about/en/>

⁶ <https://www.ifad.org/topics>

TIMELINE OF EVENTS

Date	Description of Event
2000	The adoption of the Millennium Development Goals.
2012	The launch of the Zero Hunger Challenge at the Rio+20 World Conference on Sustainable Development.
2015	The adoption of the Sustainable Development Goals.
December 2015	The adoption of the Paris Agreement at the Paris climate conference.
2016	Debate on 14 draft resolutions on the issue of promoting ecological sustainability within the food system.

UN INVOLVEMENT: RELEVANT RESOLUTIONS, TREATIES AND EVENTS

Although 14 draft resolutions on sustainable food systems were submitted to the UN and debated by member states, a resolution solely focused on the matter has not been passed yet. Nevertheless, as the issue at hand is affected by all environmental aspects, all environment resolutions, treaties and events can be considered relevant.

- “UN Conference on the Human Environment (1972)
- World Commission on Environment and Development (1987)
- United Nations Conference on Environment and Development (1992)
- General Assembly Special Session on the Environment (1997)
- World Summit on Sustainable Development (2002)
- UN Conference on Sustainable Development (2012)”⁷

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Since this issue has started being discussed only recently, there has not been any specific attempts to solve it. In fact, it has been discussed by the UN just last year but a resolution has not been adopted yet. Even though there are not any major attempts that directly aim to tackle this issue, many organizations have been fighting with hunger and famine for decades. There are also many organizations combatting pollution and climate change.

⁷ <http://research.un.org/en/docs/environment/conferences>

POSSIBLE SOLUTIONS

As previously stated, this issue includes many sub-topics within therefore all aspects need to be tackled individually. First of all, there is a lack of an international agreement on the issue. Although there has been a discussion in 2016, no document has been signed or adopted. Holding an ecological sustainability summit and creating a resolution on the food system could be an efficient approach. This resolution could mention states' governance on food policies and interstate trade deals.

Ecological sustainability within the food system is unknown to many therefore an educational initiative would definitely be beneficial. It could be added to school curriculums as a subject or local seminars could be organized. Mass media could be used to raise further awareness. Also, there could be agricultural workshops in less developed countries to make sure food waste is minimized during its production and transport.

Dietary assistance could be provided to lower income families suffering from obesity. Countries with high obesity rates should educate their citizens about the causes of obesity and how to combat it. Healthier diets could be provided at schools and workplaces.

Hunger should definitely be explored and tackled through working in cooperation with relevant NGOs and coming up with creative and innovative solutions. Providing farming equipment and educating rural populations on agriculture instead of only food assistance could be a more long-term solution. Also, sanitation of water should be addressed.

All environmental issues can be mentioned. Pollution should be prevented or decreased through education, monitoring and maybe stricter regulations. Climate change should definitely be addressed. The usage of fossil fuels should be decreased and the usage of renewable energy sources should be promoted. There could be projects to install the usage of renewable energy sources in rural areas by taking advantage of the abundance of a certain natural source. Recycling should be promoted as well.

The most important thing to keep in mind when talking about this issue is that it is extremely vital. Food is one of the most central concepts of our world and is at the root of all types of problems. That being said, new and strong measures need to be taken in order to tackle this issue. Farming, agriculture, pollution, climate change, recycling, usage of energy sources, hunger, obesity, governance, trade and development should all be addressed in one way or another.

BIBLIOGRAPHY

"Ecological sustainability and biodiversity." *Taylor & Francis*. N.p., n.d. Web. 21 June 2017.

William, Sydney Australia. "Skwirk Interactive Schooling." , *Exploring the issue, Environment and development: world environments, SOSE: Geography Year 8, QLD | Online Education Home Schooling Skwirk Australia*. N.p., n.d. Web. 21 June 2017.

Woods, Jeremy, Adrian Williams, John K. Hughes, Mairi Black, and Richard Murphy. "Energy and the food system." *Philosophical Transactions of the Royal Society B: Biological Sciences*. The Royal Society, 27 Sept. 2010. Web. 21 June 2017.

"About Local Food Systems." *About Local Food Systems | Angelic Organics Learning Center*. N.p., n.d. Web. 21 June 2017.

"What is the Food System?" *What is the Food System? | Future of Food*. N.p., 19 June 1970. Web. 21 June 2017.

"What is Biodiversity?" *National Wildlife Federation*. N.p., n.d. Web. 21 June 2017.

"What is an ecosystem?" *Khan Academy*. N.p., n.d. Web. 21 June 2017.

"Climate change." *Dictionary.com*. Dictionary.com, n.d. Web. 21 June 2017.

"Overview of Greenhouse Gases." *EPA*. Environmental Protection Agency, 14 Apr. 2017. Web. 21 June 2017.

"Sustainable food systems vital to end hunger, malnutrition, UN says on World Food Day." *UN News Center*. United Nations, 16 Oct. 2013. Web. 21 June 2017.

"FAO Country Profiles." *Countries | FAO | Food and Agriculture Organization of the United Nations*. N.p., n.d. Web. 21 June 2017.

"World Food Programme." *Front page*. N.p., n.d. Web. 21 June 2017.

"Ecological Footprint." *WWF*. N.p., n.d. Web. 21 June 2017.

"What is a famine and why is it still happening?" *UNICEF Australia - Charity Donations & Gifts for Children's Charity*. N.p., n.d. Web. 21 June 2017.

"Food." *United Nations*. United Nations, n.d. Web. 21 June 2017.

"Zero Hunger." *Front page*. N.p., n.d. Web. 21 June 2017.

"Projects & Operations." *Projects & Operations - Sectors | The World Bank*. N.p., n.d. Web. 21 June 2017.

"FAO.org." *About FAO | FAO | Food and Agriculture Organization of the United Nations*. N.p., n.d. Web. 21 June 2017.

Topics we cover. N.p., n.d. Web. 21 June 2017.

United Nations. United Nations, n.d. Web. 21 June 2017.

Poston, 2. N., and J. P. Foreyt. "Obesity is an environmental issue." *Atherosclerosis*. U.S. National Library of Medicine, Oct. 1999. Web. 21 June 2017.

"The world's 10 hungriest countries." *Global Citizen*. N.p., n.d. Web. 21 June 2017.

Anonymous. "Paris Agreement." *Climate Action - European Commission*. N.p., 16 Feb. 2017. Web. 21 June 2017.

Promoting Ecological Sustainability within the Food System. N.p.: Academy of Nutrition and Dietetics, n.d. PDF.

Renewable Energy Sources - Energy Explained, Your Guide To Understanding Energy - Energy Information Administration. N.p., n.d. Web. 24 June 2017.

Society, National Geographic. "Non-renewable energy." *National Geographic Society*. N.p., 14 Feb. 2013. Web. 24 June 2017.

Michael. "Trump Will Withdraw U.S. From Paris Climate Agreement." *The New York Times*. The New York Times, 01 June 2017. Web. 24 June 2017.

Bradsher, Keith. "China Looks to Capitalize on Clean Energy as U.S. Retreats." *The New York Times*. The New York Times, 05 June 2017. Web. 27 June 2017.

"Malnutrition in China: Overcoming Hunger in Rural Areas." *The Borgen Project*. N.p., 08 Dec. 2016. Web. 27 June 2017.

Local, The. "Air pollution in France kills 48,000 people each year." *The Local*. The Local, 21 June 2016. Web. 27 June 2017.

"World Hunger." *France*. N.p., n.d. Web. 27 June 2017.

"Obesity and the Economics of Prevention: Fit not Fat - France Key Facts." *Obesity and the Economics of Prevention: Fit not Fat - France Key Facts - OECD*. N.p., n.d. Web. 27 June 2017.

"Pollution devastating industrial Russian city." *BBC News*. BBC, n.d. Web. 27 June 2017.

Clark Mindock New York. "Vladimir Putin refuses to condemn Trump for pulling out of Paris climate deal, tells world: 'Don't worry, be happy'" *The Independent*. Independent Digital News and Media, 02 June 2017. Web. 27 June 2017.

Laville, Sandra. "Nearly 40 million people live in UK areas with illegal air pollution." *The Guardian*. Guardian News and Media, 22 Apr. 2017. Web. 27 June 2017.

Schoen, John W. "Here's how US carbon pollution stacks up with the rest of the world." *CNBC*. CNBC, 31 May 2017. Web. 27 June 2017.

"Obesity Rates & Trends." *Obesity Rates & Trends: The State of Obesity*. N.p., n.d. Web. 27 June 2017.

Pictures' and Graphs' Bibliography

Figure 1:

https://www.google.com/search?q=food+system+sustainability&source=lnms&tbm=isch&sa=X&ved=0ahUKEwinv7iO683UAhUXHGMMKHU7YAagQ_AUIBygC&biw=762&bih=747#imgrc=6w57NmMXe56JsM:

Figure 2:

https://www.google.com/search?q=food+system&source=lnms&tbm=isch&sa=X&ved=0ahUKewi319yS6szUAhUD2GMKHRp3BucQ_AUICigB&biw=762&bih=747#imgrc=9X4A5Roqv3IRyM:

Figure 3:

http://www.eatrightpro.org/~media/eatrightpro%20files/practice/position%20and%20practice%20papers/practice%20papers/practice%20papers/sustainability_march_13.ashx

Figure 4:

<https://visual.ly/community/infographic/environment/5-major-types-renewable-energy-resources>

Figure 5: <http://diazfrance.weebly.com/world-hunger.html>