

Forum: Economic and Social Council (ECOSOC)

Issue: Promoting sustainable production in low- and middle-income countries

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Introduction

Sustainable Production, together with Sustainable Consumption, is the 12th goal of the Sustainable Development Goals. It is recognized as one of the four essential requirements for sustainable development. The present production heavily relies on natural resources and the environment, bringing a devastating impact on the planet. Due to its inefficiency and insatiability, the current inefficient production is responsible for poverty and environmental issues in many aspects. The global population will reach 8.5 billion by 2030, and 9.7 billion by 2050. However, the current production is not efficient, nor productive enough to satisfy the need of such a population. It will require three extra Earth to provide the equivalent number of natural resources to maintain the current production. Moreover, due to the unsustainable production of the past years, many lands and forests are degraded or deforested, making it more challenging to reach sufficient production level. Therefore, promoting sustainable production will be excessively substantial for the human future and the preservation of the planet.

For low- and middle-income countries (LIC and MIC), achieving sustainable production is a measure to provide universal social, economic, and environmental benefits, especially for the poor. For instance, implementing sustainable agricultural production in certain MIC can help raise personal income, recover degraded land, and improve the quality of the natural resource. Another case is the sustainable energy production apply in South Africa, which can reduce electricity fees, provide longer and more stable electricity, and decrease the amount of carbon dioxide created during energy production. Note that LIC and MIC are more related to energy and food production, rather than industrial production.

Definition of Key Terms

Sustainable production

Sustainable production refers to fulfilling the need of the current generation without exceeding Earth's capacity and jeopardizing the ability of future generations to satisfy their need. The

goal is to do more with less. Production of any good and services will generate positive or negative externality on the environmental, economic, and social aspects of the world. Sustainable production minimizes negative impact on the planet, and the use of natural resources to raise life quality.

Low- and middle-income countries

The World Bank classifies countries by their gross national income (GNI) per capita into four different groups: low, lower-middle, upper-middle, and high income. World Bank updates its classification yearly on July 1st. For the current fiscal year, nations with GNI per capita of \$1,045 or less in 2020 are classified as Low-income Countries (LIC). Nations with GNI per capita between \$1,046 and \$12,695 are Middle-income Countries (MIC). See Appendix III for the list of countries in LIC and MIC.

Background Information

Sustainable production is a critical issue of the world. It can be related to many other crucial topics, such as eliminating poverty, as a sustainable food production system will be able to satisfy the need of the current population. It is also a broad topic. Therefore, in order to thoroughly examine the issue, and understand the importance of Sustainable Production, the topic must be separated into three aspects: food production, energy production, and industrial production.

Sustainable food production

Sustainable food production is defined as a method to produce food with non-polluting, productive, safe, economically efficient, and protects natural resources. Sustainable food production is needed because the current production is by far from satisfying all humans' needs. It was estimated that the global population will reach 9.7 billion by 2050. However, up to 811 million people faced hunger in 2020. That is an additional 161 million people compared to 2019. The current food production has to increase by 70% in order to sustain the population. Not to mention, crops and livestock use 60% of Earth's surface area and 70% of freshwater resources on the planet. Making the issue worse, natural disasters, extreme weather, and rising temperature caused by climate change is decreasing the food availability in many nations, especially in sub-Saharan Africa and South Asia. Land degradation is also a critical issue. At least 33% of land is moderately or highly degraded, reducing the natural resources for food production. By the time of 2050, more land will be occupied by humans or no longer suitable for producing food, forcing food production to produce much more food with much less land and resources. A much productive food system therefore must be developed.

Environmental impact

The current food production has detrimental effects on the planet. Animals release a great amount of Green House Gases (GHG) from their digestive systems. Fertilizers and agricultural machinery also create harmful emissions, such as nitrous oxide, manure, and carbon dioxide. In order to grow more food, a great number of forests and grassland were transformed into cropland and farmland, leading to serious carbon dioxide emissions. Not to mention, pollution created from supply chain of food production. These are the pollution produced during the process of turning agricultural crops into product, transportation of food, packaging, and retailing. Together, food production contributes to 25% of global GHG emissions. However, Sustainable Food Production is much harder to achieve compares to other products, as the method to reduce food production emissions is less obvious. For instance, fertilizer is essential for agriculture to satisfy society's needs, and humans cannot stop livestock from creating air pollution with their digestive system.

Sustainable energy production

Sustainable energy production is a method that can produce clean, affordable, reliable, and modern energy. Similar to the food production, the present energy production is not productive enough, nor environmentally friendly enough. Around 940 million people, or 13% of the global population, lack electricity. Most of them are from Asia and Africa, ~~the~~ most nations are classified as low- and middle-income countries clean cooking fuel. They were forced to burn solid fuel, such as wood charcoal and crop residue, which caused ~~the~~ and people become richer. Thus, developing a more sustainable energy production that can provide more energy to humans is a critical issue.

Environmental impact

Energy production generates 75% of the global GHG, mainly through burning fossil fuels. In 2019, 84% of the world's energy was still coming from fossil fuels, while low-carbon energy, renewable and nuclear energy only accounted for 16% of that. Although the low-carbon energy's share of energy is increasing, its growth has been slow that it only increases by 3% from 2000 to 2020. Burning coal still generates On the contrary, fossil fuel's share of energy has been increasing at a much more rapid speed. As a result, the carbon dioxide emission from energy production continues to rise. Every year, around 5 million people die because of air pollution.

Renewable energy

Renewable energy sources are sustainable sources. Common renewable energies are solar, hydropower, wind, geothermal, and biofuel. It is the ideal energy production that can replace fossil fuel, yet its share of energy is much less than that of fossil fuel. Renewable energy only produces around 11% of global primary energy in 2019. They also merely generate around 25% of the electricity in 2019. In 2020, the net demand for renewable

energy only increases by 1% as well. The main issue for some MIC, such as India, is that, while they have great potential for renewable energy production, they continue relying on fossil fuel for its availability and less expensive price. For some LIC, such as African countries, their slow development in renewable energy production is due to their lack of sufficient fund, developed energy policies, and advance technology. Though some progress has been made, renewable energy is far from saving mankind from energy production relying on fossil fuel.

Sustainable industrial production

Sustainable industrial production can be defined as a non-polluting and resource-efficient production method. It includes replacing heavily polluting systems with ones that are more efficient and more environmentally friendly. It also means utilizing more recyclable resources and conserving the limited natural resource. Waste management is often considered as well.

Environmental impact

The current industrial production and its success are largely reliant on natural resources. As the population grows and living standard rises, many pollutive industries spotted the demand and profit, leading to maximized production. However, the maximized production brought a devastating impact on the environment. The production creates countless waste and pollution due to the high temperature and specialized processes. Note that in 2016, heavy industry was responsible for 36% of global carbon dioxide emissions. On the other hand, from 1970 to 2017, as the production increased, the global extraction of materials grew from 27 billion tons to 92 billion tons. It is also estimated that the global extraction of material will continue to grow to 167 tons by 2060. Such an amount of extraction creates a heavy burden on the environment. Around 50% of global GHG emissions are caused by natural resource extraction and processing.

Profit vs. preservation

One specific example of chemical production was included in a UN report at UN Environment Assembly in Nairobi. The chemical production capacity in 2019 was 2.3 billion tons, and it was estimated that it would double by the time of 2030. Regardless of the policies and efforts on sustainable industrial production, harmful chemicals in great quantities were still released into the air, water, and soil. There are much to do to protect the planet and the world is far from achieving sustainable production.

Major Countries and Organizations Involved

United National Environmental Program (UNEP)

United National Environmental Program is the leading authority in advocating the global environment preservation and sustainability. UNEP has been actively involved in setting up global environmental agendas and promoting the implementation of various comprehensive plans regarding the environment as an aspect of sustainable development. UNEP settled up the 10-year Framework of Program on Sustainable Consumption and Production Patterns (10YFP) — a global framework of action for international cooperation aiming to develop Sustainable Consumption and Production.

World Trade Organization

World Trade Organization (WTO) dedicates to preserve and protect the environment through regulating trades among nations. Trade policies will impact the environment, while environmental preservation also influences trade policies. WTO has been contributing to sustainable production through constructing a multilateral trading system that is beneficial to all countries and the environment, allowing members to realize sustainable development. While encouraging members to preserve the environment through trade measures, WTO also ensures sustainable development by monitoring nations and preventing illegal trade measures, such as protectionism.

International Monetary Fund

International Monetary Fund is a global economic cooperation, dedicated to promoting sustainable economic growth and exterminate global poverty. IMF has been supporting nations to pursue sustainable development through promoting Sustainable Growth, Inclusive Growth, and Environmental Sustainability — three strategies that IMF believes can greatly help countries implement sustainable development. Specifically, IMF supports Low-income Countries (LIC) through collaborating with country authorities to develop policies that are beneficial for sustainable development, and capacity-building activities that not only improve the domestic economy but also support sustainable development. IMF also provides various policies that support LIC, such as offering permanent zero percent interest for Rapid Credit Facility.

Federative Republic of Brazil

For sustainable food production, Brazil relies on modernized agriculture practices and the utilization of abandoned land. It had been raising its food productivity through agricultural modernization in the 1970s. To tackle illegal deforestation, the Brazilian government implemented a satellite monitoring system that had been effectively reducing the amount of deforestation in the Amazon. In addition, Brazil approved a new forest code in 2012. Brazil is planning to develop a new satellite system and forest code, seeking better natural resource protection, and environment preservation.

Republic of India

India sustains 18% of the global population. It is responsible for 6.9% of global GHG emissions, making it the third-largest emitter. Around 54.6% of all energy generation infrastructure relies on coal. On the contrary, India had electrified 100% of its villages, provided cleaning cooking fuel to 80 million people, and curtailed 38 million carbon dioxide emissions. Moreover, India is one of the nations with the largest amount of renewable energy being implement. India's plan for 2030 is to installed 450GW of renewable energy, and recover 26 million hectares of degraded land.

Timeline of Events

Date	Description of event
June, 1992	At Rio de Janeiro, more than 178 nations adopted Agenda 21. Agenda 21 is a detailed action plan for global sustainable development. The goal is to protect the planet and to improve human living standards.
September, 2000	At the Millennium Summit, UN member states all adopted the Millennium Declaration, with 8 Millennium Development Goals (MDGs) as its core, seeking to reduce extreme poverty by 2015, while protecting the environment.
2002	At the World Summit on Sustainable Development in South Africa, the Johannesburg Declaration on Sustainable Development and the Plan of Implementation was adopted. It reiterates the commitment of member states to eliminate poverty and to protect the environment while placing more emphasis on global collaboration.
June 20-22, 2012	At the United Nations Conference on Sustainable Development, known as Rio+20 in Rio de Janeiro, member states adopted the document "The Future We Want", launching the 17 Sustainable Development Goals based on the previous MDGs. The 12th goal is Responsible Consumption and Production.
February, 2015	The implementation of the 10 Year Framework of Programmes — One Planet Network — was launched.
September, 2015	At the UN Sustainable Development Summit in New York, member states adopted the "Transforming our world: the 2030 Agenda for Sustainable Development", or Agenda 30.

Relevant UN Treaties and Events

- Innovative pathways to achieve sustainable consumption and production, 15 March 2019 (UNEP/EA.4/Res.1)
- Transforming our world: the 2030 Agenda for Sustainable Development, 21 October 2015 (A/RES/70/1)

Previous Attempts to solve the Issue

10-Year Framework of Programmes

The implementation of the 10-year framework of programs (10YFP) on sustainable consumption and production, involving all nations, is the first target of Responsible Consumption and Production. It was established as the shift toward sustainable consumption and production is too challenging for a single region or organization to accomplish. Therefore, the 10YFP was formed. The One Planet network later was created in order to carry out action based on the framework. It is an open partnership that all stakeholders, including nations and organizations, are invited to participate and engage in. The network consists of six programs: Public Procurement, Buildings and Construction, Tourism, Food Systems, Consumer Information, and Lifestyles and Education. It pursues a more sustainable production and consumption pattern, through supporting policies, developing and researching technology, as well as implementation projects.

Marrakech Process

The Marrakech Process is a global multi-stakeholder process that encourages and helps the implementation of sustainable consumption and production. The Marrakech Process also involves setting up the 10YFP. UNEP and the United Nations Department of Economic and Social Affairs (UN DESA) are the two main organizations that initiate various projects around the world. The Regional Integrated Silvopastoral Approaches to Ecosystem Management Project for Colombia, Costa Rica and Nicaragua is one of the programs. With the assistance of the project, target groups' income in Costa Rica, Nicaragua, and Columbia increased by 55.5%, 66.9%, and 262.3% respectively. The biodiversity of birds and insects and water quality was significantly improved. Farmers were also able to produce more food due to the regain of degraded land, and improvement of the ecosystem.

Possible Solutions

Circular economy

A circular economy is one of the current economic models that can achieve sustainable production. All material and products within the model can be reused, remanufactured, recycled, or

recovered, such as renewable energy that is reusable and non-toxic. Therefore, the circular economy is able to maintain the economy permanently. As the result, the waste and pollution generated can be minimized or eliminated, and GHG emissions can be avoided or reduced, leading to sustainable production that is economically efficient and environmentally friendly.

Bibliography

“Sustainable production and consumption.” EU Science Hub. 23 June 2021.

<https://ec.europa.eu/jrc/en/research-topic/sustainable-production-and-consumption>.

“Goal 12—Ensuring Sustainable Consumption and Production Patterns: An Essential Requirement for Sustainable Development.” UN. <https://www.un.org/en/chronicle/article/goal-12-ensuring-sustainable-consumption-and-production-patterns-essential-requirement-sustainable>.

“Goal 12: Ensure sustainable consumption and production patterns.” United Nation.

<https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>.

“United Nations Conference on Sustainable Development, Rio+20.” United Nation.

<https://sustainabledevelopment.un.org/rio20>.

“GOAL 12: Sustainable consumption and production.” UN Environmental Program.

<https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-12>.

“History.” United Nation. <https://sdgs.un.org/goals>.

“Together, we must tackle growing hunger, urges Guterres.” UN News. July 26, 2021.

<https://news.un.org/en/story/2021/07/1096402>.

“Food production: A sustainable food supply.” EUFIC. June 2, 2015.

<https://www.google.com.hk/search?q=eufic&oq=eufic&aqs=chrome..69i57j0i10i433j46i10i433j0i10i433j46i10j0i10j69i60l2.1296j0j7&sourceid=chrome&ie=UTF-8>.

Ritchie, Hannah. “Food production is responsible for one-quarter of the world’s greenhouse gas emissions.” Our World In Data. November 6, 2019. <https://ourworldindata.org/food-ghg-emissions>.

“Goal of the Month Editorial | August 2021: Affordable and Clean Energy.” United Nation. August, 2021. <https://www.un.org/sustainabledevelopment/goal-of-the-month/#environment>.

Roser, Max and Ritchie, Hannah. “Overview of Global Energy.” Our World In Data. 2020.

<https://ourworldindata.org/energy-overview>.

Roser, Max and Ritchie, Hannah. "Energy mix." Our World In Data. 2020.

[https://ourworldindata.org/energy-mix?country=.](https://ourworldindata.org/energy-mix?country=)

"Types of renewable energy." EDF. <https://www.edfenergy.com/for-home/energywise/renewable-energy-sources>.

"About UN Environment Programme." United Nation. <https://www.unep.org/about-un-environment>.

"The United Nations Environment Programme and the 2030 Agenda." UNEP. 2015.

<https://www.icsspe.org/system/files/UN%20-%20Environment%20Programme%20and%20the%202030%20Agenda%20Global%20Action%20for%20People%20and%20the%20Planet.pdf>.

"Innovative pathways to achieve sustainable consumption and production." United Nations Environment Programme. March 15, 2019. <https://undocs.org/en/UNEP/EA.4/Res.1>.

"Trade and environment." World Trade Organization.

https://www.wto.org/english/tratop_e/envir_e/envir_e.htm.

"Harnessing trade for sustainable development and a green economy." World Trade Organization. 2011. https://www.wto.org/english/res_e/publications_e/brochure_rio_20_e.pdf.

"10YFP - 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns." UNEP. <https://www.unep.org/explore-topics/resource-efficiency/what-we-do/one-planet-network/10yfp-10-year-framework-programmes>.

"One Planet Network." UNEP. <https://www.unep.org/explore-topics/resource-efficiency/what-we-do/one-planet-network>.

"The One Planet Sustainable Tourism Programme." UNWTO. <https://www.unwto.org/sustainable-development/one-planet>.

"The IMF at a Glance." IMF. March 3, 2021. <https://www.imf.org/en/About/Factsheets/IMF-at-a-Glance>.

"From Ambition to Execution: Policies in Support of Sustainable Development Goals." IMF. <https://www.imf.org/external/pubs/ft/sdn/2015/sdn1518.pdf>.

"IMF and the Sustainable Development Goals." IMF. February 16, 2021. <https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/46/Sustainable-Development-Goals>.

"IMF Support for Low-Income Countries." IMF. February 16, 2021.

<https://www.imf.org/en/About/Factsheets/IMF-Support-for-Low-Income-Countries>.

“The World by Income and Region.” The World Bank. <https://datatopics.worldbank.org/world-development-indicators/the-world-by-income-and-region.html>.

“World Bank Country and Lending Groups.” The World Bank. <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>.

“Industrial Resource Efficiency Division and CIRCULAR ECONOMY.” UNIDO. <https://www.unido.org/sites/default/files/files/2020-02/IRE%20and%20Circular%20Economy.pdf>.

“Industrial Pollution.” Journal of Pollution Effects & Control. <https://www.longdom.org/scholarly/industrial-pollution-journals-articles-ppts-list-2683.html>.

“Moving to sustainable industrial production.” OECD Library. <https://www.oecd-ilibrary.org/sites/75413ccd-en/index.html?itemId=/content/component/75413ccd-en>.

Kariuki, Dorcas. “Barriers to Renewable Energy Technologies Development.” Energy Today. January 5, 2018. <https://www.energytoday.net/economics-policy/barriers-renewable-energy-technologies-development/>.

“UN report: Urgent action needed to tackle chemical pollution as global production is set to double by 2030.” UNEP. March 11, 2019. <https://www.unep.org/news-and-stories/press-release/un-report-urgent-action-needed-tackle-chemical-pollution-global>.

Dr Campanhola, Clayton. "Why does sustainable agriculture remain a challenge?" Impakter. November 13, 2017. <https://impakter.com/sustainable-agriculture-remain-challenge/>.

IEA (2020), Renewables 2020, IEA, Paris <https://www.iea.org/reports/renewables-2020>

Teixeira, José A. "Grand Challenges in Sustainable Food Processing." June 4, 2018.

<https://www.frontiersin.org/articles/10.3389/fsufs.2018.00019/full>.

Assunção, Juliano J and Souza, Priscila Z. “Financial Challenges and Proposals for Sustainable Production in Brazil.” Climate Policy Initiative. December 2, 2018.

<https://www.frontiersin.org/articles/10.3389/fsufs.2018.00019/full>.

“About the Marrakech Process.” United Nation.

<https://sustainabledevelopment.un.org/topics/sustainableconsumptionandproduction/process>.

"SDG 12: Sustainable Consumption And Production." United Nation in India.

<https://in.one.un.org/page/sustainable-development-goals/sdg-12/>.

"India." United Nation. <https://sustainabledevelopment.un.org/memberstates/india>.

"Sustainable Consumption and Production for Poverty Eradication." UNEP.

https://www.oneplanetnetwork.org/sites/default/files/scp_for_poverty_full.pdf.

Appendices

Appendix I:

The key elements of the circular economy

<https://www.circle-economy.com/circular-economy/key-elements>

Appendix II:

How the EU wants to achieve a circular economy by 2050

<https://www.europarl.europa.eu/news/en/headlines/society/20210128STO96607/how-the-eu-wants-to-achieve-a-circular-economy-by-2050>

Appendix III:

World Bank Country and Lending Groups

<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

Appendix IV:

IEA: Renewable 2020 Executive summary

<https://www.iea.org/reports/renewables-2020?mode=overview>