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Review Article

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From the Brontland Report To Food Securıty ın the Sustaınable Development Goals

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ABSTRACT

The world today produces more food per capita than ever before in human history. Amidst this abundance, millions of people lack sufficient nutrition to sustain a fully productive working life. There are places where very little agriculture is done; there are places where many people cannot afford to buy food. The fifth chapter of the Brontland Report, published in 1987, addresses the potential for food security and its sustainability. The Sustainable Development Goals, developed in 2015, emphasized food security. This study examines food security through the annual reports of the Sustainable Development Goals, based on the Brontland Report. There are large areas for increases in food production in both industrialized and developing countries, parallel to climate change. These areas can be increased through global collaborative efforts.

Keywords: Food Security, Brontland Report, Sustainable Development Goals, SDG, Our Future

Introduction

After rising sharply in the wake of the COVID-19 pandemic, global hunger and food insecurity remained persistently high and almost unchanged for three years. In 2023, about 733 million people faced hunger, and 2.33 billion people experienced moderate to severe food insecurity. Despite progress, 148 million children under age 5 suffered from stunting in 2022. If current trends persist, one in five children under age 5 will be affected by stunting in 2030. In 2022, almost 60 per cent of countries worldwide faced moderately to abnormally high food prices due to the spillover effects of conflicts, such as disrupted supply chains. Achieving zero hunger requires intensified efforts to transform food systems so they are sustainable, resilient and equitable. Moreover, accelerating improvements in diets, nutrition, health and hygiene is crucial to meeting the target of halving the number of children suffering from chronic undernutrition. Hunger, food insecurity and malnutrition remain prevalent, calling for intensified efforts Food insecurity is not just a problem today.

Climate change includes long-term changes in Earth's climate that have occurred previously. The current increase in global temperatures is caused by human activities, particularly the burning of fossil fuels since the Industrial Revolution. Fossil fuel burning, deforestation, and some agricultural and industrial practices release greenhouse gases. These gases absorb some of the heat radiated by Earth's sunlight, warming the lower atmosphere. Carbon dioxide, the primary gas responsible for global warming, has increased in concentrations by approximately 50% since the pre-industrial era, to levels not seen for millions of years. Climate change is hindering poverty reduction, and disasters result in millions of households becoming poor or remaining trapped in poverty. Ending poverty requires

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a wide-ranging approach that combines comprehensive social protection systems, inclusive economic policies, investments in human capital, measures to address inequality and climate resilience, and international cooperation and partnership.

The concept of sustainable development was first officially used in 1987 in the report titled "Our Common Future" (Brundtland Report) published by the World Commission on Environment and Development (WCED) under the chairmanship of the Norwegian Prime Minister Gro Harlem Brundtland. Accordingly, sustainable development was defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs".

Our Common Future, From One Earth to One World
An Overview by the World Commission on Environment and Development
The Global Challenge
- Successes and failures
- The Interlocking Crises
- Sustainable Development
- The Institutional Gaps

The Policy Directions
- Population and Human Resources
- Food Security: Sustaining the Potential
- Species and Ecosystems: Resources for Development
- Energy: Choices for Environment and Development
- Industry: Producing More with Less
- The Urban Challenge

International Cooperation and Institutional Reform
- The Role of the International Economy
- Managing the Commons
- Peace, Security, Development, and the Environment
- Institutional and Legal Change

Getting at the Sources
Dealing with the Effects
Assessing Global Risks
Making Informed Choices
Providing the Legal Means
Investing in our Future

At the same time, there is a widespread sense of frustration and inadequacy in the international community about our ability to address and effectively deal with vital global issues. The truth is compelling and should not be easily dismissed. Since answers to fundamental and serious concerns are not readily available, there is no alternative but to continue trying to find them [1-3].

Meeting humanity's goals and aspirations responsibly will require the active support of all of us. Scientists are drawing our attention to urgent but complex problems affecting our survival: a warming globe, threats to Earth's ozone layer, deserts depleting agricultural land. We respond by demanding more details and blaming institutions ill-equipped to address them. Environmental degradation, once seen primarily as a problem of wealthy nations and a side effect of industrial prosperity, has become a survival issue for developing nations. It is part of a downward spiral of interconnected ecological and economic decline that has trapped many of the poorest nations. Despite official hopes expressed on all sides, no identifiable trend, no program, or policy today offers any real hope of narrowing the widening gap between rich and poor nations. In this article, current food security is investigated with the Brantland report and sustainable development goals. Chapter 5 of the Brantland report deals with food safety. The subheadings are listed below [4-5].

Our Common Future, Chapter 5: Food Security: Sustaining The Potential
Achievements
Signs of Crisis
- Impact of Subsidies
- Neglect of the Small Producer
- Degradation of the Resource Base

Loss of Soil Resources
- Impact of Chemicals
- Pressure on Forests
- Advancing Deserts

The Challenge
Strategies for Sustainable Food Security
- Government Intervention
- A Global Perspective
- The Resource Base

Land Use
- Water Management
- Alternatives to Chemicals
- Forestry and Agriculture
- Aquaculture

Productivity and Yields
- The Technological Base
- Human Resources
- Productivity of Inputs

Equity
- Land Reforms
- Subsistence Farmers and Pastoralists
- Integrated Rural Development
- Food Availability Fluctuations

Food for the Future
Our Common Future is not a prediction of increasing environmental degradation, poverty, and hardship in an increasingly polluted world amid dwindling resources. Instead, it posits a new era of economic growth based on policies that sustain and expand the environmental resource base. It is the belief that such growth is absolutely essential to alleviate the deepening poverty in many developing countries. Agricultural policies in nearly all countries focused on increasing production. Despite this, consistently increasing global agricultural production by 3% per year by the mid-1980s proved much more difficult than in the mid-1950s. Furthermore, production records were offset by the outlook. Chemical fertilizers and pesticides have played a significant role in increasing production since World War II, but clear warnings have been issued against over-reliance on them. Nitrogen and phosphate leaching from excessive

fertilizer use is damaging water resources, and this damage is spreading. Forests are vital for maintaining and improving the productivity of agricultural land. Desertification results from a complex mix of climatic and anthropogenic influences. Human influences over which we have greater control include the rapid growth of both human and animal populations, harmful land-use practices, unfavorable trade conditions, and civil conflict. This visualization shows the total land used for agriculture (which is a combination of cropland and grazing land) over the long term, measured in hectares. In the following Figure (Figure 1), you can find disaggregated data on cropland land change over time [6-9].

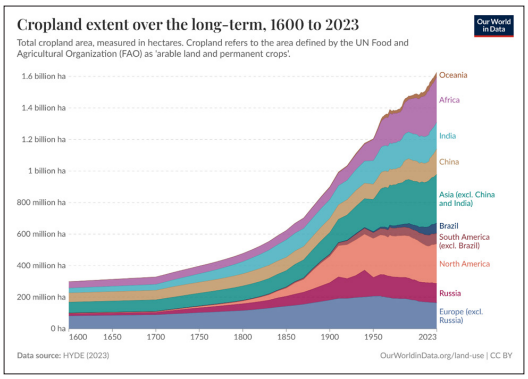

Figure 1: The total land used for agriculture over the long term

Global trends highlight the ongoing challenges for biodiversity and forests, despite their critical role as the planet's life-support systems. Despite significant progress in sustainable forest management, global forest area continues to decline, primarily due to agricultural expansion. There is also a growing global commitment to biodiversity conservation, as reflected in the adoption of the Kunming-Montreal Global Biodiversity Framework (2022). Addressing urgent environmental challenges—including climate change, biodiversity loss, pollution, desertification, and deforestation—and their underlying drivers and linkages, requires intensified and accelerated efforts at the local, national, and global levels and a comprehensive and integrated approach.

The UN Sustainable Development Goals

Sustainable development can be understood as primarily a process and as implying practical goals or desirable outcomes, such as the UN Sustainable Development Goals (SDG) being developed in 2015 (Figure 2). The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. EU Missions aim to lead the way by bringing concrete solutions to achieve the SDG targets. They have ambitious targets and will deliver tangible results by 2030. The five EU Missions are:

- Adapting to Climate Change: Supporting at least 150 European regions and communities to become climate resilient by 2030
- Cancer: Working with Europe's Beat Cancer Plan to improve the lives of over 3 million people by 2030 through prevention, treatment, and solutions for longer and better lives Restoring our Oceans and Waters by 2030 100 Climate-Neutral and Smart Cities by 2030
- A Land Deal for Europe: 100 living laboratories and lighthouses to lead the transition to healthy lands by 2030

They are putting research and innovation in a new role, combining them with new forms of governance and cooperation, and engaging citizens.

Figure 2: The UN Sustainable Development Goals (SDG)

The Sustainable Development Goals Targets on Food and Land Systems are Particularly Off Track. The Sustainable Development Reports (sdr) 2024 Offer New Fable Pathways to Support Sustainable Food and Land Systems

By 2030, 600 million people worldwide will still be hungry, obesity is rising globally, and greenhouse gas emissions from Agriculture, Forestry, and Other Land Use (AFOLU) represent almost a quarter of annual global greenhouse gas emissions. The new FABLE pathways brought together more than 80 local researchers from 22 countries to assess how 16 targets on food security, climate change mitigation, biodiversity conservation, and water quality can be achieved by 2030 and 2050. Continuing current trends widens the gap with the targets on climate change mitigation, biodiversity, and water quality. Meeting the commitments already made by countries would improve the situation, but these remain largely insufficient. Significant progress can be made, but this will require several key changes:

1. Avoid overconsumption beyond recommended levels and limit animal protein consumption through dietary changes consistent with cultural preferences;
2. Invest in improving productivity, particularly for crops and areas with strong demand growth; and
3. Implement inclusive, robust, and transparent monitoring systems to halt deforestation. Our sustainable pathway prevents deforestation of up to 100 million hectares by 2030 and 100 Gt of CO2 emissions by 2050. Additional measures will be needed to avoid trade-offs related to on-farm employment and water pollution from over-fertilizer application, and, in particular, to end hunger.

Government Intervention

Government intervention in agriculture is the rule in both industrial and developing countries, and it is here to stay. Public investment in agricultural research and extension services, assisted farm credit and marketing services, and a range of other

support systems have all played parts in the successes of the last half-century. In fact, the real problem in many developing countries is the weakness of these systems. Protecting and expanding agriculture's resource base will increase production and productivity. However, specific measures are needed to make inputs more efficient. This can best be achieved by strengthening the technological and human resource base for agriculture in developing countries [10].

Technological Base

Bringing together traditional and modern technologies offers opportunities to improve nutrition sustainably and increase rural employment. Biotechnology, including tissue culture techniques, technologies for preparing value-added products from biomass, microelectronics, computer science, satellite imagery, and communications technologies, are all leading technologies that can improve agricultural productivity and resource management. The technological transformation of traditional agriculture will be difficult without a concerted effort to develop human resources. Efforts to promote literacy should focus on functional literacy, encompassing the efficient use of land, water, and forests. Despite women's critical role in agriculture, their access to education and representation in research, extension, and other support services are crucial. The use of renewable energy is becoming increasingly important due to the dwindling availability of fossil fuel resources, rising costs, and environmental concerns. Recently, interest in solar energy as a renewable energy source has been growing. Electricity generation and cost analysis using solar panels in agricultural fences is supported by scientific studies.

Conclusıons

Agricultural production can only be sustainable in the long term if the soil, water, and forests on which it depends are not degraded. Redirecting public intervention, as proposed, will provide a framework for this. Improvements in water management are essential to increase agricultural productivity and reduce land degradation and water pollution. Critical issues relate to the design of irrigation projects and water use efficiency. Many countries, especially developing countries, can and should increase yields through increased use of chemical fertilizers and pesticides. However, countries can also increase yields by helping farmers use organic nutrients more efficiently. Therefore, governments should encourage increased use of organic plant nutrients to complement chemical fertilizers. Protecting and expanding agriculture's resource base will increase production and productivity. However, specific measures are needed to make inputs more efficient. This can best be achieved by strengthening the technological and human resource base for agriculture in developing countries. Applying the concept of sustainable development to efforts to achieve food security requires systematic attention to the regeneration of natural resources.

This requires a holistic approach focused on ecosystems at the national, regional, and global levels, coordinated land and water use, and careful planning of forest exploitation. Recently established agricultural systems have contributed significantly to reducing hunger and raising living standards. These systems require agricultural systems that focus on people as much as technology, resources as much as production, and the long term as much as the short term. Only these systems can meet the challenges of the future.

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