

**The Negative Impact of Climate
Change on Food Security
*Responses in International
Law***

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Outline

- Food security in context
- The negative impact of climate change on food security
- International regulatory responses
- Perspectives/Challenges

Food Security in Context



A Definition of Food Security

- “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”

(World Food Summit, 1996)

Food (In)Security

according to a few UN statistics

- 702 million people still live in extreme poverty
- 793 million people are undernourished
- By 2050, the world's population will have increased by one-third, with the highest increase occurring in developing countries
- According to the FAO, agricultural production will have to grow by 60% to satisfy the expected increased demands for food and feed
- The share of sector-allocable aid allocated to agriculture from member countries of the OECD Development Assistance Committee fell from nearly 20 per cent in the mid-1980s to 7 per cent in the late 1990s, where it remained through 2015
- High domestic prices, relative to their historic levels, for one or more staple cereal food commodities in sub-Saharan Africa because of declines in domestic output, localized increases in fuel prices, currency depreciation and insecurity

Four Main Dimensions of Food Security and Nutrition

- Food *Availability* in terms of quality and quantity (e.g.crops)
- Food *Access* in terms of prices/costs/incomes
- Food *Utilization* in terms of calorie intake capacity because of diseases/hunger/dietary diversity
- Food *Stability* of private and public food security strategies

A continuing need of food safety and food security is shown by

- Mass media attention and a specific relevance in the political agenda
- A common burden at the international level
- The need of managing certain inter-connected key issues, such as poverty, food security, food-borne infectious and chronic diseases, pollution, climate change and emigration

The Human Rights-based Perspective on Food Security

Article 11

of the 1966 UN Covenant on Economic, Social and Cultural Rights

- 1. The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, **including adequate food**, clothing and housing, and to the continuous improvement of living conditions. The States Parties will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international co-operation based on free consent.
- 2. The States Parties to the present Covenant, recognizing **the fundamental right of everyone to be free from hunger**, shall take, individually and through international co-operation, the measures, including specific programmes, which are needed:
 - (a) **To improve methods of production, conservation and distribution of food** by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources;
 - (b) Taking into account **the problems of both food-importing and food-exporting countries**, to ensure an equitable distribution of world food supplies in relation to need.

(see also Art. 25 of the 1948 Universal Declaration of Human Rights)

Climate Change v Food Security

Interconnected Issues at the root of the adversarial relation between climate change and food security

- The growth of populations, especially in low-income States
- Environment degradation
- The loss of biodiversity
- The loss of agriculture productivity
- The need of socioeconomic development and ...
- ... of sustainable development

The Negative Impact of Climate Change on Food Security and Nutrition

Numbers

- Warmer temperature and changing rainfall patterns may reduce global food production by about 10% by 2030 and by more than 20% in 2050
- New crop modeling results: +1°C => 4 to 6% yield loss in global wheat (Source: Bing Liu et.al. 2016, *Nature Climate Change*)
- Livestock ca. 12% and land use change ca. 14% of total GHG emissions

The Connection between Climate Change, Food Insecurity and Malnutrition

- Climate-related disasters, such as droughts, floods and storms, can destroy crops, critical infrastructures and key community assets
- ... and deteriorate livelihoods and exacerbate poverty, particularly in coastal areas and river deltas
- Climate change = production reductions and lower incomes in vulnerable areas
- Climate change has a negative impact on food production systems
- Agriculture is a major source of greenhouse gas emissions

The Negative Impact of Climate Change on Food Security and Nutrition

- The negative impact on agricultural workforce
- Conflicts over resources and land
- Erosion of biodiversity, clean water supplies and other key resources for agriculture
- Ocean acidification threatens (already tenuous) fish stocks

Enough is known to act for food security and resilience under climate change

- 1. Less resilient: food security will be worst in countries and for people already suffering high levels of hunger and will worsen over time (SDGs 1,2)
- 2. More risky: Extreme weather events are likely to be more frequent and increase risks in the food system
- 3. Important part of solution: Agriculture and food are part of the problem of climate change, and part of the solution
- 4. Science is essential (?)

- (Sources: “FoodSecure“, EU supported research project and other sources)

What Are the Problems?

What Can Be Done?

Main Issues/Questions arising from the diversity of needs and impredictability

- What kind of food can we produce?
- What crops can we grow?
- Where can we produce?

As a Result ... *Sustainable Agriculture*

- A need of producing more food in a way which preserves the environment
- ... particularly by reducing the amount of greenhouse gas emissions which contribute to global warming
- Investments in agriculture, including government spending and aid, are needed to increase capacity for agricultural productivity

FAO estimates that ...

- for the livestock sector, emissions could be readily reduced by about 30 percent with the adoption of best practices
- emissions from agriculture might likely be reduced through improved practices that reduce emission intensity while raising productivity
- land might be managed in ways to increase soil carbon, particularly in grasslands, and
- protocols for assessing and monitoring carbon stocks might be developed with stakeholders to rehabilitate agricultural and degraded soils and remove carbon from the atmosphere

Key Words at the Root of International Responses

- Risk mitigation
- Low greenhouse gas emissions/Clean energy
- Adaptation
- Resilience

The Need of Coordination and Prevention

Relevant actors

- UN agencies, that is the WHO, FAO, IFAD (International Fund for Agricultural Development) and World Bank, other international organizations, such as the World Organization for Animal Health (OIE), WTO and the International Atomic Energy Agency (IAEA)
- EU = a regulatory protagonist
- Food manufacturers through codes of conduct, principles of good practices
- Consumers

HETEROGENEOUS ACTORS because of their different

- Nature and interests
- Competences
- Approaches

Reflections of such a heterogeneity on the rules

International Responses

International Regulatory Responses

- A specific reference in the 1992 UNFCCC
- No specific reference in the 1997 Kyoto Protocol
- A few references in the 2015 Paris Agreement
- SDGs, especially No. 2, 13, 14

The 1992 UNFCCC

- **Article 2 “OBJECTIVE”**

The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, **to ensure that food production is not threatened** and to enable economic development to proceed in a sustainable manner.

Relevant International Provisions on the Right to Food and Climate Change in the 2015 Paris Agreement (into force since 4 November 2016)

- “Recognizing the fundamental priority of **safeguarding food security and ending hunger**, and the particular **vulnerabilities of food production systems** to the adverse impacts of climate change” (preamble)
- Article 2
 1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:
 -
 - (b) Increasing the ability to **adapt** to the adverse impacts of climate change and **foster climate resilience** and **low greenhouse gas emissions development**, in a manner that does not threaten food production

Relevant SDGs

- Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 13. Take urgent action to combat climate change and its impacts
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

How to React according to the UN?

- Strong adaptation and mitigation efforts (resilient food systems)
- Sustainable food production systems and resilient agricultural practices through the maintenance of the genetic diversity of plants and animals
- Considerable transformation in agriculture, to feed the growing global population and to provide the basis for economic growth and poverty reduction
- A decrease of greenhouse gas emissions and an increase of carbon sinks
- Special methodologies, i.e. nuclear techniques, to measure the concrete effects of climate change on agriculture and food production, i.e. soil erosion and land degradation and
- ... to improve soil fertility, resilience and water use efficiency

If and How Can International Law Make the Difference?

- By influencing State conduct, e.g. national adaptation plans, projects/programs
- By mobilizing national financial (e.g. resources for the 'Green Climate Fund') and technical contributions
- By fostering science and innovation policy for food adaptation programs and communication among and/or within States
- By promoting national disaster risk reduction strategies, such as environmental impact assessments, legislations on protected areas, climate change adaptation projects and programmes, and integrated planning
- By avoiding overfishing through the preservation of world marine fish stocks within biologically sustainable levels

THANK YOU
for your attention



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