



Working Group 9:

FOOD SECURITY ON THE BRINK?

Extract from:

Planetary Security:

Peace and Cooperation in
Times of Climate Change and
Global Environmental Challenges



Conference Report

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WORKING GROUP 9

FOOD SECURITY ON THE BRINK?

Global food security is facing multiple challenges: undernourishment, poverty and the need to feed a growing world population; industrial crop and meat production; price speculations on globalised food markets; competition for energy and land; degradation of fishery, soil and water resources; and climate change as a risk multiplier. Complex food crises may contribute to economic, social and political destabilisation, as demonstrated by the cascading events of the Arab Spring. A viable transformation of the food system requires new governance mechanisms and enabling frameworks for a resilient climate-smart agriculture and sustainable food security.

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1. CHALLENGES

The World Food Summit (WFS) of 1996 defined food security as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”. Commonly, the concept of food security is defined as including both physical and economic access to food that meets people’s dietary needs as well as their food preferences. In many countries, health problems related to dietary excess are an ever-increasing threat. In fact, malnutrition and food borne diarrhoea have become a double burden.

Food security is built on 3 pillars:

- i. Food availability: sufficient quantities of food available on a consistent basis;
- ii. Food access: having sufficient resources to obtain appropriate foods for a nutritious diet; and
- iii. Food use: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

The radical improvements in agricultural productivity over the last few decades suggest that food production is sufficient to feed everyone on earth. However, dealing with the effects of climate change on food security must become a priority in climate adaptation plans. This includes enhancing agricultural productivity to make them more resilient and stabilise harvest yields. Unfortunately, many poor countries in Africa and elsewhere do not yet have adequate institutional, financial and human resources to deal with the problem.

Climate-change as the “hunger-risk multiplier”³²

Climate change will affect food security, making climate change an unprecedented threat to food security of millions of people around the globe. Extreme climate events affect the production of crops and future climate change threatens to exacerbate this. Food access is affected by climate change, because prices of major crops could increase leaving the most

³² Food and Agriculture Organisation (FAO), ‘Climate Change, Food Security and Nutrition’
<http://www.fao.org/fsnforum/forum/discussions/climate-change-and-fsn>

vulnerable people – who use most of their income on food – would have to sacrifice additional income to their nutritional requirements. Food utilisation is affected since climate-related risks can affect the calorie intake creating/continuing a vicious cycle of hunger and disease.

The latest scientific evidence suggests that climate change, climate variations will intensify existing threats to food security and livelihoods through a combination of more frequent and intense climate hazards, diminishing agricultural yields and production, and intensifying competition over scarce resources.

Climate impacts on food production has had plenty of instances in the past and are likely to worsen in the near future as a result of climate change. Indeed, unprecedented swings in rainfall and temperature patterns have caused a shift in planting seasons and in the types of crops that can be successfully grown. Ruined harvests and diminishing yields have contributed to higher food prices and food insecurity. The World Food Programme (WFP) estimates that “the risk of hunger and child malnutrition could increase by up to 20 percent due to climate change by 2050”.

- In **Southern Africa**, uncharacteristic and erratic rainfalls in 2014/2015 are expected to cause a decrease in regional crop production.
- In **Central Ethiopia**, early season dryness worsened during April, which resulted in large rainfall deficits. The crop production and pasture development was damaged, leading to below average harvests.

Land Challenges³³

The global population is facing a range of large-scale challenges, which create increased competition and conflict over land at the transnational, national, sub-national, local and family levels. This will increase over the next decades.

By 2050 the world’s population will grow to around 9.6 billion people, with a population growth rate of 1 billion every 12 years. More than 50 percent already live in urban areas. All these people will need access to land and have to be fed in a sustainable way. The impact of this growth will be the greatest in the developing world, and particularly in Africa, where large-scale urbanization is expected. In 2010, 40 percent of the population in developing countries was under 15 and young people (15-24 years) account for another 20 percent. Young people are the least likely to have secure tenure (UN-Habitat/GLTN) and are a key vulnerable group. They are also the most likely to engage in conflict.

Population growth, urbanisation, and the impact of climate change make ensuring food security a fast increasing challenge. FAO estimates that 805 million people were chronically undernourished between 2012 and 2014, particularly in sub-Saharan Africa and Asia. Climate change could reduce food production growth by 2 percent each decade for the rest of this century (IPCC). The President of the United Nations Security Council noted his concerns in 2011 when he said that, “possible adverse effects of climate change may, in the long run, aggravate certain existing threats to international peace and security.” Shifting global development needs and patterns increase the pressure on large-scale exploitation of natural resources, which often competes with the needs of local communities. Conflict often strengthens the power of elites over land, as they take advantage of weak institutions and rule of law to increase their land holdings.

³³ Extract from: United Nations, *Land and Conflict: Towards UN System-Wide Engagement at Scale Phase 1: Scoping and status study (2015)* (internal working document)

As a result of these trends, large numbers of people are likely to be forcefully displaced, evictions will increase, and an upsurge in migration is likely by people in search of food security and livelihoods. In the absence of planned urbanisation, slum development will continue to spread. Rural areas, including agricultural areas, risk becoming increasingly dysfunctional. Women, children and other vulnerable groups (for example Indigenous Peoples) will be affected the most.

Until today, dealing with land and conflict was made very difficult as conventional land administration systems are very expensive, technically complex and very slow to put in place. As a results, they cannot be scaled up easily to facilitate conflict resolution, peacebuilding and of unlocking development potential. Most developing countries have less than 30 percent coverage in terms of land registration (cadastre) and it would take more than 600 years to get complete coverage at the current rate. Those addressing land and conflict have been frustrated because land administration systems are critical to the protection of land rights.

2. RESPONSES

The Members of the United Nations (UN) have made 2 major commitments to tackle world hunger and thus *inter alia* increase food security. First in 1996, at the World Food Summit (WFS) in Rome when 182 governments committed themselves to “eradicate hunger in all countries, with an immediate view to reducing the number of undernourished people to half their present level no later than 2015”. Second in 2000, when the UN formulated the Millennium Development Goals (MDG) and included among its targets “cutting by half the proportion of people who suffer from hunger by 2015”.

72 out of 192 countries have reached the MDG 1, 29 of which have also reached the more ambitious WFS goal. The latest estimates indicate that about 795 million people – just over one in nine – were undernourished in 2014 -16 which is a decrease of 216 million people suffering hunger in 1990-92.

The year 2015 marks the end of the monitoring period of both these major internationally agreed targets and inevitably raises the question of how well the international community did in achieving those targets.

Overall, there has been considerable progress towards the eradication of hunger. But much work remains to be done in order to achieve food security.

After 2015 the MDGs will be replaced by a new food security agenda. The post-2015 agenda entails a set of 17 Sustainable Development Goals (SDGs) “to end poverty, fight inequality and injustice, and tackle climate change by 2030”, which have been adopted by the United Nations Sustainable Development Summit in September 2015. The SDGs, or known as Global Goals, build on the MDG, but call for a broader sustainability agenda. As such the SDGs go much further than the MDGs by addressing the root causes of poverty and the universal need for development.³⁴ SDG Goal 2 is to “end hunger, achieve food security and improved nutrition, and promote sustainable agriculture”.

³⁴ United Nations Development Programme (UNDP), ‘Sustainable Development Goals (SDGs)’ <http://www.undp.org/content/undp/en/home/mdgoverview/post-2015-development-agenda.html>

There are also important international efforts to work towards a food secure world for everyone. The WFP is part of the United Nations system and has been pursuing a vision of the world in which every man, woman and child has access at all times to the food needed for an active and healthy lifestyle. The WFP works towards that vision with other UN agencies – the Food and Agriculture Organisation (FAO). FAO acts as a catalyst and facilitator, its main role is to help countries identify, formulate and implement national and regional food security programmes, drawing on FAO's corporate capacities and engaging other partners and donors. The FAO's Special Programme on Food Security (SPFS) aims to improve food security within poor households through National Programmes for Food Security (NPFS) and Regional Programmes for Food Security (RPFS). All programmes are developed by participating governments.

The FAO programme on climate-smart agriculture (CSA) is an integrative approach to address the interlinked challenges of food security and climate change. The ultimate goal is to build resilience while protecting the environment and reducing greenhouse gases. The CSA Sourcebook documents good practices in management and governance of production systems as well as options for enabling environments to facilitate the transition from conventional production and harvesting practices, to practices that promote higher sustainable production, sustainable livelihoods and improved resilience of food production systems.³⁵

The United Nations System Network on Rural Development and Food Security is a global partnership approach towards tackling rural development challenges at the country level. Established in 1997 by the United Nations Administrative Committee on Coordination (today United Nations System Chief Executives Board for Coordination), it brings together key actors for the achievement of the shared goals of 'food for all' and rural poverty reduction.

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The Committee on World Food Security (CFS) is the UN's intergovernmental platform to review policies concerning world food and bring stakeholders together. In addition, in response to the severity of the food crisis and the need for prompt action, the World Bank Group set up the Global Food Crisis Response Program (GFRP) in May 2008 to provide immediate relief to countries hard hit by food high prices. The Bank's response has been articulated in coordination with the United Nations' High-Level Task Force (HLTF) on food security. Through its response, the Bank is supporting the implementation of the joint Comprehensive Framework for Action (CFA).

Many countries in Africa are adopting specific initiatives to promote resilient farming systems and increase food security. For example, communities in Zimbabwe and Ethiopia are using traditional knowledge to cope with climate change. The African Union (AU) has launched the Comprehensive Africa Agriculture Development Program (CAADP) to bring about a sustainable increase in food and agricultural productivity. Regional Economic Communities have also developed food security programmes.

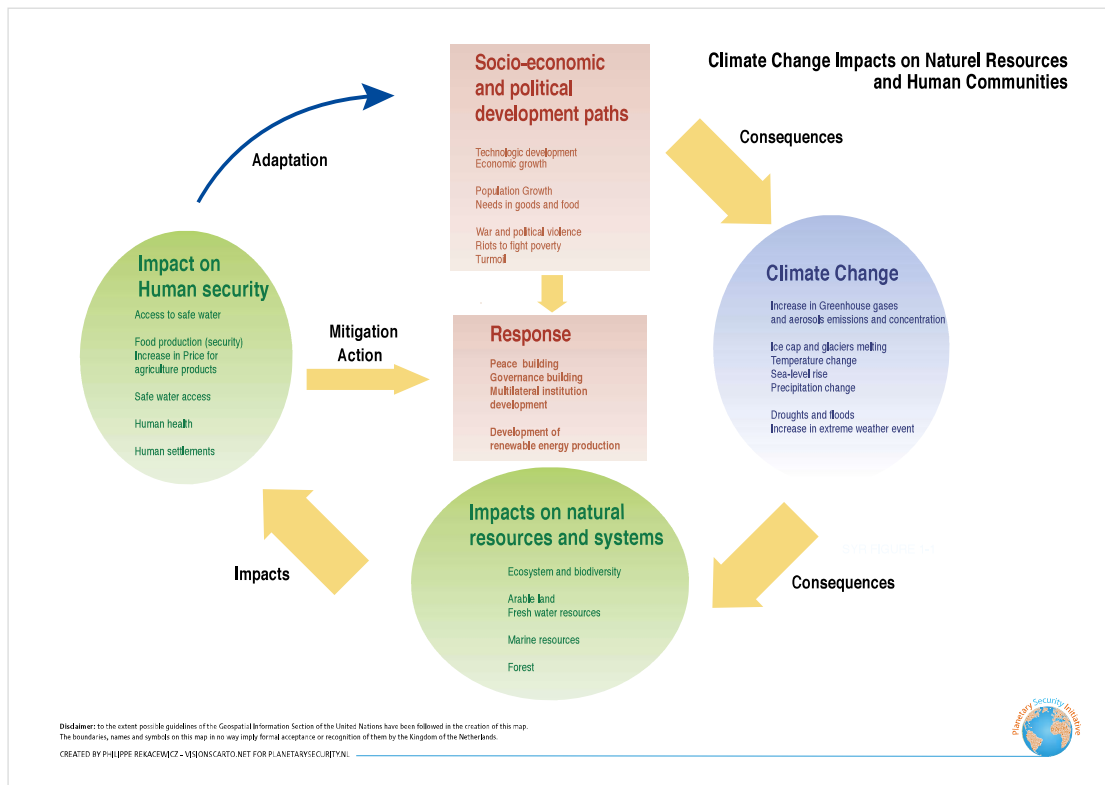
Many countries have adopted the AU declaration of investing 10 percent of the national budget in agriculture and rural development. They have also signed the CAADP Compact, and formulated National Adaptation Programs of Action (NAPA). Nevertheless, more must be done to avert the potentially disastrous consequences of climate change. The participants at the Africa, Climate Change, Environment and Security (ACCES) Dialogue Process Forum in Addis Ababa agreed in 2010 that high priority should be given to addressing the impact of climate change on food security.

³⁵ FAO, 'Climate Smart Agriculture' <http://www.fao.org/climate-smart-agriculture/en/>

A European Parliament (EP) resolution on EU agriculture and climate change³⁶ recommends measures to help EU agriculture adapt to the effects of global warming. The resolution states that the EU must develop a coherent strategy for agriculture to adapt to the two kinds of adverse climatic effects anticipated: overall global warming, and more marked variations in climate conditions resulting in an increase in extreme weather events. In its draft report on an “EU policy framework to assist developing countries in addressing food security challenges”,³⁷ the Committee on Development processed a series of appropriate measures.

3. FURTHER READING

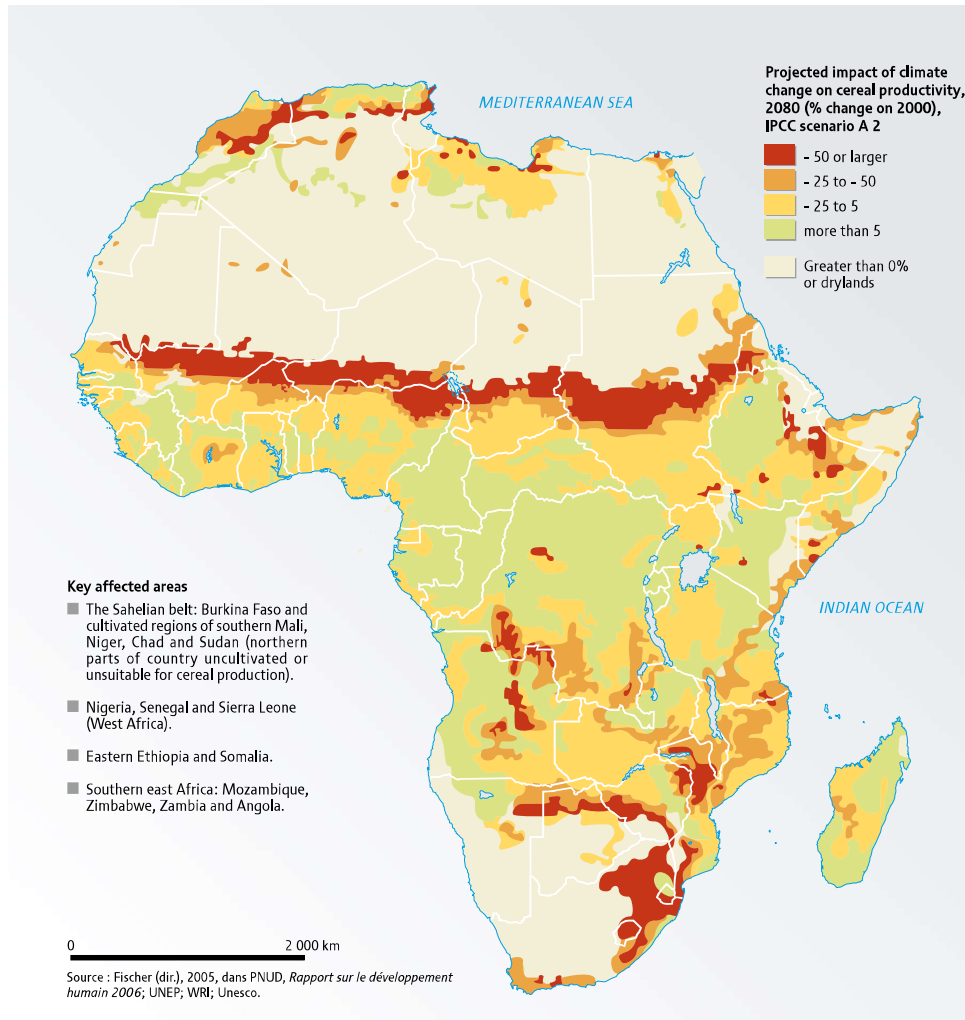
- Food and Agriculture Organisation (FAO), *The State of Food Insecurity in the World (2015)* <http://www.fao.org/3/a-i4646e.pdf>
- World Food Programme (WFP), *Global Food Security Update – Tracking Food Security Trends in Vulnerable Countries (Issue 18 – April to June 2015)* <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp275824.pdf>
- The Africa, Climate Change, Environment and Security (ACCES) Dialogue Forum and Process, *Climate Change and Security in Africa: Vulnerability Discussion Paper* http://www.africa-eu-partnership.org/sites/default/files/documents/doc_climate_vulnerability_discussion_paper.pdf



³⁶ European Parliament Resolution of 5 May 2010 on EU agriculture and climate change <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P7-TA-2010-0131&language=EN>

³⁷ European Parliament Draft Report of 11 May 2011 on an EU policy framework to assist developing countries in addressing food security challenges <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+COMPARL+PE-448.856+01+DOC+PDF+Vo//EN&language=EN>

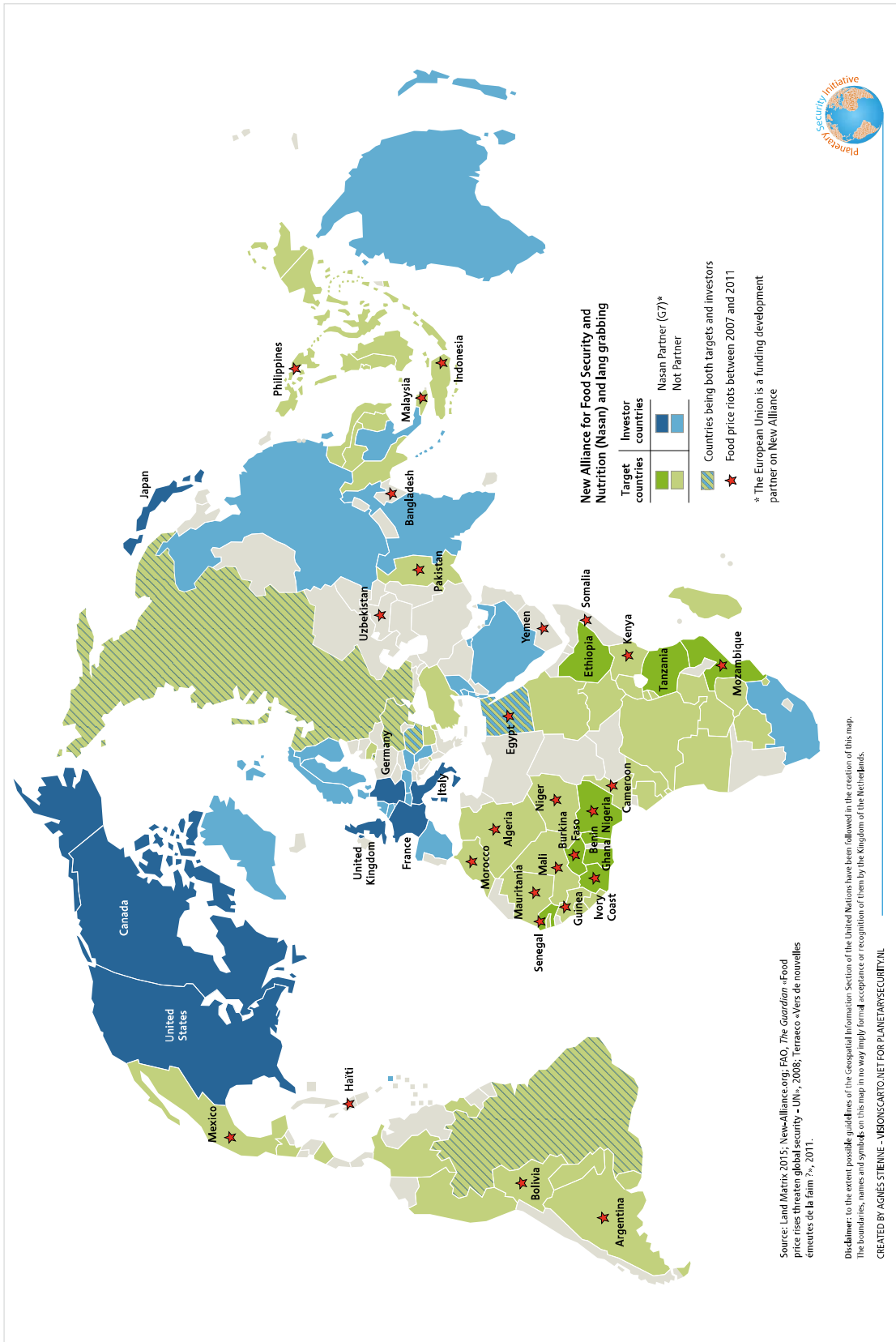
Cereal productivity in Sub-Saharan Africa under a scenario of the IPCC that shows CO₂ atmospheric concentrations a level at 520-640 ppm by 2050

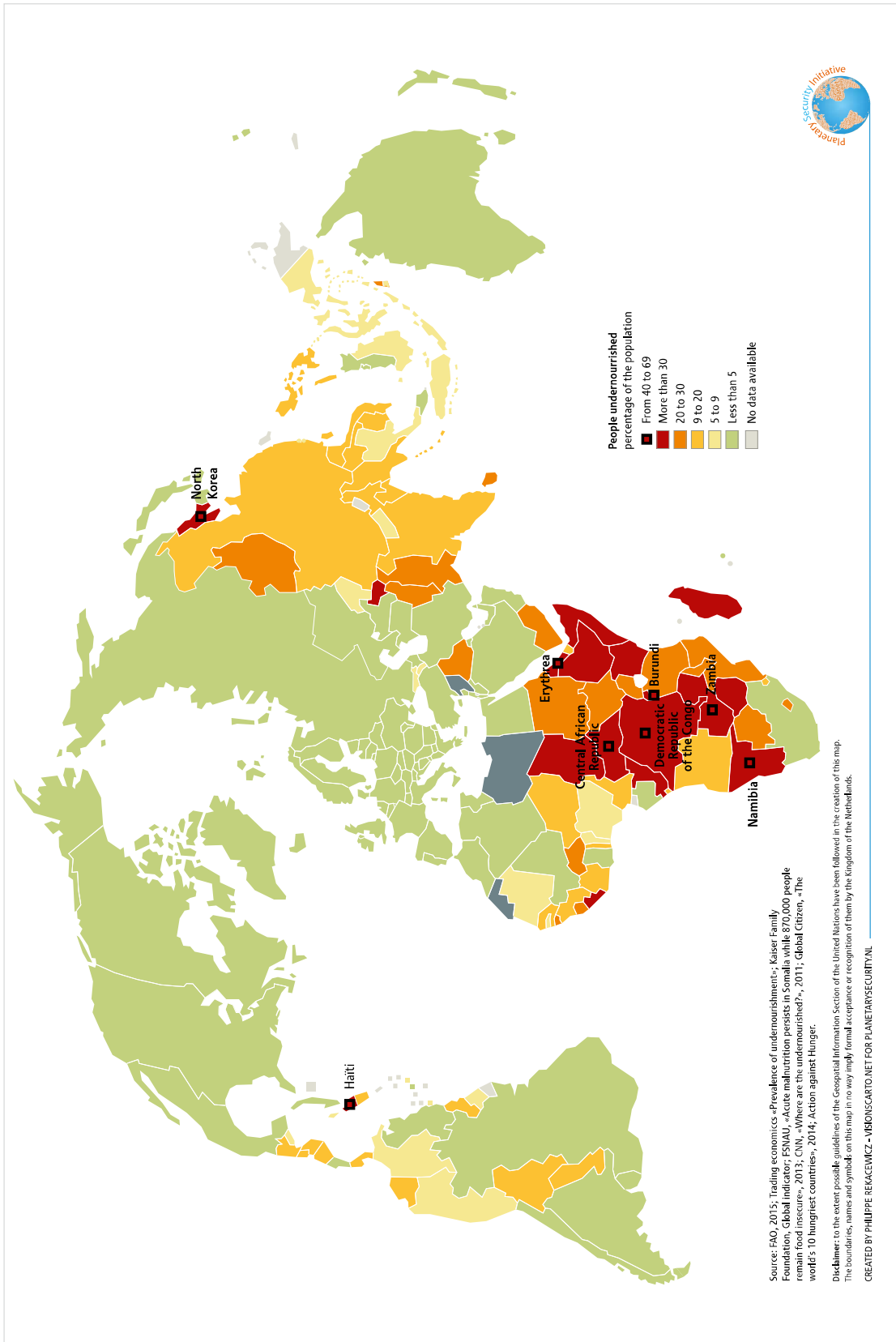


Disclaimer: to the extent possible guidelines of the Geospatial Information Section of the United Nations have been followed in the creation of this map. The boundaries, names and symbols on this map in no way imply formal acceptance or recognition of them by the Kingdom of the Netherlands.

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4. ANALYSIS / CONCLUSIONS AND RECOMMENDATIONS

Globally, there have been some positive developments in food security. This has been partly due to improved adaptation strategies and technological advancements. Food production has increased and so has yield production in several crop types. There has also been a decrease in undernourishment worldwide when one compares it to the percentage of the global population.³⁸ In addition, income in the agricultural sector has also risen. Insofar as the 1990-2015 World Food Summit goal to half the number of undernourished people is concerned, much progress can be observed in South America and a few states in Africa, Central Asia and for the most part, in China (see Figure 1). However, the question remains as to whether these improvements can meet the demands of the growing world population that is projected to reach 9.6 billion in 2050.

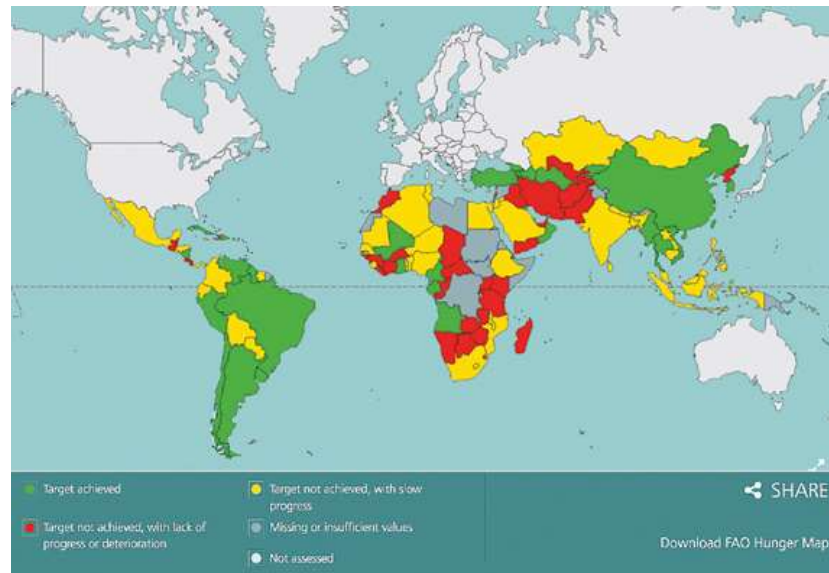


Figure 1: The FAO Hunger Map 2015

Despite these positive developments, food security still faces major challenges. The Working Group attempts to shed some light on some of these challenges and in some instances, offers some recommendations.

Stress Factors

Climate change is but one of the many challenges to food security. Its factors include the shifting of environmental conditions such as temperature variability, changes in precipitation and extreme weather events. Together with the main factor of climate change, which is the increased carbon concentration in the atmosphere, these will have an impact on plant growth. According to the latest report of the IPCC, without adaptation, the yields of wheat, rice and maize in both temperate and tropical regions would decline. However, the impact of climate change is not geographically uniform and may have large impacts in the tropical regions of the world where adaptation measures could be less efficient. This can be a problem in more populous parts of the world.

³⁸ Problems of undernourishment and stunting still remain prevalent in many countries and these are particularly concentrated in rural areas.

The multiplying effects of climate change cannot be stressed more. **Droughts or groundwater depletion** as a result of climate change could lead to soil and land degradation. Population can become frustrated as a result of the loss of access to water, which used to be there for irrigation purposes. If the availability of water declines, it can have a negative effect on food. Similarly, if food production declines, it can have a negative impact on energy, for instance where biofuels are concerned. This points to the need to study the nexus of energy-water-food under changing climatic conditions in more detail (see section on “Ambiguous Linkages in the Food Security Nexus”).

As the world grows, the **consumption of meat and dairy produce** also grows, and this is a major driver of climate change as well as a stress factor on climate vulnerable countries. Compared to crop production, the production of meat uses an incredible amount of energy and water. For example, it takes more than 15,000 litres of water just to produce 1 kilogramme of beef. The increasing demand for meat and dairy produce also requires more land resources, which leads to the next paragraph on land.

Land has been acknowledged by the United Nations as one of the triggers of conflict and insecurity. There have been historical grievances over land, particularly with regard to differentiated access to economic and natural resources. Link that to food security and one can see that land has driven major historical events in political and security-related conflicts. For example, in Tunisia where the Arab Spring started, land and food security became intertwined, driving people into cities where there was lack of opportunities, work, access to food. The most food insecure are those with the least amount of land, or the least amount of control over our land, such as smallholders living on marginal land, the rural landless, pastoralists and fisher folks, those living off forests and rural migrants in peri-urban slums. The issue of land rights was discussed in this Working Group and whilst there is a general belief that peasant farmers or smallholder farmers should have access or rights to land, these rights do not necessarily commensurate with the interests of the community.

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- **Land reform** or the redistribution of land has proven to be an effective way to deal with conflict prevention. In Mexico, lands in hand of a few powerful elites were redistributed back to the majority of the population from as early as the 20th century.
- Farmers who have limited resources should be given the **right tools** to move as far up the scale of the freehold continuum as possible (see Figure 2 for the Continuum of Land Rights).

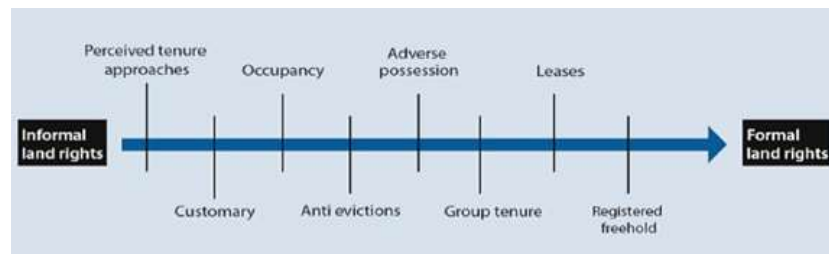


Figure 2: The Continuum of Land Rights was adopted at the 2011 UN-Habitat Governing Council resolution by member states and is now widely accepted by the development community

- As the struggle over land is increasing, **dispute resolution mechanisms** have to be in place if progress is to be made on capacity or long-term development.
- Effective land policies define how resources and benefits are to be allocated based on principles of justice. As this is a big governance question, this then implies that land policies are to be developed through a **process that involves all major stakeholders**.

- **The rights of the individual and the responsibilities towards the community need to be balanced.** This is a precondition for justice.

There is **structural underinvestment in agriculture**, particularly in African agriculture. The Maputo Declaration established that governments in Africa should allocate at least 10 percent of their national budgets to investment in agriculture. However, only a few countries complied. As a consequence, agriculture growth in Sub-Saharan Africa is relatively low. It is far below the 6 percent that is needed to guarantee continuous supply of food for the local population. The boost in agriculture productivity and availability is technically feasible but cannot be realised due to low investment.

- The stability of food supply and food prices are seriously challenged by shallow rural markets and further reinforced by climate change. It is therefore important to intensify exchange relations within regional and (inter)national value chains, and to **increase public investments in rural infrastructure** in order to control transaction costs, to reduce post-harvest losses and to enhance agency coordination.
- Regional trade restrictions are sometimes so high that it is easier for countries in Africa to import food from Europe than to trade regionally. This is an area where substantial **political investment** might be useful.

There are some events associated with climate change that have been attributed to **food price variability** as a result of the drop in crop productivity. Particularly in 2008 and 2011, this contributed to riots and political unrest in parts of Asia and Africa. While there is still some debate going on whether the rise of food price and the Arab Spring were related to climatic events that happened before, one cannot ignore that there were weather-related harvest losses in the United States, Russia, China, Australia and the Sahel region in the corresponding years, including deficient monsoon rainfall in India.

Governments that try to reduce food prices to consumers are usually not favouring the people that should be favoured. Rather, it ends up with the middle classes and not the poorer households. Hence there should be an **effective policy against discriminatory distribution**.

Ambiguous Linkages in the Food Security Nexus

Considering the factors above, food security issues cannot be solved alone but are embedded into a very **complex nexus of interactions** of food security with issues of energy and water availability, access to land rights and food price volatility. In this nexus many of the linkages are ambiguous where the outcome depends on circumstances and human responses, which decide whether the linkages have negative or positive effects, representing conflictive or synergistic relationships.

- It was already mentioned that **food price increase** possibly contributes to food riots, partly because it may weaken consumers who then have to spend more of their income on food consumption. On the other hand, food price increase may strengthen the income of producers in rural areas or developing countries, whether they are powerful multinationals or smallholder farmers. Hence, for producers, the increase in price is beneficial but for the consumer, this becomes a negative experience. Future research in this area would study this dual relationship and explore the possibility of finding a balance.
- Then there is also the relationship between food insecurity and **human migration**, which includes internal displacement, such as the movement from rural to urban areas, and international migration. This could be a result of many factors including, the impacts

of climate change on traditional income from agriculture or simply not having enough control over one's own land. Much of the move to urban areas can be an enriching experience for some, as people pursue better lives for themselves and their children, join the white and blue-collared workforce, benefit from educational institutions and gain access to basic services. On the other hand, the integration of immigrants could fail, e.g. if they end up in slums or run into competition on food among themselves or with local population.

This highlights that unplanned urbanisation can reduce food security but a system of **planned and sustainable urbanisation**, which includes planned city extensions, national urban policies etc. can be used as an engine for national and equitable growth. One needs to shift away from spontaneous urbanisation where you have low land and food security and massive externalities to viable pathways of urbanisation based on **deliberate forethought and anticipation**. If cities are planned and managed properly, one will see benefits on food security.

- In the same way, one can also see the benefits on economic development. There is a lot to be gained from a properly designed, **compact city**, which facilitates a more efficient and synergistic nexus of energy, water and food than a spread out city, e.g. taking benefit of the proximity between residential and commercial areas or less food wastage because of more efficient consumption.
- **Land rights** are also a possibly ambiguous term. In principle, it is good to have strengthened land rights for farmers but this could lead to eventual privatisation and the accumulation of capital in the rural area. This means that the power structure may lead to only a few farming companies, which then replace small-scale farmers. This highlights the need to **match land rights with land responsibility** by balancing the individual interest with the community interest in rural areas.

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From Negative to Positive Linkages: Viable Governance of Food Security

Judging the negative and positive aspects of food insecurity related impacts on pricing, urbanisation and land rights, one could be in the position to develop positive relationships from the opportunities that present themselves. It is a task of viable governance frameworks to develop concepts and mechanisms that avoid negative linkages and conflicts and strengthen the positive ones as part of a viable governance framework of food security.

Firstly, as regards to food pricing, solutions can be created to strengthen the marginalised individuals who are set to benefit from high income from lesser yields whilst dampening the impact of rising prices on the least income-abled communities.

Secondly, there is a need to make individual and community interests compatible vis-à-vis food security and land security. By balancing the rights of the individual and the responsibilities towards the community, one will also be strengthening justice. Otherwise one will have the risk of a situation where power lies in the hands of the few who do not necessarily take the interests of the community into consideration.

Thirdly and lastly, while technology has played a prominent role in the transition towards viable food security, it does not stand-alone. Technological solutions should not stand-alone but need to be coupled with political, social and economic solutions. For example, food production in deserts using desalination plants (e.g. in Saudi Arabia) currently run on fossil fuel but to be sustainable and economically feasible in the long-run, alternatives could be developed using solar power that is more environmentally friendly and compatible with the climate. Such a change may be still compatible with the existing political and economic circumstances.

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