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Thought for Food: Strengthening Global Governance of Food Security

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ABSTRACT

There are significant threats to sustainable food security and nutrition in the long-run, including demographic and environmental pressures and changing business practices in agriculture with the emergence of global values chains. The global nature and public good aspects of the challenges require coordinated responses and urgent improvement of the global governance of food security. This paper argues for the strengthening of the Committee on World Food Security to ensure greater coherence in the global approach to food security and the multilateral trade, financial and environmental regimes.

Keywords: agriculture, food security, nutrition, global public goods, global governance, food safety, policy coordination

JEL Classification: F53, F55, O13, O19, Q15, Q18

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Acronyms

ABNJ	Areas Beyond National Jurisdiction
AMIS	Agricultural Market Information System
AMS	Aggregate Measurement of Support
AoA	Agreement on Agriculture
AOI	Agricultural Orientation Index
BSE	Bovine Spongiform Encephalopathy
CAADP	Comprehensive Africa Agricultural Development Programme
CDP	Committee for Development Policy
CFA	Comprehensive Framework for Action
CFS	Committee on World Food Security
CFS-RAI	CFS Principles for Responsible Investments in Agriculture and Food Systems
CSO	Civil Society Organization
FAO	Food and Agriculture Organization
GAFSP	Global Agriculture and Food Security Program
GEF	Global Environment Fund
GM	Genetically modified
HLTF	High-Level Task Force
ICN	International Conference on Nutrition
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
ILO	International Labour Organization
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	International Panel on Climate Change
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
PPP	Purchasing Power Parity
PRAI	Principles for Responsible Agricultural Investment
R&D	Research and Development
SPS	Sanitary and Phytosanitary
SUN	Scaling-Up Nutrition
UNCTAD	United Nations Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
WFO	World Farmers Organization
WFP	United Nations World Food Programme
WHO	World Health Organization
WTO	World Trade Organization
WWF	World Wide Fund for Nature

This paper was originated as a contribution to the work programme of the United Nations Committee for Development Policy (CDP) on the United Nations development agenda for the post 2015 era. This research effort aimed at analyzing and proposing solutions to the current deficiencies in global rules and global governance for development. The results of this initiative are available in a volume edited by CDP members Jose Antonio Alonso and Jose Antonio Ocampo entitled *Global Governance and Rules for the Post-2015 Era* and published by Bloomsbury Academic in association with the United Nations in August 2015. Additional information on the CDP and its work is available at http://www.un.org/en/development/desa/policy/cdp/index.shtml.

Thought for Food: Strengthening Global Governance of Food Security

Rob Vos[1]

1 Introduction

With the onset of the 2007–08 food price crisis, food security was put back on the international agenda. Threats of food insecurity had provoked civil unrest around the world and countries that had long been considered food secure were facing the threat of limited food imports as a result of export restrictions put in place by some food-exporting countries. The food price spikes are symptoms of larger concerns with the future of global food security. Worldwide hunger and malnutrition have declined significantly in recent decades and, in the aggregate, the world produces enough food to feed everyone. Yet, today, over 800 million people are considered food insecure and undernourished suggesting abundant supply does not guarantee affordable access to food for all. The recent and recurrent food price spikes and heightened volatility are caused in part by the tightness of markets for many staple foods and by increased financialization of commodity markets. There are more fundamental challenges at the root of enhanced global food market volatility which pose important threats to food security in the long run. Those relate to ongoing demographic change with continued population growth and accelerated urbanization putting upward pressure on the demand for food, as well as on land use given higher demand for high-protein food like meat with the growth of urban populations and rising incomes in emerging economies. They also relate to increased pressure on and erosion of the natural resource base underpinning food production. The related environmental threats include climate change which is already adversely impacting on food supplies through more intense weather shocks. Agriculture[2] itself is part of that problem being a major contributor to global greenhouse gas emissions. Food systems (from farm to fork) around the world are increasingly intertwined being part of global value chains dominated by large corporate businesses. This trend has given impulse to food productivity growth, but is also raising increasing concerns with—inter alia—local impacts of international land acquisitions, uneven (and inadequate) investment in agricultural research and development, safeguarding food safety and nutritious diets.

These challenges conspire against achieving sustainable food security. They are now more widely recognized in international policy debates, but the responses so far to address them and initiatives to strengthen international governance of food security and nutrition at best provide small steps in the right direction. As argued in this paper, most of these responses have been ad hoc in nature, falling well short of what is needed to guide the transformative changes needed to make food systems around the world environmentally sustainable while securing food safety, good health, and sound nutrition for all. Further improvements in the global governance of food security issues are needed. This paper proposes a stronger coordinating role for the Committee on World Food Security and its capacity to gluttonize intergovernmental consensus with involvement of civil society and private sector actors, and help ensure coherence with multilateral trade, finance, and environmental regimes.

1 This paper was written in the author's personal capacity. The views and opinions expressed in this paper are exclusively his and do not necessarily reflect those of FAO or its member states.

2 In this paper, agriculture is referred to in a broad sense, that is comprising agricultural crop cultivation, livestock production, fisheries, and forestry.

2 The evolving notion of food security

Since the World Food Conference of 1974, the concept of food security has evolved and been broadened. According to Maxwell (1996) and Shaw (2004), the concept went through several paradigm shifts. These shifts in conventional wisdom reflect changes in what, over time, have been considered to be key issues informing food security research and food policy and practice.

The 1974 World Food Conference, convened by the UN General Assembly, took place in response to the dramatic rise in world food prices in the early 1970s. The food price spike occurred in a context of a weakened US dollar, high energy prices, short-term climatic shocks, and growing food demand from a number of emerging economies (at the time, these were countries like Spain, the Republic of Korea, and Taiwan, Province of China). The World Food Conference was to seek ways to "resolve the world food problem within the broader context of development and international economic co-operation" (United Nations, 1975). The Conference led to the creation of the short-lived World Food Council and the Committee on World Food Security (CFS). The latter continues to be at the center of present global governance mechanisms for food security.

From 1975, the Food and Agriculture Organization (FAO) of the United Nations began to argue that malnutrition is not simply a problem of food availability, but also a function of poverty and of deprivation. This argument directly linked malnutrition to broader development problems, as it recognized that malnutrition could persist despite increases in overall food supplies. After a series of poor grain harvests in the early 1980s, there was further recognition that, despite successes with high-yielding varieties introduced as part of the Green Revolution in agriculture, the global food system could not secure adequate food supply at all times. In response to these concerns, the concept of food security was broadened to three specific goals: adequacy, stability, and security of access to supplies in food markets.

In the 1990s, several actors, UNICEF in particular, campaigned to make a distinction between food and non-food factors (care and health) in the debates about both food security and nutrition, seeing the distinction as critical when addressing child malnutrition. The distinction was institutionalized by the 1992 International Conference on Nutrition (ICN). The global policy discussions started referring to "food security and nutrition," rather than just food security. In 2010, a range of stakeholders in the nutrition and health community started the Scaling-Up Nutrition (SUN) Movement, which aims to further mainstream nutrition considerations into food policies.

In 2012, this broadened understanding of what constitutes food security led to the agreement by the CFS that: "[f]ood and nutrition security exists when all people at all times have physical, social and economic access to food, which is safe and consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life" (CFS, 2012).

While broadened, the definition continues to be centered on the adequacy, stability, and security of access to food with the difference of having turned into a definition of food security and nutrition. The main focus remains to provide guidance to policies for eradicating hunger and undernourishment. Three more recent concerns are at best only partially covered in this broadened concept of food security. First, there is the now more widely accepted recognition that nutrition insecurity, hunger and malnutrition cannot be adequately characterized as in terms of caloric deficit, but also needs to consider micronutrient deficits. While this is captured in the going definition by the reference to "allowing for a healthy life," the implication of this recognition for policies would go beyond stable, secured, and affordable access to food, as it would set requirements as to the composition of food to be produced and made accessible would need to be sufficiently diverse in nutritional content.

The second concern is with the rapidly growing prevalence of obesity. While underlying causes of obesity are not merely caused by over-nutrition, less healthy dietary preferences of more wealthy consumers (in both rich and poor nations) and promotion of such preferences by suppliers of food certainly play a critical role. Technically, the definition could be seen as covered by the condition of allowing people to live healthy lives, but misses the point not only that such preferences might compromise the condition of food security contributing to a healthy life, but also that "overconsumption" likely jeopardizes affordable access to food for others.

The third relates to environmental concerns. As discussed in the next section, if the ecological footprint of agriculture and food production is not drastically reduced, future food security cannot be guaranteed, simply because it would not be environmentally sustainable and hence should be an overarching concern.

While these concerns are recognized in today's policy discussions about global food security, they are yet to earn fuller recognition in the "official" definition of food security.

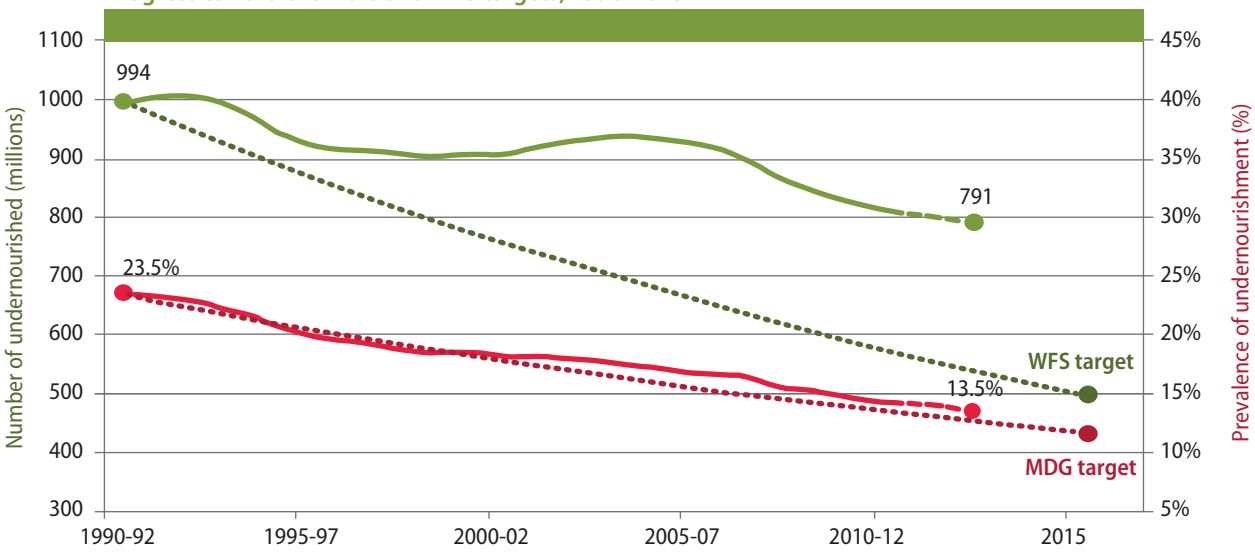
Meanwhile, awareness-raising as well as operationalization of international agreement on the notion of food security has been promoted through the Voluntary Guidelines on the Right to Food (FAO, 2005). The Guidelines were developed in follow-up to the declaration of the 1996 World Food Summit and more firmly rooted the food security in a human rights-based approach and theoretically aligned with Sen's entitlement approach (see for example Sen, 1981, 2013). The declaration of the Summit reaffirmed intergovernmental agreement that "the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger" (World Food Summit, 1996, pp. 1). FAO Council was invited to establish an Intergovernmental Working Group to develop a set of Voluntary Guidelines in support of national and internationally coordinated efforts "to achieve the progressive realization of the right to adequate food in the context of national food security," but by their nature do not establish legally binding obligations for states or international organizations. Nonetheless, a recent review of ten years of Right-to-Food Guidelines concludes these remain "an important guiding framework for achieving the eradication of hunger and improving food security and nutrition through relevant international and regional policy and strategic processes. They are relevant to the formulation of the post-2015 development goals, the international trade agenda, development and humanitarian policies, the mechanisms of international financing for development, and the climate change agenda" (FAO, 2014a: pp. 25). True as this may be, the world is still at quite some distance of fulfilling the right to food for everyone and the challenges to shorten that distance remain daunting.

3 Global trends and emerging challenges

The suggested broadening of the definition of food security and nutrition to guide the global policy discussions would better meet the emerging challenges to the global food system. Those challenges are emerging both on the supply and demand side.

The past sixty-five years have seen a massive growth in food output and quality, enabling a 40 percent rise in food intake per person for a population that has swollen to 7 billion today, up from 2.5 billion around 1950. In recent decades, it has helped to significantly reduce the prevalence of undernourishment worldwide. The Millennium Development Goal (MDG) target of halving this prevalence by 2015 is within reach (see Figure 1). Yet, the extra food has not led to "freedom from want" for all. More than 800 million people worldwide are considered chronically undernourished, of which about 790 million live in developing countries (FAO, 2014b) and the target set by the World Food Summit of halving the number of hungry people by 2015 (from 1990 levels) seems well beyond reach (see also Figure 1).

Figure 1
Trajectory of undernourishment in developing regions: Progress toward the MDG and WFS targets, 1990-2015



Note: Data for 2012–14 in all charts refer to provisional estimates.
Source: FAO (2014b: figure 1).

Chronic hunger and poverty are heavily concentrated in the rural populations that produce much of the food in developing countries, especially in Africa and South Asia. However, chronic food insecurity is also affecting growing urban populations in some parts of the world. "Food riots" and related political unrest following multiple global food price spikes from 2008 foremost have been "urban" manifestations of feelings of food insecurity. The challenges moving forward impinge on all dimensions of the modern concept of food security and nutrition: availability, stability, and accessibility of food supplies, as much as nutritious composition of food and the environmental sustainability of food production.

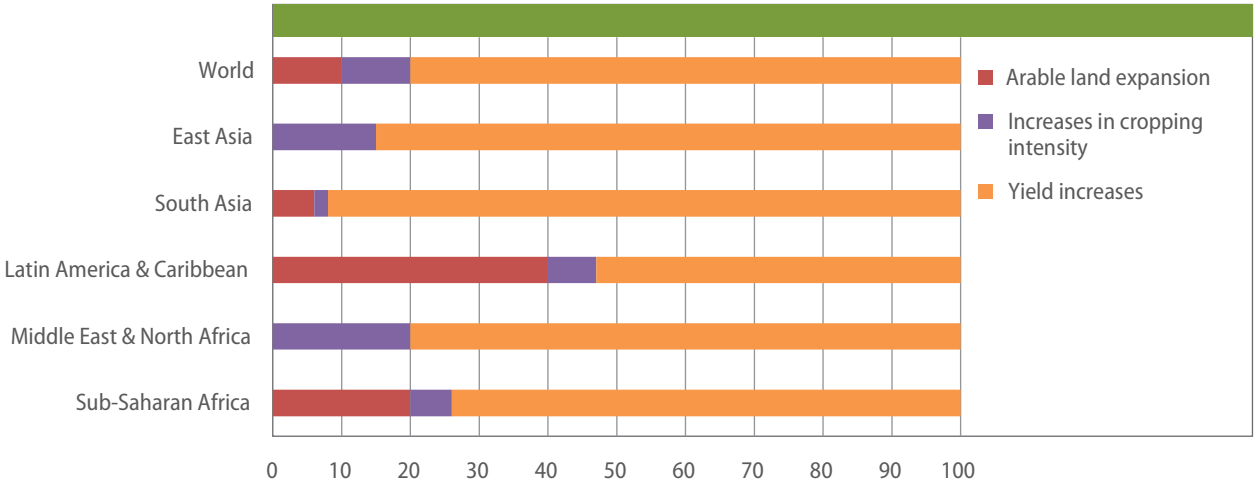
3.1 Food and demographics

First, population growth will make the challenge of feeding everyone that much more difficult. According to the United Nations' medium-scenario projections (United Nations, 2013), the world's population will reach 9.3 billion people by 2050 and 10.1 billion by 2100. Most of this increase (85%) will take place in what are now developing countries. Africa will account for about half of the absolute increase in population between 2010 and 2050 and, at present trends, it will be home to nearly one quarter of the world population by 2050. Developing countries will have to adapt to growing urban populations. By 2050, 70 percent of the world's population is projected to live in urban areas with implications for land use and the composition of food demand (see below). Combined with the growing world population, changing dietary patterns imply that food production needs to increase from present levels by an estimated 60 percent (Alexandratos and Bruinsma, 2012). In most regions, land frontier limits have been reached, such that, all other things being equal, in order to feed the growing and increasingly urban world population almost all of the expansion of crop production would need to be generated through yield increases (see Figure 2).

3.2 Shifting consumption patterns

Second, changing consumption trends also contribute to the challenge of achieving food security. Rising incomes and increasing urbanization around the world have led to improvement in the nutrition for hundreds of millions of people. As income rises

Figure 2
Sources of growth of crop production to feed a growing world population, 2010–50 (percentage shares)



Source: Alexandratos and Bruinsma (2012).

above the basic subsistence level, diets diversify and move beyond grains to include sugars, fats, oils, and protein. These trends are fueling the shift toward greater consumption of animal protein in developing countries. The FAO predicts that with continued trends, the expanded world population will be consuming two thirds more animal protein by 2050, with meat consumption rising nearly 73 percent and dairy consumption growing 58 percent over current levels (Alexandratos and Bruinsma, 2012). Changing diets and the underpinning factors have an upside and downside: they have been a factor in reducing average rates of prevalence of undernourishment, but they have also been an important factor in pushing up rates of overnutrition.[3] Through its association with sharp increases in the prevalence of chronic diseases, like diabetes and cardio-vascular ailments, unhealthy food patterns are contributing to increased health costs in developed and developing countries alike.

3.3 Food and the environment

Third, expanding food production and economic growth in general have come at the expense of the degradation of our natural environment. Almost one half of the forests that covered the Earth are gone,[4] groundwater sources are rapidly being depleted, enormous reductions in biodiversity have already taken place[5] and, through the burning of fossil fuels, about 30 billion tons of carbon dioxide are currently being emitted each year. All of these undesired trends continue to take place at an accelerated pace and agriculture is an important part of the problem. Modern agriculture currently contributes about 14 percent of greenhouse gas emissions and the land-use and water management related thereto are not sustainable in many parts of the world (United Nations, 2011). Deforestation is contributing an estimated 17

3 The World Health Organization (WHO, 2011) estimates that almost one quarter of the world population is overweight and/or obese. Most people (65%) live in countries where overweight is a bigger killer than undernourishment.

4 Since 1990, the globe's forest area has decreased by 300 million hectares, an area larger than Argentina. Most losses were in Latin America and Africa, while there was some recovery in North America, Europe, and parts of Asia.

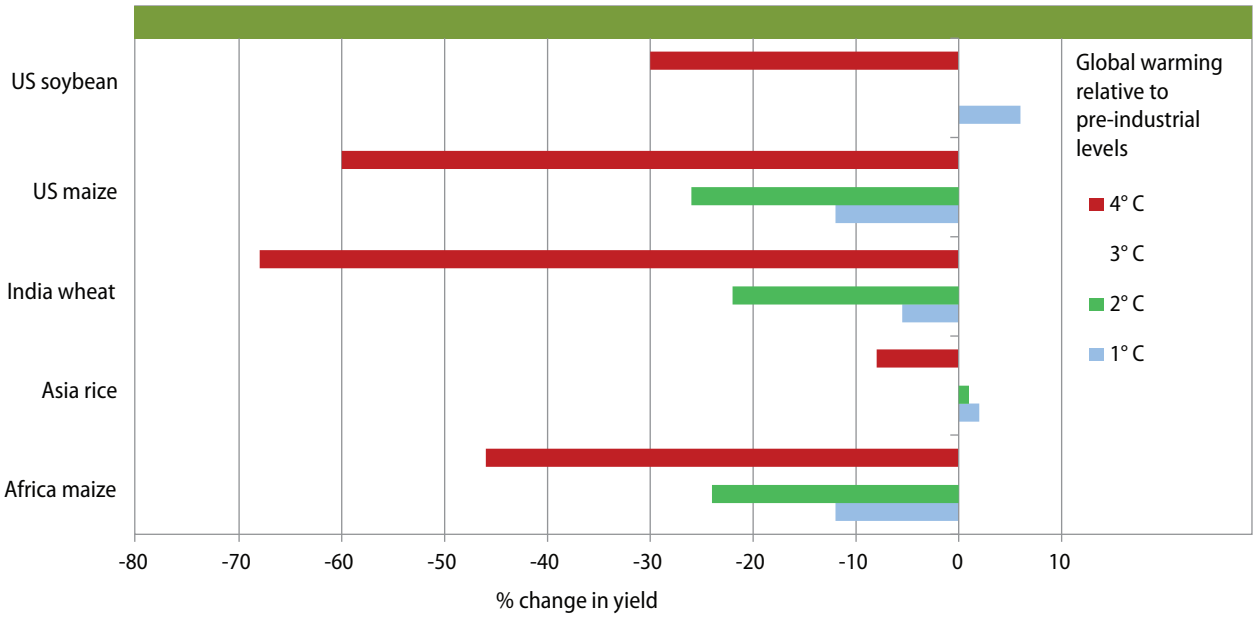
5 The Living Planet Index, which reflects changes in the health of the Earth's ecosystems, has declined by 30 percent between 1990 and 2010. Biodiversity in the tropics is declining most dramatically, which is seen to be associated with high depletion rates of primary forests and transformation of forest into agriculture land and pasture (WWF, 2010).

percent of global emissions, while causing the loss of habitat, species, and biodiversity in general. The incidence of natural disasters has increased fivefold since the 1970s. With a fair degree of certainty, this increase can be attributed in part to climate change induced by human activity. Deforestation, degradation of natural coastal protection, and poor infrastructure have increased the likelihood that weather shocks will turn into human disasters, especially in the least developed countries. These trends in turn threaten the sustainability of food system and undermine the world's capacity to secure adequate availability of food.[6]

The frequency and intensity of severe weather events such as floods, cyclones, and hurricanes as well as of prolonged drought and water shortages will increase, affecting soil quality directly. Model-based simulations of the possible impact of climate change on crop yields are subject to a fair degree of uncertainty, but most studies suggest significant productivity losses for key crops in most regions. The severity of the losses is expected to increase significantly with each rise in average temperatures (see Figure 3).

Because of climate change, entire regions will have to adapt their food production systems. Food producers will need to either adopt new or changing production techniques or, if not feasible, move to other income-generating activities. This will reinforce the ongoing rural-urban migration, and transform food producers into food consumers. In those regions where the rural-urban migration does not provide opportunities for income generation, South-North migration across nations and continents will be an attractive option and thus likely would intensify.

Figure 3
Projected changes in yields for selected crops with global warming



Source: US NRC (2011), based on various studies.

Even though the real effects of climate change on agriculture, forestry, and fisheries are difficult to predict, it is expected that the impact will be different for each region, ecological zone, and production system. Even small changes in the climate, for example, through small changes in annual rainfall or in seasonal precipitation patterns, can affect productivity.

Agricultural producers who are not able to invest in insurance or preventive/mitigating measures or

6 A recent report of the United Nations International Panel on Climate Change (IPCC, 2013) also issued a sharp warning that climate change is threatening to reduce food supply in the coming decades.

who cannot benefit from related national programs will face loss of their production base and/or capacity with further intensification of natural disasters. Food insecurity will affect smallholders and rural poor in particular and extreme weather events will have a reinforcing effect on migration movements.

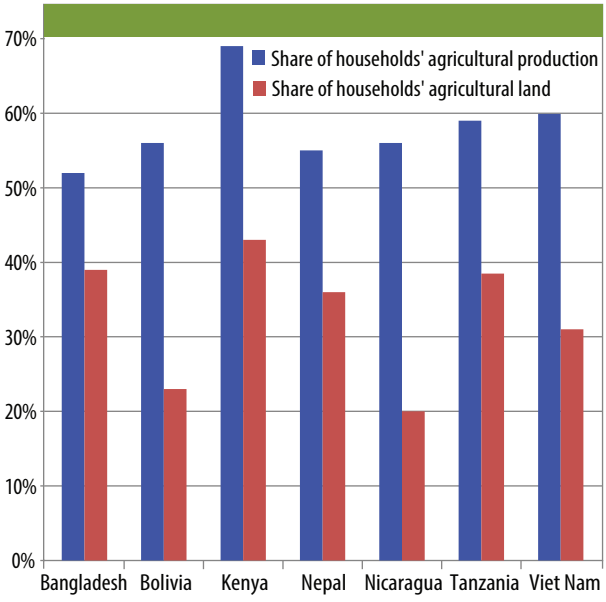
The upshot is that the past ways to increase food supplies (expansion of arable lands, extensive fisheries, intensive use of water, chemical fertilizers and energy in crop production, etc.) cannot be viable options of the future. Instead, to protect the environment and guarantee adequate and stable availability of food, most of the growth in food production will need to come from increased yields and productivity while reducing pressure on natural resources ("sustainable intensification").[7]

3.4 Future farmers

Fourth, with present farming patterns, smallholder family farmers in developing countries, including the poorest would need to be the key drivers of the required substantial increases in productivity and transformation toward sustainable production methods. Presently, about 80 percent of farms are small in scale with landholdings of 2 hectares or less (FAO, 2014c). The number of small farms has grown over the past decades. Average farm size has fallen in most low- and middle-income countries, where the majority of the world's farms are (FAO, 2014c). Rapid population growth in rural Sub-Saharan Africa and Asia and lack of access to land for poor households is a key factor behind increasing landholdings and decreasing farm size. At the same time, smallholders are responsible for most of the agricultural production; in low-income countries typically for more than three quarters (Figure 4).

The world possesses the technologies to significantly step up farm productivity, including through climate-smart methods (Vos, 2014). However, can we expect these to be adopted widely by farmers around the world? Smallholder family farmers in developing countries tend to find it difficult to access these technologies, because of inadequate infrastructure, low education, and lack of credits. Many of them live and work in vulnerable ecosystems, which may become even more fragile because of climate change. In addition, farmer populations are aging rapidly. Worldwide, the average age of farmers is about sixty, including in developing countries, and many among them are women and poorly educated (see, for example Jöhr, 2012; Gorman, 2013). Older farmers are less likely to introduce new, transformative production techniques. One could expect their children to do so, especially in developing countries where 60 percent of the population is under twenty-five years of age and most living in rural areas. The problem is, however, that few rural youths see a future for themselves in agriculture (Vos, 2014).

Figure 4
Share of smallholder farms (lowest quartile) in agricultural production and land in selected low and lower middle-income countries (around 2010)



Source: FAO (2014c: figure 2.4).

7 Making production practices more sustainable also holds the potential of enhancing agriculture's restorative capacity to the ecosystem, including through upping its capacity as a carbon sink. See for example Agri4D (2013) for discussions on the potential to transforming agriculture from being a large carbon source to becoming a carbon sink. Carbon sequestration by soils can be enhanced, for instance, by avoiding ploughing and turning agricultural systems into conservational agriculture systems.

3.5 Policy and policy coordination failures

Fifth, the existing mix of government policies does not add to push adequately toward the desired transformative change. On the contrary, in many respects, policies add to the obstacles, as:

- Beggar-thy-neighbor agricultural policies persist around the world that inhibit trade and subsidize crop production to support farmers and food consumers at home, but at the expense of farmers and food security elsewhere. This refers to continued high agricultural subsidies in member countries of the Organization for Economic Co-operation and Development (OECD), which continue to constitute near 20 percent of gross farm receipts in those countries at a total fiscal cost of about $250 billion per annum (MDG Gap Task Force, 2013). These subsidies significantly distort prices and markets for key crops, affecting developing country producers in particular. In addition, export restrictions and trading bans isolate local markets and give farmers little incentive to expand production for the next season, limiting the potential supply response to price increases. During the 2008 food crisis, for example, more than thirty countries imposed export restrictions, further pushing up prices. Trade plays a crucial role in ensuring food security by allowing agricultural commodities to move from places of surplus to places of deficit. Though only about 15 percent of the world's calories cross international borders, for countries dependent on imported supplies this share can be a lifeline.

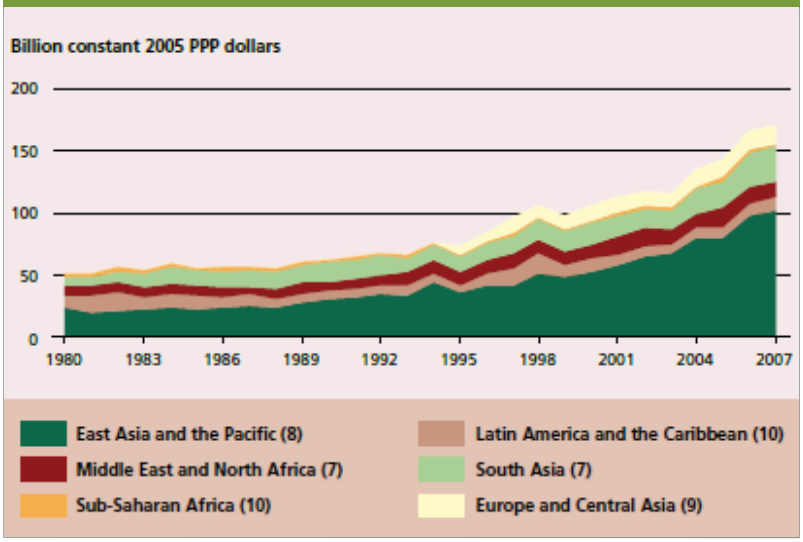
- Policies also are a key factor in stimulating non-food use of crops. Mandated use of biofuels represents another significant obstacle to achieving food security. About 30 million tonnes of whole grain equivalents would be needed to meet the caloric deficit of the 805 million undernourished people in the world today, which equals to approximately one sixth of the amount of grains currently used to produce biofuels. The use of agricultural feedstocks (such as corn, soybeans, and sugarcane) for the production ofbiofuels is projected to grow, largely driven by biofuel mandates and support policies. By 2023, biofuels will consume 12 percent of the global coarse grain production, 14 percent of vegetable oil production, and 28 percent of sugarcane production, according to OECD-FAO estimates (OECD and FAO, 2014). While conceived as part of measures to mitigate climate change, net contribution of agricultural feedstock production to reducing greenhouse gas emissions is, at best, only very slight (Vos, 2009), while it adds to continued intensive use of water, energy, and chemicals in agriculture and affecting food security.

- Such subsidies have also stimulated large-scale land acquisitions in developing countries for production of feedstocks. They form but one factor, though, among other incentives (FAO, 2012, ch. 4). Such large- scale land acquisitions (or "land grabs" as they are also sometimes referred to) have received quite some attention recently, because of concerns over socioeconomic effects on local farmers and environmental impacts. Large-scale land investments are more prone in countries where farmers lack adequate protection of land tenure rights and where land governance is weak otherwise (FAO, 2012, ch. 4). The precise magnitude of such investments is difficult to measure because of data limitations, but available evidence suggests that in the aggregate they are rather limited relative to total agricultural investment and that foreign investors tend to be in a minority. Yet, the local impacts tend to be substantial and reflective of the mentioned concerns. It has raised calls for better regulation of such investments. Accordingly, ongoing international debates and some action have moved to better secure land rights for smallholder farmers and make business models more inclusive, to mitigate the adverse impacts of such investments. Voluntary guidelines have been set up aiming to make such investments socially and environmentally more responsible,

engaging governments, NGOs, and private sector stakeholders in new ways (more on this later).

- Contrary to some conventional wisdom, public sector spending and investment on agriculture actually increased over the past three decades, including in developing countries (Figure 5 and FAO, 2012). However, in most regions (except Asia) such spending has lost out to competing priorities (see Table 1) and, most importantly, levels are considered highly deficient to meet needs for basic infrastructure and research on new technologies to stimulate private investment and agricultural productivity growth needed to meet increased food demand and make food systems more sustainable. Private sector investment in research has increased—largely in biotechnology and in a handful of global staple crops such as corn, soybeans, and canola—leading to other crops to fall behind in productivity. To induce the required long-term improvements in the supply, availability, and affordability of food, much more will need to be invested in agricultural research and development for a much wider range of crops and staple foods. Inefficient physical infrastructure for storage and transportation of food, combined with unreliable or ineffective customs clearance, also limit access to safe food. Inadequate storage capacity and transportation tend to disrupt the supply of food, especially in developing countries and limiting smallholder farmer productivity in particular. In some countries, food wasted in post-harvest losses can reach levels as high as 40 percent because of gaps in the food chain infrastructure, including lack of proper storage facilities to protect against the external environment and pests (FAO, 2013c). A recent estimate of FAO puts additional public

Figure 5
Public expenditures on agriculture by region, 1980–2007



Note: Calculations include 51 low- and middle-income countries. The number of countries included in each group is shown in parentheses. For countries in Europe and Central Asia estimates are from 1995 to 2007.

Source: FAO (2012).

Table 1
Agricultural orientation index (AOI) for public spending in low- and middle-income countries, 1980–2007 (ratio)

	1980–90	1990–09	2000–04	2005–07
East Asia and Pacific (7)	0.31	0.48	0.49	0.59
Europe and Central Asia (9)	n.a.	0.29	0.35	0.36
Latin America and Caribbean (6)	0.96	0.86	0.56	0.38
Middle East and North Africa (5)	0.34	0.37	0.37	0.30
South Asia (5)	0.24	0.21	0.21	0.27
Sub-Saharan Africa (9)	0.30	0.17	0.14	0.12
Total (41 countries)	**0.35**	**0.38**	**0.38**	**0.41**

Note: The AOI for public spending equals the agricultural share of government spending divided by the agriculture share in GDP. Calculations include forty-one low- and middle-income countries. The number of countries covered in each region is indicated in parentheses.

Source: FAO (2012).

investment needs as part of a broader strategy to end hunger at minimally $50 billion per annum worldwide (FAO, 2012, table 8).[8]

- Investment in research and development of new technologies and their adaptation to smallholder farmer conditions in developing countries equally has been grossly deficient (United Nations, 2011, chapter III; FAO, 2013). Since the 1980s, also international support for agricultural research has decreased and national agricultural research centers have scaled back their support for seed development (UN, 2011, chapter III). Moreover, the bulk of public support for R&D is heavily concentrated in developed countries and remains low in most developing countries. Private corporate investment in R&D is important and a main driver of modern agriculture and biotechnology. Much of this research has supported the green revolution in agriculture that did not turn out so "green," as it introduced high-yielding varieties also high in use of water, chemical fertilizers, and pesticides. Several more recent biotechnology inventions have produced high-yielding varieties that are much more environmentally friendly, low in use of water and land (including zero tillage) as well as reducing the need for pesticides. The "save and grow" technologies referred to earlier build in part on these innovations. Genetically modified (GM) plants are at the center of many of these technologies as much as they have stirred controversy. Some of the critique refers to doubts about actual reductions in the use of chemical inputs.[9] Other concerns are with alleged health risks.[10] Others do not question as much the continued environmental or health risks, but rather see potential for enhancing food security but are concerned with the fact that most R&D investments in new biotechnologies are concentrated on improving productivity of basic grains and oil seeds (such as wheat and soybeans) apt for large-scale farming and bypass basic food staples produced by smallholder farmers in developing countries. The "save and grow" adaptations for crops such as cassava show that sustainable crop intensification is possible with benefits going to smallholders if other things also fall into place (Vos, 2014; FAO, 2013d). Improved global governance and rules (such as for intellectual property rights) are needed to provide guidance, financial means, and other incentives that support investments in sustainable crop intensification and climate-smart agriculture that can also be a central part of transformation of smallholder farming around the world.
- Continued volatility in commodity and food prices is another factor threatening global food security. In today's global food market, small changes in supply tend to have outsized effects on price, especially when food stocks are low, because demand for food persists even when prices rise. For example, the 2010 drought in Russia reduced global grain production by 1 percent but sparked price increases between 60 and 80 percent. In 2009, forces worked the other way around, with modest improvements in supply driving prices down sharply. This instability and its impact in terms of limiting food access for many vulnerable populations and as a cause of much political

8 Those additional public investments and other spending, especially in developing countries, would be needed for rural infrastructure, sustainable management of natural resources, research and development, strengthen rural institutions and strengthened social protection systems (FAO, 2012, pp. 35–6).

9 GMOs are promoted in part by claiming reductions in the need for synthetic herbicides and pesticides while the plants will not harm the environment. However, while there is some evidence that insecticide use is down, particularly for the cotton crop which is notorious for large amounts of insecticide use, studies on herbicide use show that levels have remained the same and in some cases have risen.

10 Genetically modified seeds and plants could cause detrimental effects from "genetic pollution," which occurs when an engineered gene enters another species of crop or wild plant through cross-pollination. This contamination may pose public health threats, create "superweeds" which could require greater amounts of more toxic pesticides to manage, and threaten extinction of rare plants and their weedy relatives relied upon for crop and plant biodiversity. However, evidence regarding such risks is far from conclusive and is contested.

unrest (food riots) around the world was one of the key reasons why food security returned on top of the international policy agenda. The policy failure here is complex, partly associated with the previous factors that have led to structurally tight food markets, while some would also add financial deregulation and how this has facilitated financial speculation in commodity markets, compounding food price volatility (FAO and other agencies, 2011).

National policies thus have been oriented at serving different objectives causing significant trade-offs (such as between biofuel production and food security) and by and large have continued in uncoordinated fashion, in disregard of integrated global value chains.[11]

It is evident that issues related to global and individual food security can no longer be resolved through action limited to the national or local level, but that there is need for cooperation and coordinated multi-stakeholder action at the global level and with a global perspective. The interdependency of national food-related production systems and markets, due to their vertical and horizontal integration, and their dependence on the global financial and energy markets, means that national policies alone cannot fully buffer against risks like inefficiencies and volatility.

4 Toward a new food security governance?

The international response to the 2007–08 food price crisis reflected an implicit acknowledgment that the institutional framework established after the Second World War and after the 1970s energy crisis was no longer adequate to deal with the dynamics of a changed economic and institutional environment. It recognized that with globally integrated food production systems, market and production failures in the food and agriculture sector can threaten the global economy as well as destabilize entire nations. It also prompted consideration that food, energy, and financial markets could dynamically, but perversely interact to provoke instability in each of these markets. The crisis pushed food security briefly to the top of the international agenda. The need to revive rural development and invest in new technologies that are also accessible and affordable to smallholder farmers was widely recognized.

The question is whether the changing system of global governance will be able to cut hunger, prevent similar future crises, and ensure sustainable resource use.

4.1 Changing architecture in response to the 2007–08 food crisis

The international response was characterized by the establishment of a variety of, largely ad hoc, global institutional mechanisms and processes.

4.1.1 HLTF and CFA: Zero hunger initiatives

In April 2008, the UN Chief Executives Board established a High-Level Task Force (HLTF) on the Global Food Security Crisis. The HLTF brought together the heads of the UN specialized agencies, funds and programs, as well as relevant parts of the UN Secretariat, the World Bank, the International Monetary Fund, the Organization for Economic Cooperation and Development, and the World Trade Organization.

The primary aim of the HLTF was (and still is) to promote a comprehensive and unified response to achieving global food security, by facilitating the creation of a prioritized plan of action and coordinating its implementation. This resulted in the Comprehensive Framework for Action (CFA) agreed to in 2008. The CFA was designed to encourage concerted responses to the food price crisis by meeting the immediate needs of vulnerable populations and by

11 There are further challenges, such as, the inconsistent application of international food safety standards, which forms a barrier to moving food efficiently across borders. As discussed in the next section, predictable, science-based global food safety standards are needed to manage risk, provide transparency, and ensure accountability.

building at the same time longer-term resilience (the so-called, twin-track approach to food security). The CFA meant to provide governments, international and regional organizations, and civil society groups with a menu of policies and actions from which they could draw in designing appropriate responses to come to sustainable food security, address food market volatility, and address persistent widespread chronic malnutrition.

The CFA also has been the inspiration for the UN to launch its Zero Hunger Challenge Initiative,[12] which has set five specific goals: (a) zero stunted children under two years old; (b) 100 percent access to adequate food all year round; (c) all food systems are sustainable; (d) 100 percent increase in smallholder productivity and income; and (e) zero loss or waste of food. It has also led to several country and regional initiatives where national governments are undertaking concerted efforts toward the zero-hunger goal, reportedly with some tangible results. Notable examples at the regional level include the *Hunger-Free Latin America and Caribbean Initiative* (which builds on the experience of Brazil's "*Fome Zero*" program) and the *Renewed Partnership for a Unified Approach to End Hunger in Africa by 2025* which is part of the Comprehensive Africa Agricultural Development Programme (CAADP) of the African Union.

4.1.2 G8 and G20: Crisis responses

Since the creation of the HLTF and release of the CFA, the international community has made notable efforts to encourage greater investment in food security. Various gatherings of the G8 held since 2008 were used by world leaders to make major commitments in support of enhancing food security. The statement agreed at the 2008 G8 meeting in Tokyo emphasized their commitment to pursue all possible measures to ensure global food security and recognized the coordinating role of the United Nations through the HLTF.[13] Countries with food surpluses were encouraged to release food stocks and the removal of export restrictions was called for. The G8 Summit at L' Aquila in Italy (2009) gathered the heads of state of twenty-six nations and representatives of fourteen international and regional organizations who announced a major initiative to increase agricultural production, the "L'Aquila Food Security Initiative." This initiative was accompanied by the "L'Aquila Joint Statement on Global Food Security," through which $22 billion would be raised for agricultural investment over a three-year period.[14]

The initiative promised action in five areas or "principles": investment in country-led plans and processes; comprehensive policies covering support for humanitarian assistance, sustainable agriculture development and nutrition; strategic coordination of assistance; a strong role for multilateral institutions; and sustained commitment of financial resources. The World Summit on Food Security held in Rome in 2009 reconfirmed this approach now labeled as the "Five Rome Principles for Sustainable Food Security."

The pledges made through the L'Aquila Food Security Initiative led to the establishment of the Global Agriculture and Food Security Program (GAFSP) Trust Fund, a multilateral financing mechanism run through the World Bank focused on the achievement of the eradication of hunger (MDG 1). Its objective is to address the underfunding of country and regional agriculture and food security strategic investment plans already under development. Its mandate is to build on existing structures and support the implementation of the CFA. It consists of a public and private sector window and reports to have received commitments and disbursements of over $1 billion by 2013 from ten donors including the Gates foundation (GAFSP, 2013).

The G20 also gave follow-up to food security concerns in the broader context of the deliberations in response to the global financial crisis. The creation of GAFSP resulted from the reconfirmed commitments made by G20 leaders at the 2009 Pittsburgh

12 See http://www.un.org/en/zerohunger/challenge.shtml.

13 http://www.mofa.go.jp/policy/economy/summit/2008/doc/doc080709_04_En.html

14 http://www.mofa.go.jp/policy/economy/summit/2009/statement3–2.pdf

Summit. Subsequently, however, food price volatility and spillover effects from financial market instability and speculation received most attention, leading to the establishment of the Agricultural Market Information System (AMIS), established in June 2011. AMIS is to enhance food market transparency and encourage international policy coordination in response to market uncertainty. One of its main objectives is to forecast the short-term market outlook for wheat, maize, rice, and soybeans ("AMIS crops"). The AMIS secretariat, located at FAO, consists of ten international organizations with the capacity to collect, analyze, and disseminate information on the food market situation and outlook. Attempts in 2011 by the French presidency of the G20 to come to more forceful concerted measures to stem financial speculation in agricultural commodity markets and to create new mechanisms aiming to more directly stem price volatility stranded over disagreements about the precise role of financial speculation and the effectiveness of any such measures.

4.1.3 *Voluntary guidelines: Engaging the private sector and civil society*

An array of other mechanisms aiming to improve global governance of food security and related issues has emerged. Examples include the request to the Committee on World Food Security (CFS), on which more below, to develop the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security and to create an International Observatory on Land Tenure. Steps have been further taken to deal with issues related to fisheries, aquaculture, and oceans through the Areas Beyond National Jurisdiction (ABNJ) project of the Global Environment Fund (GEF) and to review the governance of UN Oceans. Further, it was agreed to establish an Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), on Principles for Responsible Agricultural Investment (PRAI) and the CFS Principles for Responsible Investments in Agriculture and Food Systems (CFS-RAI),[15] as well as the International Guidelines for the Governance of Tenure in Land, Fisheries and Forestry and the Voluntary Guidelines for Small-Scale Fisheries.

The CFS-RAI and the Voluntary Guidelines are a response in part to the concern surrounding large-scale land investments and aim to promote secure tenure rights and equitable access to land, fisheries, and forests as a means of eradicating hunger and poverty, supporting sustainable development and enhancing the environment. The Guidelines were officially endorsed by the CFS on May 11, 2012. Since then, implementation has been encouraged by G20, Rio+20, and the UN General Assembly. The CFS-RAI principles were officially adopted in October 2014.

One thing those new mechanisms have in common is the recognition of the importance of involving multiple stakeholders, that is to say, not just governments but also civil society organizations and the private sector. At the time of the establishment of the FAO, issues related to policies, knowledge sharing, and international standards (such as on food safety) related to agriculture and food security were considered as purely intergovernmental affairs. Most of FAO's work would be conducted through statutory bodies or commissions, many operating under joint oversight with other UN agencies. Nowadays, however, it is widely recognized that other players have to be engaged as well for international agreements and coordination mechanisms to be effective.

NGOs and civil society organizations (CSOs) have become vocal defenders of consumer and producer rights and interests.The voices of smallholder farmers, by the numbers of the major private sector players in global food systems, are being heard through a number of international producer associations, such

15 The PRAI were developed jointly by UNCTAD, FAO, IFAD, and the World Bank at the request of the G20. In October 2014, the CFS approved a broader set of Principles for Responsible Investment in Agriculture and Food Systems (CFS-RAI: http://www.fao.org/cfs/cfs-home/resaginv/en/). The principles address all kinds of investment and investors (from smallholder farmers to multinational companies).

as the World Farmers Organization (WFO), and have a say in CFS consultations though they have no defined role in the decision-making process, which remains intergovernmental.

Corporate businesses operating globally are other key private actors in the food system as they dominate the food processing industry. They function according to private profit-based principles. Accordingly, less profitable research areas are more likely to be neglected; biasing it against smallholders and biodiversity, and not necessarily geared toward the needs of the vulnerable population groups or markets with reduced purchasing power. Recent trends, however, signal that environmental concerns and efforts to link global food value chains to smallholder production are increasingly becoming part of corporate business strategies, possibly owing to greater attention to responsible corporate entrepreneurship in the public debate and better understanding that long-term profitability depends on the sustainability of food systems at large.

4.1.4 *Food safety: Health versus fair trade?*

International arrangements for governing food safety have a longer history. Modern food safety policies were introduced in major developed countries in early twentieth century. In the United States they emerged in response to scandals in the meat packing and other food processing industries that, at the time, had started to revolutionize food systems (Hoffman and Harder, 2010). A second generation of major food safety policy reform emerged in response to late twentieth-century scandals and crises of trust in the quality of food, such as the *E. coli* outbreak in the United States, the bovine spongiform encephalopathy (BSE) crises in the United Kingdom and continental Europe, dioxin in Belgian feed, melamine in Chinese food exports, among several other food-related health threats. As they did a century ago, economic and technological transformations in both the nature of food and the food supply system lie behind these crises. The heightened concentration of production through global food supply chains quickly turned problems in one part of the chain into an issue of global concern. It underlined the importance of risk-based, scientifically supported, integrated "farm-to-fork" policies and the need to review food safety policies as part of global risks.

Since 1963, the Codex Alimentarius Commission (Codex) forms the main forum for international technical collaboration on the development of food safety and quality standards. It was established by the FAO and the WHO to serve two primary goals: protecting human health and promoting fair trade policies. Codex provides international standards and principles to guide national policies. Codex norms were incorporated in the Sanitary and Phytosanitary (SPS) Agreement of the Uruguay Round of multilateral trade negotiations. The agreement, effective as of 1994, has been one of the few also ratified early into the existence of the World Trade Organization (WTO). Though not binding on nations, embedding the Codex norms part of the SPS Agreement gives them greater weight in national regulatory and legislative development of food safety policies. The implication for trade policies is that the SPS Agreement provides the basis for distinguishing legitimate from protectionist use of safety and phytosanitary laws with the intention of applying those laws for legitimate food safety concerns only. Inevitably though, with economic interests on the line, it has brought some politicization into Codex as a forum for the development of the norms and standards themselves.

4.1.5 *Trade and investment: Lifting trade distortions versus food self-sufficiency?*

While food security is not a new trade concern, the discourse in multilateral trade negotiations changed in the light of the rising food prices and heightened volatility that became a global concern toward the end of the 2000s. Before, especially during the Uruguay Round, food security was an issue in a context of low food prices in world markets and how low

prices affected producers.[16] Current food security fears in the minds of trade negotiators currently center mainly on the potential impact on consumers. Within the WTO, this is exemplified by the current discussions at the Committee on Agriculture and some of the proposals, such as the G-33 suggestion for changes in the treatment of food security stocks (on which more later).

Agricultural trade issues have dominated multilateral trade negotiations before and after the Uruguay Round and since the establishment of the WTO in 1994. The Agreement on Agriculture (AoA) facilitated greater access to developed-country markets by developing countries and was to put an end to developed-country use of trade distorting (export) subsidies, which adversely affect the incomes of producers in developing countries. More generally, the AoA foresaw a substantial liberalization of agricultural markets through the adoption of stricter rules on the use of subsidies, tariffs, import restrictions, and other agricultural policy measures, with exceptions made for least developed countries (LDCs) under special preferential treatment.

While arrangements such as the "everything but arms" initiative of the EU have reduced the influence of trade distorting measures for LDCs by allowing them to make duty-free and quota-free exports, relatively high tariffs have been maintained on developing country export products such as cotton, sugar, cereals, and horticulture.

In December 2013, the Bali agreement was reached, constituting the first deal in the Doha Round negotiations that had started in 2001. Agriculture was at the center of this agreement. The agreement contains progress on several of the previously mentioned issues, as well as on trade facilitation and securing duty-free and quota-free market access for LDCs. Key sticking point at Bali, however, was the text on public stockholding and procurement for food security purposes. The G33 had proposed that purchases of food for public stockpiles to support low-income or resource-poor producers, including at above local market prices, should be placed in the "Green Box."[17] India was the main proponent. The country had just raised the minimum producer price for rice and the subsidy risked exceeding its limits set for support in the "Amber Box."[18] The G33 basically reiterated its position that WTO rules allowed developed countries to continue price distortions with very few limits, while leaving developing countries with too little policy space. In Bali, parties agreed on a so-called peace clause, which allows countries to build public stockpiles of food reserves without breaching their domestic support commitments until a "permanent solution" is agreed upon.

Why was this issue so contentious? It reflects continued asymmetries in the multilateral trading system, which could also be harmful to global food security. A key perceived asymmetry refers to the lack of policy space for developing countries to address problems of food insecurity. Although food security is recognized in the preamble to WTO's AoA as a nontrade concern which must be taken into account in the reform process to establish a fair and market- oriented agricultural trading system, developing countries claim that this is not the case or, at least, that it has been inadequately recognized (De Schutter, 2011; Matthews, 2014). Criticisms include arguments that the AoA rules are lop-sided, favoring developed countries by allowing them to continue to heavily support their agricultural sectors, while they unduly constrain the ability of developing countries to pursue agricultural development and food security policies.

16 During the Uruguay Round the issue was reflected in the Marrakesh Declaration and the establishment of the category of "Net Food Importing Developing Countries." Also, several developed countries claimed food security concerns during those negotiations to justify barriers to food imports.

17 The "Green Box" refers to the list of domestic support measures which may be maintained or introduced by WTO members without any limits or reduction commitments.

18 The "Amber Box" contains all forms of domestic support for agriculture considered to distort trade.

WTO defines policy space by the right of member states to exempt support under some policies when calculating its current aggregate measurement of support (AMS), as well as by the limits to the amount of permitted AMS. WTO already exempts a wide range of policies which address food security needs, but these rules are more restrictive regarding policy features that could "distort" prices and, hence, trade. This is where things start to bite.

The original G33 proposal aimed for WTO rules to deem purchases at administered prices for the purposes of public stockholding not as price support but merely serving food security purposes and that such support would not be included in a product's AMS. Opponents argue that this would be a too radical change from existing rules by breaching the criterion for permissible support in the "Green Box," namely that it should not have the effect of providing price support to producers.

As suggested by Matthews (2014), there could be ways to bridge these opposing positions. One could be to make explicit allowance in the AoA for countries to adjust their measured support for high rates of food price inflation (and which would drive up their AMS in the case of public purchases for food stockpiles). The other could be to distinguish between the use of administered prices for price support and that as a form of social protection. Farmers in developing countries tend to be more vulnerable to price risk, but have fewer opportunities to manage this than farmers in developed countries. Where administered prices operate as a safety net rather than the incentive price to which farmers respond, AoA rules could then recognize that this use of administered prices is not likely to lead to additional trade distortion and could be permitted.

While these suggestions might make the issue at hand negotiable for a "permanent solution" within the WTO context, they also make clear that there are fine lines between permissible "non-distortionary" policy support in agriculture and the actual policy space. Expanding agricultural productive capacity through measures that increase productivity, such as infrastructure, agricultural R&D, and similar investments are generally allowed under the "green box" of the AoA. These are, of course, more fundamental lines of action (than trade policy) to promote food security and should also work to reduce price volatility, raise farm incomes, and keep food prices affordable to consumers. It also makes clear that the distinction between policies that are price "distorting" and "non-distorting" is rather blurry in practice. Hence, more "creative thinking" may be required in both national policy design and how permissible support in the "Green Box" is defined, in order to allow for sufficient developing-country policy space for farm support and consumer protection for poor households in pursuance of legitimate food security objectives. The challenge is to ensure that any social policy component by way of "administered prices" would have no or only minimal trade impacts, and not unduly shield domestic producers from more efficient and non-subsidized competitors in other countries.

The way out of such policy dilemmas would require broader consideration than what seems feasible when confined to the pure WTO setting of trade negotiations. If food security is considered a global public good (more on this below), then it should be the primary objective of rule setting. Analogy could be found in Pascal Lamy's argument, stated as Director-General of WTO, that climate policy must take priority because trade is not an end in itself but supposed to enhance human welfare, which in turn is heavily dependent on climatic conditions (Lamy, 2009; and, also, Vos and Montes, 2013). Consistency between climate and trade policies must entail internalization of environmental costs, including those associated with greenhouse gas emissions. Similarly, it could be argued that the cost of guaranteeing food security (i.e., the right to food), including the related environmental costs, would need to be internalized in food prices and subsidies. The link with trade is also important here because much of food productivity-enhancing and environment-friendly agricultural

technologies and knowhow are generated in developed countries.[19]

Despite all of these developments, the responses to recurrent food crises and persistent food insecurity have remained largely ad hoc. Existing platforms, like the CFS, have been strengthened and given broadened mandates with engagement of nongovernmental stakeholders as well. Yet, decision-making remains limited to some broad guidance for national policies and definition of voluntary guidelines for responsible private sector behavior, but without strong accountability frameworks as sticks for compliance, thereby pretty much leaving the actual practice of uncoordinated national policies in place. The role of other platforms such as the G8 and G20 in driving some more tangible parts of the food security agenda (such as financial pledges in support of the implementation of the CFA and guidance as to how to act or not to act in mitigating food price volatility) has left the CFS without much teeth. There are important global public good arguments to suggest a stronger and more coherent global governance architecture for food security is needed.

4.2 Global public goods and bads in food security and nutrition

Should, indeed, the global governance of food security and nutrition conceptually be more firmly rooted in notions of "provisioning" of related global public goods and prevent associated "global public bads"?

Global public goods, loosely defined, refer to a broad range of "goods and services" (or economic conditions) that benefit everyone, including a stable climate, clean air, a stable international financial system, good public health (e.g., no pandemics), and, possibly also, global food security. Economic theory defines public goods as those that are non-excludable (no one can be excluded from the consumption of these goods) and non-rival (the consumption by one in no way decreases that by others). They are public goods because their production (or preservation) results from collective choices (markets by themselves cannot guarantee them) and because their externalities are far-reaching. Applied to the international arena, the understanding of what are global public goods (and what not) continues to be subject to some controversy, if only because of its implication for global governance: by their nature, global public goods must be managed globally and national governance would be inadequate to guarantee globally benign outcomes. This is not the place to go into this debate, but there are undeniable public goods elements to food security and nutrition.

Prior to 2008 though, food security and the eradication of hunger were hardly referred to as global public goods in major international policy debates. As argued by Page (2013) and others, the case can be made to use broadly recognized "global public good" as a basis to guide global governance of food security. Based on the assessment in this paper, those global public aspects would suggest at least five core functions for a strengthened global governance of sustainable food security and nutrition:

- *Guaranteeing affordable access to nutritious food and prevention of famines and food crises*: this function for global governance of food security may be grounded in the Right to Food (for which Voluntary Guidelines already exist) and internationally agreed objectives to end hunger (MDG 1), as much as in consequences for peace and security (as loss of affordable access to food owing to price stability or struggle for access to water or land may be causes of conflict of possible international ramifications).
- *Ensuring stability and transparency of food commodity markets* at global, regional, national, and local levels to prevent market failures and thus contribute to market efficiency and fair international agricultural and food trading systems. This would also include, inter alia, strengthening of information and early warning systems,

19 None of this is to argue that the Right to Food would be equivalent to food self-sufficiency, regardless of competitiveness, trade distortions, and (domestic) consumer prices. In some countries, the notion of food sovereignty has entered a general public discourse and national legislation.

addressing food waste and losses along global value chains, and monitoring proper application of the common—but-differentiated principle in agricultural trade.

- *Securing food safety* based on two core principles: protecting human health and promoting fair trade policies.
- *Compliance with international labor standards and promotion of decent work in agriculture and the entire food chain*.
- *Promoting the environmental sustainability of food systems and protecting biodiversity*: all previous tasks should be fully aligned with this overarching function. It would include overseeing and coordinating actions to ensure agriculture and food systems contribute to climate change mitigation and to protect affected rural and agricultural livelihoods by supporting actions toward climate change adaptation. It also suggests a task in facilitating and promoting investment in agricultural research and education that results in ecologically friendly agriculture and ensures that new technologies are accessible to the main drivers of global food systems (i.e., smallholder farmers). This further implies, inter alia, a role in ensuring international rules regarding intellectual property rights form no impediment. It also entails a role in promoting the application of production techniques that minimize the use of toxic chemicals and in prevention of cross-boundary diseases and pests.

4.3 The way forward: Enhancing the role of the CFS

The CFS seems best placed to take center stage in a strengthened global governance of sustainable food security and nutrition. As discussed, it already has arrangements for the involvement of the wider range of stakeholders, including the private corporate sector and a range of civil society organizations. Its mandate was broadened following its reform in 2009. Implementation of the reform is still work in progress, but has started to up its role in global coordination, policy convergence, and country-level support in several of the key functional areas listed. This normative work has resulted inter alia in the application of the Voluntary Guidelines for the Right to Food and the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests. As a next step, CFS envisages to include coordination at national and regional levels, promoting accountability, and developing a global strategic framework for food security and nutrition. This is work in progress and the breadth of its mandate could be enhanced to cover all of the afore-mentioned functions, provided adequate accountability structures and, where necessary, decisions can also be made binding to its membership.

A strengthened global governance mechanism for sustainable food security and nutrition will have to be effective and be capable of exercising all the five core functions simultaneously and with authority. The CFS should thus be endowed with authority to adopt strategic guidelines and policy orientations on all of those key issues and with the necessary accountability and, in some areas also, enforcement mechanisms to ensure their application by all stakeholders. It will further require establishing coherence (with clear demarcation of responsibilities) with other components of the global governance architecture (such as WTO, UNFCCC, etc.). This would then also require recognition of this authority by CFS, not to be sidelined by other platforms as—despite all efforts at coordination—has been the case through certain task setting by informal, but powerful platforms such as the G8 and the G20. Its authority and effectiveness would further depend on an effective response capacity and capability to resolve conflicts and controversial issues. Last but not least, coherence across all five core functions will require multi-sectoral and holistic approaches to the related issues, which in turn would require that the members and observers representing CFS can also speak with authority and participate in decision-making on all five core functions on behalf of their governments and nongovernmental organizations they represent, thus

going beyond, for instance, areas typically under purview of ministries of agriculture.

4.4 Implications for governmental and nongovernmental stakeholders

Pursuance of the goal of sustainable food security and nutrition requires acknowledgment that private corporations are key players in the global food security system, and that they have the capacity to resist or avoid national legislations, particularly in developing countries. Given that it is unlikely that the current approach to private management of food supply chains and markets will change, the only solution is to involve these private and non-state actors in the global governance of food security in the broad sense. This emerging role has been acknowledged by the inclusion of the private sector in the CFS and an appeal to "corporate social responsibility." The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests and the CFS-RAI are examples of how the evolving global food security governance architecture is trying to balance the shareholder value perspective of private companies with more socially responsible corporate behavior. The Bill and Melinda Gates Foundation is a positive example for private sector engagement at the philanthropic level. Other models include joint government-private sector ventures, NGO/CSO-private sector ventures, or support to research and development that focus on the needs also of the poor and vulnerable, that is those that are already and would be marginalized in the required adjustment processes to climate change. However, to have a broad and sustainable impact on food security, those forces that drive private business need to be directed through appropriate incentive structures consistent with the goals of ensuring sustainable food security. The challenge will be creating a public opinion environment where managers of food chain corporations see advantages and benefits in contributing to sustainable and socially responsible food production and development.

This would require much greater efforts at influencing public opinion and awareness, which nowadays is pretty much restricted to the impacts of extreme situations of food insecurity or food safety scandals. Awareness about the impact of certain policies and corporate behaviors or of the impact of climate change on overall food supplies and food security (and vice versa the impact of agricultural production systems on climate change and the environment in general) is still at a very nascent stage. Yet, enhancing such awareness would further provide incentives for change on the demand side. Environment and food-security aware consumers are expected to favor, as can already be observed increasingly, products from those companies that operate in consistency with globally agreed ethical values (e.g., nonacceptance of child labor and decent work conditions).

5 Conclusions

Continued population growth and rapid urbanization, environmental threats, ever-deepening global integration of food systems, and volatile world markets pose critical challenges to the sustainability of food security and the world's capacity to end hunger, malnutrition, and poverty over the next decades. It suggests sustainable development will not be possible without fundamentally transforming agriculture and food systems. The globalization of food systems does not mean agrarian structures are also converging. Agricultural systems and their potential vary widely across the world, suggesting that there can be no grand design or single recipe, and that changes will need to be local. True as this may be, the global nature and public good aspects of the challenges require coordinated responses. Some steps have been taken to improve global governance of food and agriculture, but the responses have been largely ad hoc and far from adequate to deal with exploding and volatile food prices, looming water scarcity, the notorious underinvestment in rural infrastructure and agricultural research or continued food safety risks.

The analysis in this paper suggests that an improved governance of global food security and nutrition would need to guide the transformation toward a sustainable food system, would need to deal in a coordinated and coherent fashion with at least five core functions: (1) Guaranteeing affordable access to nutritious food and prevention of famines and food crises; (2) Ensuring stability and transparency of food commodity markets; (3) Securing food safety; (4) Compliance with international labor standards and promotion of decent work in agriculture and the entire food chain; and (5) Promoting the environmental sustainability of food systems and protecting biodiversity.

For most of these functions, there are existing institutions, conventions, platforms and other mechanisms, but there is ample room to scale these up and enhance coherence and effectiveness. A strengthened CFS seems well positioned to provide political guidance and coordination, being a multistakeholder platform of governments, private sector and civil society actors. At the same time, international organizations addressing agriculture, food, and related health issues, employment and labor standards, and international trade and investment (FAO, IFAD, ILO, WFP, WHO, The World Bank, WTO, and CGIAR) have evolved and, individually, all serve important functions, but taken collectively each of their roles in the global governance of the food system needs serious rethinking so as to rise to the challenge of conducing the transformative changes needed to achieve sustainable food security.

It is urgent to reexamine the global architecture for food security and nutrition. Recent improvements are steps in the right direction, but much more is needed to live up to the challenge of sustainably providing each person with enough food to live a healthy and productive life as envisaged in the agenda of the MDGs as much as in the 2030 Agenda of sustainable development goals.

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