



WORLD **W**ILDLIFE **F**UND
(WWF)

STUDY GUIDE

TOPIC B: "THE 2050 CRITERIA: SUSTAINABLE FOOD PRODUCTION"

INTRODUCTION

WWF published its 2050 Criteria report in Singapore, which is a guide to responsible investment in agricultural, forest, and seafood commodities which compiles the information and guidance on soft commodities gained by the international NGO through its development of and collaboration with a number of multi-stakeholders certification schemes. If we do not level up the sustainability factor significantly in these areas, a sustainable future will simply not be possible, and the year 2050 will be a very bad time for most living things.

"Current land, energy, water, and weather constraints are placing unprecedented pressure on humankind's ability to access its most basic goods—food, fuel, and fiber," said Richard Perkins, senior commodities adviser at WWF-UK.

STATEMENT OF PROBLEM

The first decade of the 21st century has seen several harbingers of a troubled future for global food security. The food price spike of 2008, with its consequent food riots and resulting political changes in several countries, awoke the world's leaders to the reemergence of this threat to human well-being and social harmony. The excessive heat and drought in Russia that led to the 2010 wildfires and grain embargo, as well as the unprecedented floods in Pakistan, signal more trouble ahead. But the warning signs could already be seen in the 1990s, as the long-term decline in the number of the poor and hungry stalled, and those numbers began to rise.

The seeds for these challenges, both for good and bad were planted along with the Green Revolution crops in the mid-1960s. Dramatic increase in food production and land productivity led to complacency

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about the remaining challenges ahead, resulting in reduced public sector investments in agricultural productivity. Population number continues its march towards a likely 9 billion by 2050, while higher incomes in hitherto poor countries will lead to increasing demand, which in turn puts additional pressures on sustainable food production.

The agricultural system as a whole will have difficulty in supplying adequate quantities of food to maintain constant real prices and the challenges extend further to national governments, to provide the supporting policy and infrastructure environment; and to the global trading regime, to ensure that changes in comparative advantage translate into unimpeded trade flows to balance world supply and demand.

Soft commodities which represent fundamental building blocks of the global economy play a vital role in human development. Agriculture, forest products, and seafood supply chains are responsible for feeding, clothing, and helping to fuel the world. In the past decade, soft commodity markets have experienced unprecedented volatility and scarcity, generating a range of supply chain shocks, social outcries, and policy responses. In many cases, Earth's natural resources are proving insufficient to meet accelerating global demand. Such trends pose a threat to businesses and investors, key ecosystems, and society at large. Many factors come into play regarding the issue, but these can only be considered as a step in right direction. Therefore, new ideas, new resolutions, new means need to be put into place for an easier access to human necessities. Moreover, the understanding of facts such as how big are these challenges, which will be most affected, and what could policy makers do to facilitate adaptation hold sheer importance.

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United Nations World Food Conference 1, which took place in 1974 in Rome, concluded that “every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop fully and maintain their physical and mental faculties.”

Almost four decades have passed, and many governments are still very far from reaching their deadline of eradicating hunger by 2015. With the world population set to rise by 34 percent by the year 2050, governments are going to face an ever increasing food demand, which puts pressure mainly on the agriculture sector.

THE CHALLENGE

Agriculture in the 21st century faces multiple challenges; it has to produce more food and fiber to feed the growing population with a smaller rural labor force, more feed stocks for a potentially huge bio-energy market, contribute to overall development in many agriculture-dependent developing countries, adopt more efficient and sustainable production methods and climatic change adaptations. It is not only demographic growth that will lead to higher demands for food but also a rise in per capita consumption. As previously, undernourished people get access to foods with better caloric value, they go through a nutritional transition, which results in an increased demand for energy rich foods that require more resources. Consequently, improving agricultural productivity has never been so imperative. This is because the agriculture and agro-industrial sectors have been underlined as key in alleviating poverty due to them being the main driving forces of rural economies and for some developing countries even their whole economies.

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Importance & History of the issue: Food demand and production

World population is expected to grow by over a third, or 2.3 billion people, between 2009 and 2050. This is a much slower rate of growth than the one seen in the past four decades during which it grew by 3.3 billion people, or more than 90 percent. Nearly all of this growth is forecast to take place in the developing countries.

Among the latter group, sub-Saharan Africa's population would grow the fastest (+114 percent) and East and Southeast Asia's the slowest (+13 percent). Urbanization is foreseen to continue at an accelerating pace with urban areas to account for 70 percent of world population in 2050 (up from 49 percent at present) and rural population, after peaking sometime in the next decade, actually declining. At the same time, per capita incomes in 2050 are projected to be a multiple of today's levels. There is a consensus among analysts that recent trends whereby the economies of developing countries have been growing significantly faster than the developed ones is likely to continue in the future. Relative inequality in per capita incomes would be reduced considerably by 2050. However, absolute differences would remain pronounced and could even increase further, given the current huge gaps in absolute per capita incomes. Moreover, inter-country and inter-regional inequalities within the present-day developing world would tend to become more pronounced.

The projected global economic growth of about 2.9 percent annually would lead to a significant reduction or even near elimination of absolute “economic” poverty in the developing countries (persons living less than US\$1.25/day in 2005 prices).

Nevertheless, even in 2050 the world will still be far from solving the problem of economic deprivation and malnutrition of significant parts of the population; the US\$1.25/day poverty line is simply too low.

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On less stringent criteria, deprivation and malnutrition will remain widespread, though significantly less than today.

These trends mean that the market's demand for food would continue to grow. Demand for cereals, for both food and animal feed is projected to reach some 3 billion tons by 2050, up from today's nearly 2.1 billion tons.

The advent of bio-fuels has the potential to change some of the projected trends and cause world demand to be higher, depending mainly on energy prices and government policies. The demand for other food products that are more responsive to higher incomes in the developing countries (such as livestock and dairy products, vegetable oils) will grow much faster than that for cereals.

The projections show that feeding a world population of 9.1 billion people in 2050 would require raising overall food production by some 70 percent. Production in the developing countries would need to almost double. This implies significant increases in the production of several key commodities. Annual cereal production, for instance, would have to grow by almost one billion tons, meat production by over 200 million tons to a total of 470 million tons in 2050, 72 percent of which in the developing countries, up from the 58 percent today. Feeding the world population adequately would also mean producing the kinds of foods that are lacking to ensure nutrition security.

What is more that climate change, urbanization and economic growth do not only affect inanimate resources required for food production, and they also threaten biodiversity. Only a dozen of species are needed to provide 90 percent of worldwide animal protein eaten and only four types of crops account for half of the plant protein consumed by humans. There is also the debate that has arisen

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surrounding the effects climate change, urbanization and pesticide use has had on honey bees, such as the European honey bee, which is a very valuable pollinator of agricultural crops worldwide in economic terms, with research predicting that although highly adaptable the species has and will be threatened by the stress of urbanization.

The need of the hour lies in the realization of the fact that it is not going to be just about a nation that will be encountering food crisis by 2050 but the whole world. The global shift in regard to population and energy consumption is going to create a volatile imbalance which needs to be addressed by the global community to ensure the basic human need in the coming years.

Climatic alteration

30 September 2009, Rome - Poorest regions with the highest levels of chronic hunger are likely to be among the worst affected by climate change. Many developing countries, particularly in Africa, could become increasingly dependent on food imports. While globally the impact of climate change on food production may be small, at least until 2050, the distribution of production will have severe consequences on food security: developing countries may experience a decline of between 9 to 21 percent in overall potential agricultural productivity as a result of global warming.

At the same time, several agriculture-based mitigation options for climate change could generate significant benefits for both food security and climate change adaptation. Increasing soil carbon sequestration through forestry and agro-forestry initiatives and tillage practices, improving efficiency of nutrient management and restoring degraded lands are examples of actions that have large mitigation potential and high co-benefits.

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Climate change is expected to affect agriculture and forestry systems through higher temperatures, elevated carbon dioxide concentration, changes in rainfall, increase in weeds, pests and diseases. In the short term, the frequency of extreme events such as droughts, heat waves, floods and severe storms is expected to increase.

Emissions from agriculture account for roughly 14 percent of global greenhouse gas emissions. Seventy-four percent of emissions from agriculture and most of the technical and economic mitigation potential from agriculture - some 70 percent - are in developing countries.

Impact on food security

Climate change will mainly affect the four dimensions of food security: availability, accessibility, utilization and stability.

* In terms of availability, increased atmospheric CO₂ concentrations are expected to have a positive effect on the yield of many crops, even though the nutritional quality of produce may not increase in line with higher yields.

* Climate change will increase the variability of agricultural production across all areas, with increased frequency of extreme climate events. The poorest regions will be exposed to the highest degree of instability of food production.

* On average, food prices are expected to rise moderately in line with increases in temperature until 2050. After 2050 and with further increases in temperatures, significant decreases in agricultural production potential in developing countries are projected and prices are expected to rise more substantially.

* Climate change is likely to alter the conditions for food safety by increasing the disease pressure from vector, water and food-borne diseases.

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Vulnerable Africa

Agricultural and food production in many developing countries are likely to be adversely affected, especially in countries that have low incomes and a high incidence of hunger and poverty and are already highly vulnerable to drought, flooding and cyclone.

In Africa this could lead to an increasing dependency upon many countries for food imports. It has been estimated that climate change may reduce African potential agricultural output up to the 2080-2100 period by between 15 and 30 percent.

The strongest negative impact of climate change on agriculture is expected in sub-Saharan Africa. This means that the poorest and most food insecure region is also expected to suffer the largest contraction of agricultural incomes.

We are only just beginning to understand the implications of climate change for agriculture and food security. These impacts, plagued by multiple layers of uncertainty, are poorly incorporated into most economic forecasts. With the outcome of international climate negotiations uncertain, urgent attention is needed to mitigate industrial agriculture's tremendous contribution to global warming and help developing country food producers to adapt to a changing climate.

Policies at hand

In all of these areas, policymakers need forecasts to help them interrogate established policies and practices that need to change, such as consumption patterns, energy policies, unfair distribution and access, land use, and investment priorities.

Meanwhile, a growing body of experience at the local and regional

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levels demonstrates the lasting value of investments in smallholder farming and sustainable agricultural methods. Strategic policy changes and investments in this area can scale-up successful approaches and expand them to regions where they are most appropriate and most needed, especially in regions where food security is tenuous despite high agricultural potential.

To achieve food security for many in low-income and middle-income countries for whom this is already a challenge, especially with the additional complications of climate change, will require early investment to support smallholder farming systems and the associated food systems that supply poor consumers. We need both local and global policy-linked research to accelerate sharing of lessons on institutions, practices and technologies for adaptation and mitigation.

- * Food security under climate change requires early investment in smallholder farming & food systems.
- * Local interventions need to be supported by national and global institutions.
- * Useful research must cross disciplines, organizational mandates, spatial & temporal levels.

THE GLOBAL ACTION

“Only by acting together’ will world transform climate challenge into opportunity” – Ban Ki-Moon

United Nations Secretary-General, Ban Ki-moon is hosting the Climate Summit to engage leaders and advance climate action and ambition. The Summit will serve as a public platform for leaders at the highest level – all UN Member States, as well as finance, business, civil society and local leaders from public and private sectors – to catalyze ambitious action on the ground to reduce emissions and

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strengthen climate resilience and mobilize political will for an ambitious global agreement by 2015 that limits the world to a less than 2-degree Celsius rise in global temperature.

THE CASE FOR GLOBAL ACTION

The benefits of taking action to address climate change have become ever more compelling. Many countries and businesses have recognized the opportunities related to decreasing greenhouse gas emissions and strengthening resilience. Now is the time for leaders everywhere to join the race for transformative action that can drive economic competitiveness and sustainable prosperity for all.

Countries are presently working toward a new climate agreement and a new set of sustainable development goals that will be concluded in 2015. The objectives of both of these processes present an unprecedented opportunity.

Eradicating poverty and restructuring the global economy to hold global temperature rise below 2 degrees Celsius are goals that - acted on together - can provide prosperity and security for this and future generations.

To meet the full scale of the global climate challenge and seize the opportunities at hand, domestic efforts must be scaled up and simultaneously leveraged through an international framework that provides incentives. Combined, accelerated action and increased ambition will foster a 'race to the top' that can help advance sustainable development.

FOOD WASTAGE AND SPOILAGE

The world is projected to hold a whopping 9.6 billion people by 2050. Figuring out how to feed all these people—while also

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advancing rural development, reducing greenhouse gas emissions, and protecting valuable ecosystems—is one of the greatest challenges of our era.

In the developing world, losses are mainly attributable to the absence of food-chain infrastructure and the lack of knowledge or investment in storage technologies on the farm, although data are scarce. For example, in India, it is estimated that 35 to 40% of fresh production is lost because neither wholesale nor retail outlets possess cold storage. Even with rice grain, which can be stored more readily, as much as one-third of the harvest in Southeast Asia can be lost after harvest to pests and spoilage. But the picture is more complex than a simple lack of storage facilities: Although storage after harvest when there is a glut of food would seem to make economic sense, the farmer often has to sell immediately to raise cash.

In contrast, in the developed countries, pre-retail losses are much lower, but those arising at the retail, food service, and home stages of the food chain have grown dramatically in recent years, for a variety of reasons. At present, food is relatively cheap, at least for these consumers, which reduces the incentives to avoid waste. Consumers have become accustomed to purchasing foods of the highest cosmetic standards; hence, retailers discard many edible, yet only slightly blemished products. Commercial pressures can encourage waste: The food service industry frequently uses “super-sized” portions as a competitive lever, whereas “buy one get one free” offers have the same function for retailers. Litigation and lack of education on food safety have lead to a reliance on “use by” dates, whose safety margins often mean that food fit for consumption is thrown away. In some developed countries, unwanted food goes to a landfill instead of being used as animal feed or compost because of faulty legislation.

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Summing up, different strategies are required to tackle the two types of waste.

FAO'S ROLE IN FOOD LOSSES AND WASTE

The UN Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD) and World Food Program (WFP) launched the joint project “Mainstreaming food loss reduction initiatives for smallholders in food deficit areas” which is funded by the Swiss Government. The project aims to tackle food losses in grains and pulses value chains in three pilot countries (Burkina Faso, DRC and Uganda), and one of its outcomes is a web-based Food loss reduction Community of Practice.

Reducing food losses and waste is gathering increasing global interest and action. Governments, research institutions, producers, distributors, retailers and consumers have all different ideas about the problem - the solutions - and the ability to change.

As an intergovernmental organization, FAO is in a position to play the role of a neutral and independent facilitator.

FAO can coordinate, at global level, the initiatives, activities and projects on food losses waste reduction by partnering with UN agencies, other international organizations, and worldwide stakeholders, including the private sector and civil society.

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WHAT'S CAUSING THE GLOBAL FOOD CRISIS?

Feeding an Exploding Population

The world's population is projected to grow from about 7.2 billion in 2015 to 9.6 billion people in 2050. More than half of this growth will occur in sub-Saharan Africa, a region where one-quarter of the population is currently undernourished.

Shifting Diets

In addition to population growth, world's per capita meat and milk consumption is also growing—especially in China and India—and is projected to remain high in the European Union, North America, Brazil, and Russia. These foods are more resource-intensive to produce than plant-based diets.

Agriculture's Environmental Footprint

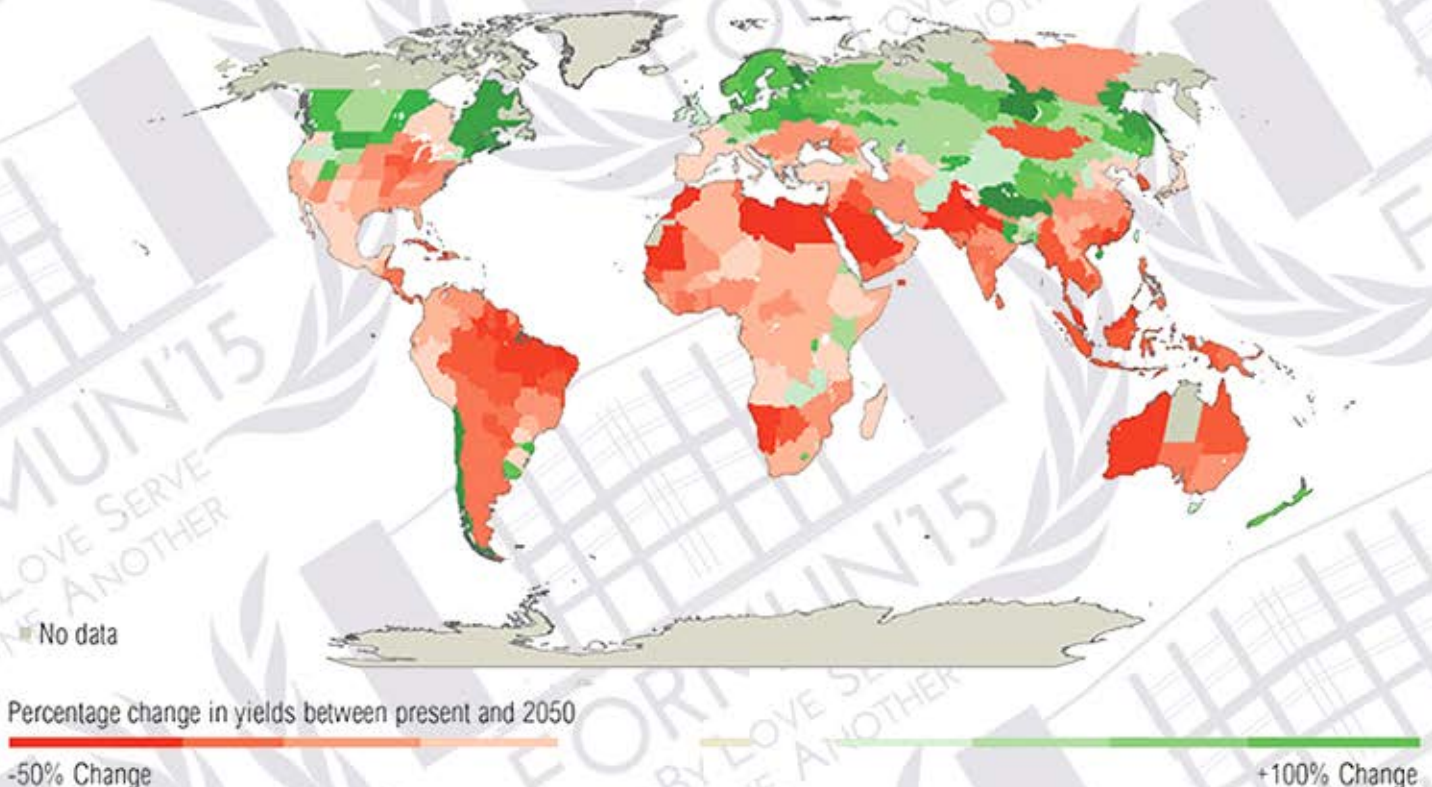
We can't just produce more food in the same way as today—we also must reduce food's environmental impact. Agriculture contributes nearly one-quarter of global greenhouse gas emissions, uses 37 percent of landmass (excluding Antarctica), and accounts for 70 percent of all freshwater withdrawn from rivers, lakes, and aquifers.

Climate Change and Water Stress Exacerbate the Challenge

Climate change is expected to negatively impact crop yields, particularly in the hungriest parts of the world, such as sub-Saharan Africa. Growing water use and rising temperature are expected to further increase water stress in many agricultural areas by 2025.

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Most studies now project adverse impacts on crop yields due to climate change (3°C warmer world)



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Sources: <http://www.ly/rptMFI>

THE ENERGY-FOOD NEXUS

Another major challenge is biofuels' competition for land and crops. Producing 10 percent of all transport fuels from biofuels by 2050, as planned by some governments, would require 32 percent of global crop production but produce only 2 percent of global energy. It would also increase the food gap to roughly 100 percent. Conversely, eliminating the use of crop-based biofuels for transportation would close the food gap by roughly 14 percent.

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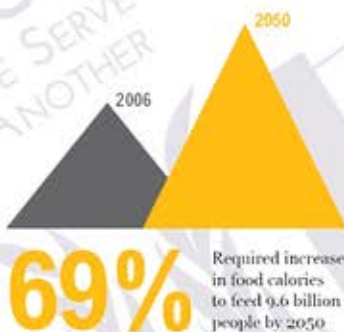
THE "GREAT BALANCING ACT"

Achieving a sustainable food future, then, requires meeting three needs simultaneously: closing the food gap, supporting economic development, and reducing agriculture's environmental impact.

THE GREAT BALANCING ACT

The world must achieve a "great balancing act" in order to sustainably feed 9.6 billion people by 2050. Three needs must be met at the same time.

CLOSING THE FOOD GAP



SUPPORTING ECONOMIC DEVELOPMENT



REDUCING ENVIRONMENTAL IMPACT



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WHAT ARE SOME SOLUTIONS?

Reduce Food Loss and Waste

Roughly one-quarter of world's food calories are lost or wasted between field and fork. Cutting this rate in half could close the food gap by about 20 percent by 2050.

The global community will also need to take some bigger, cross-cutting steps to tackle this issue. Working Paper UNEP WRI: Reducing Food Loss and Waste - identifies five key recommendations:

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- * Develop a food loss and waste measurement protocol: What gets measured gets managed. A global “food loss and waste protocol” could provide companies and countries with a standardized way to measure and monitor food loss and waste.
- * Set food loss and waste reduction targets: Setting time-bound targets inspires action by raising awareness, focusing attention, and mobilizing resources. Targets at the global, national, sub-national, and business levels will help spur action on reducing food loss and waste. For example, the European Union has announced a target of reducing food loss and waste by 50 percent by 2050.
- * Increase investment in reducing post-harvest losses in developing countries: A great deal of food loss in developing countries happens “close to the farm,” but only about 5 percent of agricultural research funding goes toward minimizing post-harvest losses. Doubling the amount of funding would be a huge step in the right direction.
- * Create entities devoted to reducing waste in developed countries: WRAP (Waste & Resources Action Program) is a good model of this sort of entity. Organization is independent of the national government, but works closely with business and governments on waste reduction. For example, it works with manufacturers to minimize waste during factory processes, convenes voluntary agreements with grocery retailers to reduce in-store waste, and conducts consumer awareness campaigns to educate the public about household food waste.
- * Accelerate and support collaborative initiatives to reduce food loss and waste: International initiatives such as ‘SAVE FOOD’ and ‘Think. Eat. Save’ bring together a wide range of actors like private businesses, governments, and intergovernmental organizations to tackle food loss and waste. These initiatives provide a space for inspiring action, effective collaboration, and sharing of best practices.

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SHIFT TO HEALTHIER DIETS

Beef is the least efficient source of calories and protein, generating six times more greenhouse gas emissions per unit of protein than pork, chicken, and egg production. Shifting just 20 percent of the anticipated future global consumption of beef to other meats, fish, or dairy could spare hundreds of millions of hectares of forest and Savannah.

GHG Emissions Intensity of Animal Products (Kilograms of CO₂e per kilogram of protein)



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Sources: <http://ow.ly/rp1M1l>

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ACHIEVE REPLACEMENT LEVEL FERTILITY

Reducing population growth can help hold down food demand. While most regions are projected to reach replacement level fertility—or the rate at which a population exactly replaces itself from one generation to the next—sub-Saharan Africa's population is on course to more than double between now and 2050.

BOOST CROP YIELDS

Boosting yields is particularly important in sub-Saharan Africa, which currently has world's lowest cereal yields but will account for one-third of all additional calories needed in 2050.

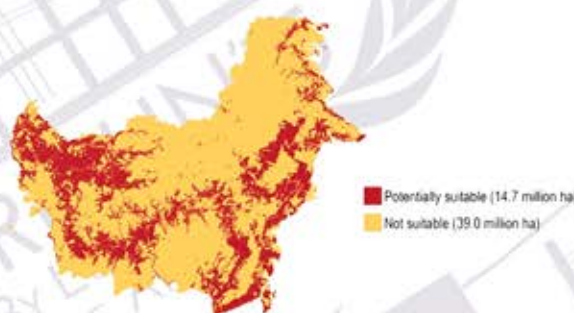
IMPROVE LAND AND WATER MANAGEMENT

Conservation agriculture such as reduced tillage, crop rotations, and mulching increased maize yields in Malawi, combining these techniques with agro-forestry—intercropping with trees—further increased yields. These practices could be scaled up on more than 300 million hectares in sub-Saharan Africa

SHIFT AGRICULTURE TO DEGRADED LANDS

Shifting agriculture land expansion to degraded lands can prevent deforestation, protect resources, and curb climate change. For example, more than 14 million hectares of low-carbon degraded lands in Kalimantan, Indonesia are potentially suitable for oil palm development.

Degraded Lands Suitable for Oil Palm in Kalimantan, Indonesia



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INCREASE AQUACULTURE’S PRODUCTIVITY

As wild fish catches have plummeted, aquaculture has expanded, producing nearly half of fish consumed in 2009. To grow in a sustainable way, aquaculture will need to produce more fish per unit of land and water and reduce its reliance on wild-caught fish for feed.

No solution can create a sustainable food future. A menu of consumption- and production-focused strategies, including those presented here can close the food gap and generate environmental, health, and development co-benefits. But governments, business, and others need to act quickly and with conviction to scale these solutions up.

INADEQUATE AND POORLY TARGETED AGRICULTURAL INVESTMENT

Agricultural investment is the key to increasing food production. Whereas many projections stress the importance of agricultural productivity growth, few models assess different priorities for agricultural research and investment. A growing consensus supports increased investment in climate-resilient food production, focusing on small-scale producers in food-insecure parts of the world. Yet most research, private and public, focuses on large-scale, input-intensive agricultural development. So too does most investment, driven by private sector-led projects, such as the “New Alliance for Food Security and Nutrition” initiated by the G8.

We have seen how sensitive future food supplies are to increases and decreases in agricultural productivity. While it would be helpful if modelers could improve the quality and consistency of the data they use, we do not need to wait for their projections to invest in developing country agriculture. Supporting the world’s smallholder farmers – who produce most of the food in developing countries while

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simultaneously constituting most of the world's hungry people – is the single biggest opportunity to reduce hunger and increase food security worldwide. Public investment is particularly critical in reaching this community as services for smallholders are less likely to be viewed as profitable by the private sector.

Ensuring a food supply that can meet the world's future needs will require an increased focus on four main areas:

INSPIRING INNOVATION

First, we need to focus on innovation. Agriculture will need to meet the nutritional needs of a growing population using the same amount of land and the same amount of water used today, while also relying less on chemical pesticides and fertilizers. Doing that will require investing in research, increasing sustainable intensification of agriculture, and creating access to new technologies and processes that are effective, environmentally friendly, and equitable. For example: micro dosing techniques that localize fertilizer, intercropping that can add nitrogen to the soil naturally, and creating more nutritious crops through breeding and science.

"The health experts need to talk to nutrition experts, and they all need to talk to agriculture experts to bring the solutions together."

Gordon Conway

Author and Professor of International Development, Imperial College London.

The creation of a more nutritious sweet potato bio-fortified to combat vitamin A deficiency and "scuba" rice varieties designed to withstand flooding are two successful examples of how investing in agriculture research is changing crops to meet the needs of today and the future.

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ENABLING MARKETS

Second, improving markets and market access for smallholder farmers is vital for lifting poor farmers out of poverty and increasing productivity. Creating countrywide networks of markets and village-level agro dealers, selling seeds for example, can better connect growers with the markets that need their crops while also improving the farmers' access to supplies and information.

Local producer associations are already creating these enabling environments in some areas and helping farmers to secure fair prices for their crops. Government policies can help support these environments and minimize risks for smallholder farmers.

SUPPORTING PEOPLE

Third, supporting the people at the heart of the agriculture value chain is vital to the equation. Smallholder farmers, particularly women farmers who produce most of the food crops in developing countries, are important to future productivity gains. Helping them to produce higher yields – through research, education, access to markets, land tenure policies, microcredit and micro-insurance – will lead to greater production and prosperity.

This will help agriculture to change from a subsistence activity to a business activity, creating more jobs in the sector as they grow into small businesses. When you hear from youth in African countries, they're looking for careers that will provide for their families, not leave them at the subsistence level.

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BUILDING POLITICAL LEADERSHIP

Finally, successful agriculture sectors require strong political leadership – often one of the greatest challenges. Citing Ghana, where the government has revitalized the agricultural sector by investing in agriculture research and farmer education, and by introducing incentives that have helped to boost yields and improve rural incomes. It may be the first African country to reach the goal of halving hunger.

Also, getting agriculture going is not always easy, and that tradeoffs may be necessary. For example, governments have to deal with the thorny issue of subsidies, attempting to determine which are succeeding at raising rural incomes and which could be money better spent elsewhere. Similarly, the rush to bio-fuels has created new dilemmas as land is diverted from food crop production. The world “desperately needs to move beyond the first generation of bio-fuels” and shift to such bio-fuel sources as algae and alternative biomass, such as crop residue. Another area requiring urgent attention is human capital development.

The health experts need to talk to nutrition experts, and they all need to talk to agriculture experts to bring the solutions together.

THE ZERO HUNGER CHALLENGE

On 21 June, on the sidelines of the Rio 20 Conference, UN Secretary-General Ban Ki-moon launched his Zero Hunger Challenge, a new initiative to end hunger. More specifically, the initiative aims to make sure that everyone in the world has access to enough nutritious food all year round; that there is no more malnutrition in pregnancy and early childhood, leading to childhood stunting (the physical and mental damage that results from child malnutrition), and that all food systems are sustainable. It further aims to bring greater opportunity

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for smallholder farmers, especially women, so that they are empowered to double their productivity and income; and to support responsible consumption and production of food and to stop wasting food. The benefits are plenty - ending hunger will contribute to peace and stability, poverty reduction, and better nutrition for all.

In his remarks at the launch, Mr. Ban expressed concern that almost one billion people in the world do not have enough to eat. Sustainable development is not possible in a world where hunger persists and food is lost or wasted, the Secretary-General explained. He hailed Brazil's "Fome Zero" or Zero Hunger initiative, which he described as the proof that societies can reduce hunger using local food and a powerful combination of civil society action and strong political leadership.

The Zero Hunger Challenge recognizes that comprehensive efforts are needed to ensure that every man, woman and child enjoy their "Right to Adequate Food," as well as to guarantee that women are empowered; priority is given to family farming, and food systems everywhere are sustainable and resilient. This would include investments in agriculture, rural development, decent work, social protection and equality of opportunity.

In a joint statement, the Major Groups of NGOs, Farmers, and Children and Youth, welcomed the Secretary-General's initiative, underlining the urgent need to shift towards an economy that is based on the well-being of all people, animals and nature, and that embraces a human rights-based approach. According to the Major Groups, food sovereignty must be a key principle lying at the heart of efforts to end hunger globally; while the rights of peasants and rural peoples, as well as the right to land, food and water must be recognized and protected in international human rights law. In addition, they called

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for all stakeholders, including farmers, young people and NGOs to be included in decision-making processes that affect food security.

According to Barbara Stocking, Chief Executive of Oxfam Great-Britain; “Ban Ki-moon’s announcement is a ray of hope in a summit that has been shamefully devoid of progress for the almost billion people who go to bed hungry every night. Despite the fact that the world produces enough food to feed everyone, there are more hungry people today than when the world last met in Rio in 1992.”

BRAZIL’S “FOME ZERO” INITIATIVE

In 2003, Brazilian President Luiz Inácio “Lula” da Silva initiated “Fome Zero” - a program of 49 interlinked initiatives aimed at reducing poverty and hunger. As explained in the publication “The Fome Zero (Zero Hunger) Program: The Brazilian Experience” (2011), the program was a major success due to its synergy between policies that aimed to promote economic stability and growth; increase the minimum wage; provide greater access to social security - particularly to social welfare benefits - and universal social policies. It combines programs for education, agriculture, nutrition, and job creation into a cohesive policy framework. Famous components include the “Bolsa Família” (Family Grant), “Zero Sede” (Zero Thirst) and “Luz para Todos” (Light for All) - programs that provide families with cash stipends, clean water and electricity respectively. It also provides support through food stamps, popular restaurants, technical assistance and credit for smallholder farmers, and universal school meals. This set of policies has boosted labor and income opportunities, and resulted in a more equitable income distribution. In the period between 2003 and 2009, the income of family farmers for example, increased by 33% while the national average experienced an increase of only 13%. In the same period, poverty in rural areas reduced with

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14%, a reduction of 5.1 million people and with almost 10 million people in urban areas. School feeding has slashed malnutrition by almost two thirds, and stunting also fell by more than half.

CONSIDERATIONS BEYOND HORIZON:

Insects for food:

13 May 2013 - While insects can be slimy, cringe-inducing creatures, often squashed on sight by humans, a new book released today by the Food and Agricultural Organization (FAO) says beetles, wasps and caterpillars are also an unexplored nutrition source that can help address global food insecurity.

Edible insects have always been a part of human diets, but in some societies there is a degree of distaste for their consumption. Although the majority of edible insects are gathered from forest habitats, innovation in mass-rearing systems has begun in many countries. Insects offer a significant opportunity to merge traditional knowledge and modern science in both developed and developing countries.

This publication has its beginnings in an effort in FAO's.

"Western countries should temper their disdain for eating insects and boost research into using them to feed livestock as resources come under increasing strain" - the report states. What is more, "eating insects can help tackle hunger and ease the strain on scarce land and overfished oceans. Alternative solutions to conventional livestock and feed sources urgently need to be found". Yet in Western countries, people tend to view eating insects "with disgust". Western societies require tailored media communication strategies and educational programs that address that disgust factor. Such cultural aversion has meant insects have been neglected in agricultural research. Still, high demand and prices for fishmeal and soy, along with an increase in

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fish farming, has stoked some interest in developing insect protein for aquaculture and poultry. Insect-based feed products could have a similar market to fishmeal and soy. Yet they are as highly nutritious and healthy food source with high fat, protein, vitamin, fiber and mineral content.

By far, France, as the first of well developed countries responded positively for the report stating that eating certain species of insects are already practiced in some restaurant.

CONCLUSION

THERE IS NO SIMPLE SOLUTION TO SUSTAINABLY FEEDING 9 BILLION PEOPLE, especially as many become increasingly better off and converge on rich-country consumption patterns. A broad range of options including those proposed above need to be pursued simultaneously. Thus, cooperation between rich countries and the developing ones is a must. It is a very favorable moment to debate over this issue and to take further action to ensure all the steps towards feeding nine billion are and will be taken.

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Questions a Resolution must answer:

- * Should the focus of government intervention be primarily on increasing local food production, or should it lean more towards increasing access to food and stimulating rural development in general?
- * What will happen to countries and regions that remain food deficit in 2050? How can their food security be ensured? What are the risks and the opportunities?
- * How much spare capacity in terms of land and water do we have to feed the world in 2050?
- * What are the alternatives that could increase the global and regional feeding capability in case of scarcity?
- * How can access for food for those most vulnerable be secured?



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