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STAKEHOLDER MEETING

Overview of the World Food Situation

Agenda Item: **2a – Overview of World Food Situation**

This item is for: Information [ ] Discussion [X] Decision [ ]

Proposed Action: None

Background: Every two years, the Director General of IFPRI gives the CGIAR an update on the world food situation. The attached paper reviews the past, current, and future food and nutrition situation. It also discusses the driving forces influencing future global food security and the policy action needed to achieve it. The paper will be presented at the opening session of the stakeholder meeting.

Comments:

OVERVIEW OF THE WORLD FOOD SITUATION[*]

Per Pinstrup-Andersen[**]

While considerable progress has been made during the last three decades, food security, malnutrition, and unsustainable use of natural resources remain major problems particularly in many developing countries of Sub-Saharan Africa and South Asia. International meetings have repeatedly issued official declarations decrying this situation as unacceptable and agreed on action that would achieve measurable goals. Yet, available evidence indicate that few of these goals have been achieved and that, with business as usual, hundreds of millions of people will remain food insecure, millions of children will die each year from malnutrition and environmental degradation will continue unchecked.

This paper briefly reviews the past, current, and future food and nutrition situation. It then proceeds to discuss the major driving forces likely to influence the future global food security situation followed by a discussion of the policy action needed to achieve sustainable food security for all.

PAST, CURRENT, AND FUTURE FOOD SECURITY[1]

Even though an unacceptably high number of people live with food insecurity (i.e., lack of access to sufficient food to lead healthy and productive lives), significant progress has been made, albeit too slowly and unevenly, in improving food security and human well-being in general over the last three decades. Since 1970, the number of food-insecure people in developing countries declined by 17 percent to the current 800 million, in spite of rapid population growth, while the food-insecure share of the population has halved from 37 percent to 18 percent. But progress has been uneven, with major improvements occurring in East and Southeast Asia, while the number of food-insecure people

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[*] Paper prepared for the CGIAR Annual General Meeting, Washington, D.C., October 30, 2001.

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[1] For more information, see the following: Mark W. Rosegrant, Michael S. Paisner, Siet Meijer, and Julie Witcover, "2020 Global Food Outlook: Trends, Alternatives, and Choices," 2020 Vision Food Policy Report (Washington, DC: International Food Policy Research Institute, 2001); and Mark W. Rosegrant, Michael S. Paisner, Siet Meijer, and Julie Witcover, *Global Food Projections to 2020: Emerging Trends and Alternative Futures* (Washington, DC: International Food Policy Research Institute, 2001).

increased slightly in South Asia and more than doubled in Sub-Saharan Africa. During the 1990s, only one-third of the developing countries experienced a reduction in the number of food-insecure people with more than half of the countries experiencing a deterioration.[2] Overall, the number of food insecure in the world as a whole dropped by 39 million people or less than 5 percent of those who were food-insecure at the beginning of the decade. In China, the number of food-insecure people dropped by 76 million. Thus, the number of food-insecure people in the rest of the world increased by 37 million during the decade of the 1990s.

Malnutrition among preschool children is of particular concern. It impairs mental and physical development, compromising future health, productivity, and food security. Malnutrition is a factor in more than 5 million deaths annually, accounting for 20–25 percent of the economic impact of childhood diseases in the developing world. Today, one-third of the preschool children in developing countries are malnourished. During the last 30 years, the number dropped by 18 percent to approximately 170 million. Again, the regional record is uneven. In South Asia, the decline was only 6 percent, leaving half the region's preschoolers malnourished. In Sub-Saharan Africa, preschooler malnutrition increased by 13 percent. At the 1990 World Summit for children, the international community pledged its concerted action to reduce moderate and severe child malnutrition by half by 2000. In fact, the actual reduction during the period 1990–97 was a mere 5 percent.

Other indicators of human development improved in the developing world during the last 30 years. Life expectancy rose from 56 to 64 years, mortality rates of preschool children fell from 167 to 89 per one thousand livebirths, and adult literacy rates rose from less than 65 percent to 73 percent. Incomes per capita more than doubled. The proportion of people living in absolute poverty in East Asia and Latin America now stands at 15 percent, compared to 40 percent in South Asia and 46 percent in Sub-Saharan Africa.

Food availability improved dramatically in developing countries as a whole during the last 30 years, with daily per capita calorie availability going up from about 2,100 to about 2,700. However, Sub-Saharan Africa and South Asia continue to lag behind other regions, with the former having average per capita calorie availabilities below minimum requirements.

Rapid productivity increases in the agricultural sector of many Asian and some Latin American countries during the last 30 years led to rapid increases in per capita cereal production, reduced unit costs and prices, and increased incomes and purchasing power for low-income farmers and consumers

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[2] Calculated from data from Food and Agriculture Organization of the United Nations, *The State of Food Insecurity in the World 2001* (Rome: FAO, 2001).

in those countries. These productivity increases also helped to restrain the expansion of agriculture into areas of forests, grass lands, fragile lands, and wildlife habitat and averted some forms of natural resource degradation. However, these productivity increases also contributed to environmental problems such as increased soil salinity and lowered water tables in irrigated areas, human health problems due to excessive pesticide use, and water pollution and soil degradation resulting from excessive use of chemical inputs.

The progress towards food security and good nutrition for all during the last 30 years has been genuine. It is worth remembering that in the last 1960s and early 1970s, much of Asia was written off as a "hopeless basket case." There were fears that the world faced a Malthusian nightmare of too many people and not enough food. It is also worth remembering that in the mid-1970s, the international community was willing to entertain large visions grounded in social justice, of how the future could and should look. The 1974 World Food Conference in Rome pledged that "Within a decade no child would go to bed hungry, that no family would fear for its next day's bread, and that no human being's future capabilities will be stunted by malnutrition." Then, as now, the political will and action to back such a vision remains the missing element.

As we move into the 21st century, South Asia and Sub-Saharan Africa form the center of gravity of food insecurity and malnutrition. These two regions are home to three-fifths of all food-insecure people and to three-quarters of the malnourished children.

It is abundantly clear that, with business as usual, there is no possibility of achieving sustainable food security for all by 2020. IFPRI projections suggest that in the most likely scenario, the number of malnourished preschool children could decline by about 20 percent during the next 20 years. This means that by 2020, as many as 130 million children would be afflicted by malnutrition. They will either die prematurely or will continue to fail to reach their full human potential and dignity.

The United Nations Food and Agriculture Organization (FAO) believes that the number of food-insecure people could decline from the current 800 million to 576 million people by 2015. While this would be a significant improvement, it would not meet the goal set at the 1996 World Food Summit of halving the number to 400 million by 2015. The Summit target is now expected to be reached 15 years later, in 2030. However, excluding China, the trend in the number of food-insecure people in the world increased during the 1990s. If that trend is extrapolated to 2015, the number of food-insecure people in the world, excluding China, will increase by 20 percent over the number in the early 1990s. According to FAO, in 2000, four years beyond the World Food Summit, virtually none of the 91 countries and nine international organizations that prepared follow-up reports had anything concrete to offer about progress on meeting these commitments.

In addition to the most likely outcome indicated above, IFPRI projections reported elsewhere show a number of alternative scenarios, some of which would greatly accelerate the improvements in food security, nutrition, and natural resource management and others which would further slow such improvements. The next section briefly discusses the key driving forces that are likely to influence efforts to achieve the 2020 Vision.

DRIVING FORCES

There are many factors that will influence the prospects for sustainable food security in coming years. Nine sets of driving forces believed to be of global importance are identified here.

(1) ***Accelerating Globalization, Including Further Trade Liberalization.*** Globalization offers developing countries significant new opportunities for broad-based economic growth and poverty alleviation, but it also carries significant risks. There are five major pathways by which globalization may affect food consumption and nutrition: (i) trade flows generate rural income, increase foreign exchange through agricultural exports, and alter prices in domestic markets — these changes in turn affect dietary patterns and food production composition; (ii) financial flows affect foreign exchange rates which ultimately affect the real incomes of farmers and households, which in turn affect a country's capacity to buy food imports; (iii) the major advances in technology, transport systems, and other new technologies such as genomic and molecular breeding, transform the traditional organization of production and marketing, facilitate agricultural and rural development, and enable a more micronutrient-rich diet to be achieved; (iv) improved access to information and easier communications allow to find out about new nutrition initiatives, help determine the latest thinking on existing nutrition problems, provide a forum for debate on nutritional issues and help mapping food production and malnutrition by country and region within country; and (v) the increasing integration of labor markets implies opportunities for nonfarm income, promising new avenues for exports and nonfarm work.

Continued protection of domestic agriculture and increasing food safety concerns in industrialized countries may limit access to their markets by developing countries. The most critical issue is how globalization can be guided to benefit low-income people, particularly their food and nutrition situation as well as the impact on natural resources. Without appropriate

accompanying policies and institutions at both the national and international levels, globalization may either bypass or harm many poor people in developing countries.[3]

(2) ***Sweeping Technological Changes.*** New technological advances in molecular biology and information and communications offer potential benefits for poor people that may advance food security and improve the sustainability of natural resource management. However, there are serious concerns over whether poor and food-insecure people will have access to these technologies, many of which currently are focused primarily on nonpoor people in industrialized countries. While past agricultural research tailored to solving problems of small-scale farmers and low-income consumers in developing countries has been effective in expanding productivity, protecting the environment, and increasing food security, rapid changes in the financing, management, and organization of agriculture research, including widespread patenting of living organisms, may require new policy interventions to further enhance the benefits obtainable by low-income people. Without such changes in policies and institutions, the current and expected future technological revolutions may leave the poor and food insecure further behind.[4]

(3) ***Degradation of Natural Resources and Increasing Water Scarcity.*** Degradation of natural resources is rampant in many resource-poor areas of developing countries, particularly those areas with fragile soils, irregular rainfall, relatively high population concentration, and stagnant productivity in agriculture. Natural resource degradation is also occurring in agricultural areas exposed to misuse of modern farming inputs. While natural resource degradation often is a consequence of poverty, it also contributes to poverty. Such a downward spiral is found in many locations where low-income people reside. Water scarcity is emerging as the most constraining factor for food security in many regions in the future. Failure

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[3] For more information, see Eugenio Diaz-Bonilla and Sherman Robinson, eds., "Shaping Globalization for Poverty Alleviation and Food Security," 2020 Vision Focus 8 (Washington, DC: International Food Policy Research Institute, 2001); and Per Pinstrup-Andersen and Julie Babinard, "Globalization and Human Nutrition: Opportunities and Risks for the Poor in Developing Countries," *African Journal of Food and Nutritional Sciences* 1 (No. 1, August 2001): 9–18.

[4] For more information, see the following: Per Pinstrup-Andersen, ed., "Appropriate Technology for Sustainable Food Security," 2020 Vision Focus 7 (Washington, DC: International Food Policy Research Institute, 2001); and Per Pinstrup-Andersen and Ebbe Schiøler, *Seeds of Contention* (Baltimore and London: The Johns Hopkins University Press, 2001).

to effectively deal with the natural resource issue in the quest to achieve food security for all will not result in sustainable solutions.[5]

(4) ***Emerging and Re-emerging Health and Nutrition Crises.*** The tragic pandemic of HIV/AIDS, the persisting threats from malaria, the re-emergence of tuberculosis, the widespread prevalence of micronutrient deficiencies, and a variety of chronic diseases caused in part by obesity, compromise food and nutrition security in many developing countries. This global health crisis is impoverishing those affected and contributing to rising health care costs, labor shortages, and declining asset bases. It is not only causing loss of human lives but also of opportunities. Achieving a food-secure world for all calls for a healthy population.[6]

(5) ***Rapid Urbanization.*** Most of the population increase in coming years will occur in cities and towns of developing countries; by 2020, a majority of the developing world's population will live in urban areas. This will present new challenges to provide employment, education, health care, and food. While current actions must continue to focus on the rural areas where the majority of the poor and food insecure reside, future policy actions must pay increasing attention to the growing poverty and food insecurity in urban areas.[7]

(6) ***Rapidly Changing Structure of Farming.*** A number of factors such as the aging of the farm population, the feminization of agriculture, the labor shortages and depleting asset bases resulting from the HIV/AIDS crises, and the decreasing cost of capital relative to labor are conspiring to result in rapid changes in the structure of farming in many developing countries.

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[5] For more information, see the following: Per Pinstrup-Andersen and Rajul Pandya-Lorch, eds., *The Unfinished Agenda: Perspectives on Overcoming Hunger, Poverty, and Environmental Degradation* (Washington, DC: International Food Policy Research Institute, 2001); Rattan Lal, "How Critical Are Soil Constraints?," in *Who Will Be Fed in the 21st Century? Challenges for Science and Policy*, eds. Keith Wiebe, Nicole Ballenger, and Per Pinstrup-Andersen (Baltimore: The Johns Hopkins University Press, 2001); and Ruth S. Meinzen-Dick and Mark W. Rosegrant, eds., *Overcoming Water Scarcity and Quality Constraints*, 2020 Focus 9 (Washington, DC: International Food Policy Research Institute, 2001).

[6] For more information, see Rafael Flores and Stuart Gillespie, eds., "Health and Nutrition: Emerging and Reemerging Issues in Developing Countries," 2020 Vision Focus 5 (Washington, DC: International Food Policy Research Institute, 2001).

[7] For more information, see J. L. Garrett and M. T. Ruel, eds., "Achieving Urban Food and Nutrition Security in the Developing World," 2020 Vision Focus 3 (Washington, DC: International Food Policy Research Institute, 2000).

These rapidly emerging factors call for new and innovative approaches to agricultural policy and rural institutions. Small-scale family farms, which traditionally have been considered the backbone of much of developing-country agriculture, are under threat as labor scarcity caused by out-migration and disease becomes more pronounced, while globalization and domestic investment in infrastructure improves markets and makes capital available for larger production units. The future of small-scale farming is increasingly uncertain.

(7) ***Continued Conflict.*** Violent conflicts continue to cause severe human misery in a large number of developing countries. The impact on food security, nutrition, and natural resource management are severe. While humanitarian assistance may be effective in providing food and shelter for the many millions of refugees and displaced persons, policy action is needed to deal with the underlying causes and the resulting impact on the people in war-torn and neighboring areas. Achieving sustainable food security for all is unlikely to be possible in the midst of conflict.[8]

(8) ***Climate Change.*** Future policy action to achieve the 2020 Vision must incorporate the likely consequences of the ongoing climatic change and associated fluctuations in weather patterns. Policies and institutions will be needed to counter or compensate for negative effects. While agriculture may contribute to or reduce the increasing concentration of carbon dioxide (CO_2) in the air, the primary responsibility of future agricultural policies will be to find ways to accommodate food, agriculture, and natural resources as the climatic change continues.

(9) ***Changing Roles and Responsibilities of Key Actors.*** The diminished and changing role of national governments in many developing countries, which has been under way over the last couple of decades, is likely to continue into the future. Given the importance of public goods, what is the most appropriate role of national governments in efforts to achieve the 2020 Vision? Local governments along with the private sector and civil society, including nongovernmental organizations (NGOs), are taking on an increasing number of responsibilities for activities previously undertaken by national governments. Local communities, frequently with the help of community-based nongovernmental organizations, are demanding an increasing say in policies and programs that impinge on them. At the global level, transnational corporations and broad coalitions of civil society organizations are taking on increasingly prominent roles in policy debates and in actual national and international policy formulation. New emphasis on exposing

[8] For more information, see Ellen Messer, Marc Cohen, and Jashinta D'Costa, *Food from Peace: Breaking the Links between Conflict and Hunger*, 2020 Vision Discussion Paper 24 (Washington, DC: International Food Policy Research Institute, 1998).

corruption and other bad governance where it occurs is likely to contribute to the ongoing changes in the roles and responsibilities of the various actors.[9]

GETTING THE PRIORITIES RIGHT

Achieving the 2020 Vision of sustainable food security for all will depend on policy action and institutions that address the causes of food insecurity, malnutrition, and unsustainable management of natural resources within the context of the driving forces, including those mentioned above. The specific policies that will be most appropriate will vary according to local and national circumstances. This paper discusses action expected to be of high priority globally or for many countries. These policy actions are clearly not the only actions that can or should be taken, but those that are likely to have the largest impact in achieving the 2020 Vision in the largest number of countries. While new policy action is also needed in industrialized countries where food insecurity, malnutrition, and unsustainable use of natural resources are significant problems, this paper addresses these problems only as they apply to developing countries.

Rapid pro-poor economic growth together with empowerment of the poor and effective provision of public goods will be the backbones of any successful attempt to achieve sustainable food security for all. Policies and institutions should be designed and implemented to guide economic growth and public goods creation for the benefit of low-income people, and the poor must be empowered through human resource development, access to productive resources, and participatory political systems. While policies and institutional changes must be tailored by each country, the following eight broad areas of policy action are likely to be relevant, both globally and for most developing countries:

Investing in human resources. Investment in human resources is essential both to improve the well-being of the individuals affected and to promote broad-based economic growth and sustainable food security. Policies and institutional change should focus on improving access to health care, clean water, safe sanitation, and child care. Efforts should be made to fight widespread micronutrient malnutrition, and reduce food contamination and food-borne illnesses. Universal primary education for girls and boys is of critical importance. Policies and behavioral changes should be

[9] For further information, see Robert Paarlberg, "Food Security in the 21st Century: Emerging Issues of Global Governance," forthcoming 2020 Vision Discussion Paper 36, International Food Policy Research Institute, Washington, D.C.

pursued to achieve gender equity in human resource development, access to resources and decisionmaking.[10]

Family planning. Closely associated with investments in human resources, it is important that families be given access to family planning in ways compatible with their desires and cultures. Efforts should be made to help families attain the desired number of children within the context in which they live.

Improving access to productive resources and remunerative employment. In virtually all low-income developing countries, broad-based agricultural and rural development is essential to generate pro-poor economic growth. With 75 percent of poor people living in rural areas, productivity gains in agriculture and other rural enterprises are urgently needed. The rural poor must have secure access to land and/or other productive resources and employment. Policies and institutions are needed to facilitate access by poor rural families to inputs and appropriate technologies as well as nonfarm rural employment. Promotion of small-scale rural enterprises providing goods and services for farm families as well as rural-based agro-industries that create employment and add value to agricultural produce should be pursued. Access to credit and savings institutions is of critical importance. While the gravity of food insecurity and malnutrition will continue to be in rural areas for many years to come, rapidly increasing urban poverty requires new policy attention to enhance access to income-earning opportunities and to provide the necessary public goods in urban areas. Policies and institutions should facilitate effective contributions by civil society, including farmer associations and local and national nongovernmental organizations (NGOs). National policies and institutions should complement and support community action, and include low-income people as active participants rather than passive recipients. Women should be empowered to gain access to resources and decision making processes, and social and cultural institutions and practices that prevent women from reaching their full potential should be reformed.

Improving markets, infrastructure, and institutions. Benefits from improved human resources and access to productive resources will be captured by poor people only if they have access to well-functioning markets for outputs, inputs, consumption goods, capital, and employment. It is particularly important that governments assure that markets are not biased against small farmers, less-favored areas, or poor consumers. Efforts to develop private competitive markets serving food-insecure people must include competent public administration for contract enforcement, grading

[10] For further information, see Agnes R. Quisumbing and Ruth S. Meinzen-Dick, eds., "Empowering Women to Achieve Food Security," 2020 Vision Focus 6 (Washington, DC: International Food Policy Research Institute, 2001).

and quality control standards, market conduct and investments, safety net programs, public health and food safety, appropriate infrastructure such as roads, electrification, and storage facilities, and other policies and institutions. Explicit and implicit capital subsidies as well as infrastructure investments biased against small farmers should be eliminated.[11]

Expanding appropriate research, knowledge, and technology. Technological developments in the biological sciences, energy, information, and communications offer new opportunities that could benefit poor people and their food security. Public investment in research and technology is needed to develop the kind of technology needed by low-income producers and consumers, and to help them gain access to such technology. Pro-poor agricultural research must exploit all appropriate scientific tools and methods, and provide low-income farmers and consumers choices. Farmers and consumers should be fully informed about their options and they should be participants in setting priorities for research. Every effort should be made to ensure that promising technological developments do not bypass poor people. Opportunities for using modern information and communications technology, along with nontraditional energy sources, should be fully exploited for the benefit of low-income people.

Improving natural resource management. While intensification of agricultural production has led to environmental degradation in many industrialized countries and in a few regions of some developing countries, the most critical natural resource management problem in most developing countries is poverty and low agricultural productivity leading to exploitation of natural resources. Policies and institutions should be put in place to break the vicious downward spiral of poverty, low agricultural productivity, and environmental degradation. Less-favored areas, i.e. areas with irregular rainfall, fragile soils, and agricultural potential, are particularly susceptible to natural resource degradation. Public investment in agricultural research and development, as well as rural infrastructure, education, and primary health care, are urgently needed for those areas. Appropriate property rights and collective action are important components of sustainable natural resource management. Policies and institutions are needed to facilitate and support community action and to enforce appropriate property rights. Unless properly managed, fresh water is likely to emerge as the key constraint to assuring sustainable food security in the future. Policy reforms are needed to provide secure water

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[11] For further information, see the following: Mylène Kherallah, Christopher Delgado, Eleni Gabre-Madhin, Nicholas Minot, and Michael Johnson, "The Road Half Traveled: Agricultural Market Reform in Sub-Saharan Africa," IFPRI Food Policy Report (Washington, DC: International Food Policy Research Institute, 2000); and Mylène Kherallah, Christopher Delgado, Eleni Gabre-Madhin, Nicholas Minot, and Michael Johnson, *Reforming Agricultural Markets in Africa: Achievements and Challenges* (Baltimore: Johns Hopkins University Press for IFPRI, forthcoming in 2002).

rights for individual users or group of users. Such reforms may include the development of tradable water rights or user associations. Reducing or eliminating explicit or implicit water subsidies can also improve efficiency of use. Decreasing soil fertility is a major productivity and environmental problem in many developing countries. Policies and institutions are needed to help farmers replenish the plant nutrients removed from the soil through better utilization of available organic material, better production practices, and use of chemical fertilizers. Proper attention will need to be paid to the new challenges posed by increasing CO_2 concentration, higher temperature, changed rainfall patterns, and more severe weather fluctuations.

Good governance. Good governance, including the rule of law, transparency, lack of corruption, conflict prevention and resolution, sound public administration, and respect and protection for human rights, is of critical importance to assure sustainable food security. While the role of the state has changed markedly in many developing countries during the last 10–20 years, national governments are still the most appropriate and frequently the only major supplier of essential public goods. Where national governments fail to take appropriate action, food security fails. Hunger persists largely because of governance and policy failure at the national level.

Sound national and international trade and macroeconomic policies. National and international policies and institutions are needed to guide globalization for the benefit of the poor. Stable and predictable macroeconomic policies along with sectoral policies and investments in infrastructure should be pursued within a sound governance framework. As globalization proceeds, new international institutions will be needed to assure that low-income people and low-income countries benefit. Industrialized countries should accelerate access by developing countries to their markets, and the WTO should work closely with civil society and national governments to identify and remove factors that are adverse to poor people, including price distortions, lack of competition in international trade, intellectual property rights regimes adverse to poor people, barriers to access to appropriate technology by developing countries, hurdles to labor movement across borders, and import barriers by industrialized countries to goods and services, including agricultural commodities and processed products, which generate employment and income among poor people in developing countries. Development assistance should be increased to at least the level of 0.7 percent of gross national product of donor countries as agreed upon previously. Such development assistance should be targeted on the basis of needs and it should be focused on assisting developing countries in promoting broad-based agricultural and rural development, basic education, health services, and other public goods needed to assure sustainable food security for all. On-going negotiations for debt relief for low-income developing countries should be accelerated.

Although national governments bear the primary responsibility for addressing food insecurity and nutrition, the action should be undertaken in partnership with civil society as represented by local

community-based groups and NGOs. International organizations, transnational private corporations, and civil society can all play important roles in assisting low-income people, community organizations, and national governments in achieving the 2020 Vision, particularly through partnerships.

CONCLUSION

With business as usual, more than 500 million people are likely to be food insecure by 2020, more than 130 million preschool children would be malnourished, and natural resource degradation will persist. Such a scenario is unethical, immoral, and bad economics. It also supports armed conflict, disease risks, terrorism, large numbers of refugees, and other aspects of national and international instability. With accelerated action and appropriate changes in policies and institutions, major progress can be made towards sustainable food security for all by 2020. The costs of making significant progress towards achieving the 2020 Vision are relatively minor. It is estimated that an investment equal to 5 percent of the total expenditures by developing-country governments could reduce the number of malnourished children from the current 166 million to 94 million by 2020. While such an investment does not achieve the 2020 Vision, it is a major improvement over the projected most-likely outcome of 132 million malnourished preschool children by 2020. The question is whether the political will exists for assigning it the priority it rightly deserve.

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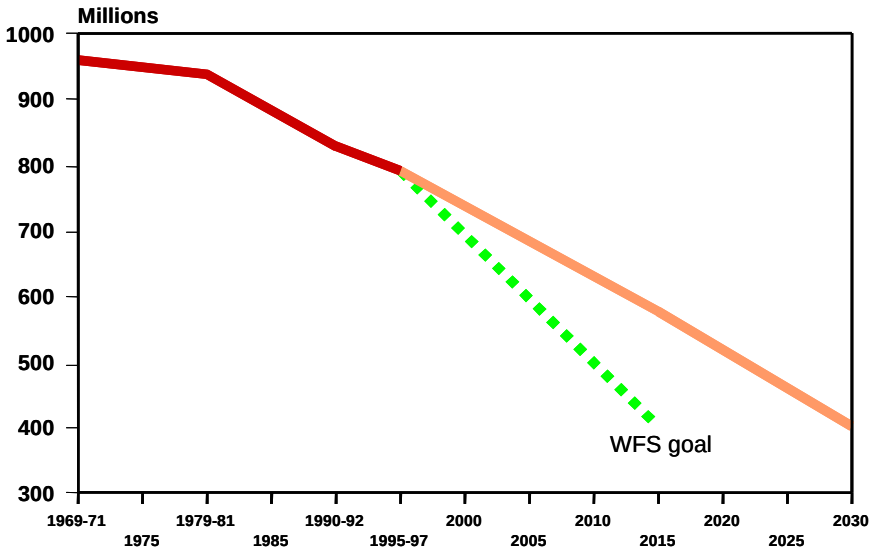
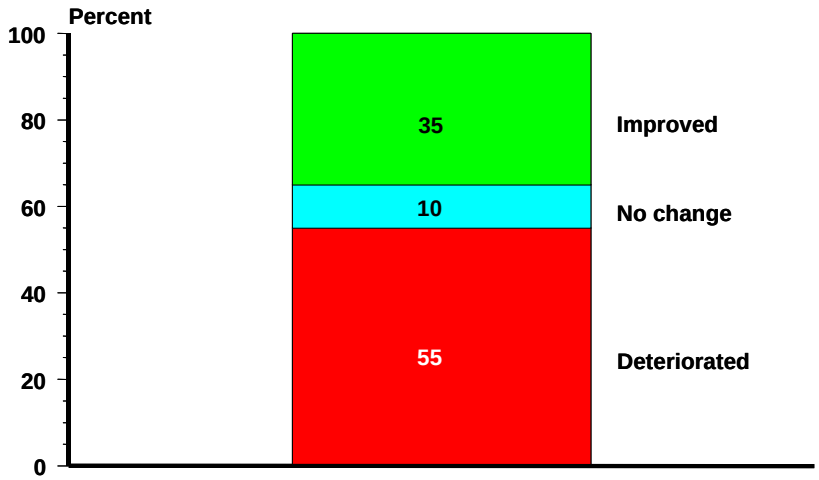
Food insecurity in the developing world, 1969–2030



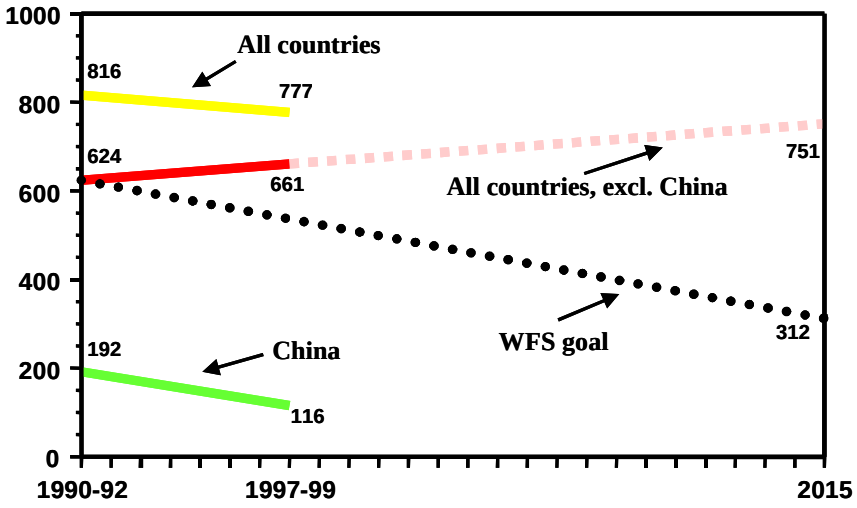
Source: FAO (2000), "Agriculture: Towards 2015/30", Technical Interim Report, Rome.

Percent of countries where food security has improved, remained the same, or deteriorated during the 1990s



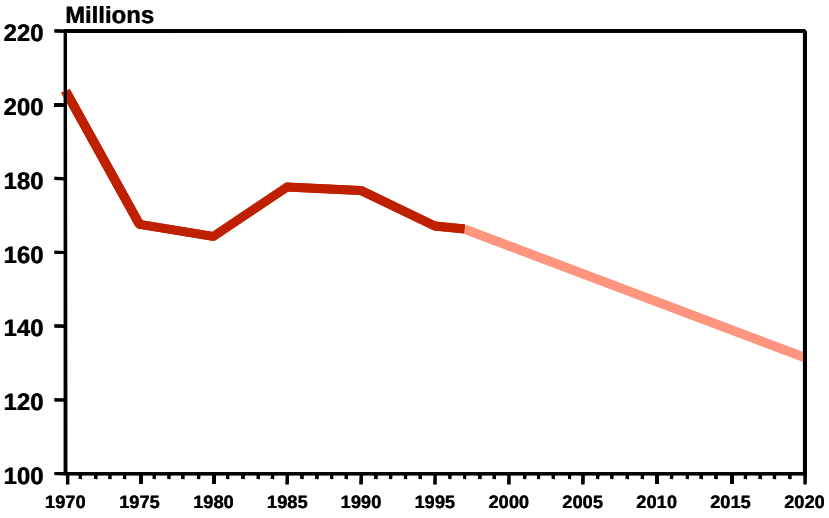
Source: FAO, *The State of Food Insecurity in the World 2001*(Rome: FAO, 2001)

Change in the number of food-insecure people during the 1990s and extrapolation to 2015



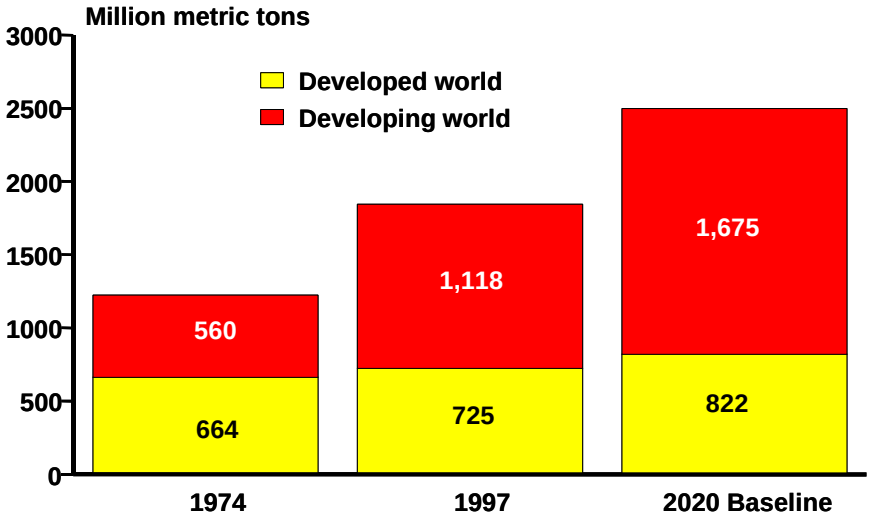
Source: Based on data from FAO, *The State of Food Insecurity in the World 2001* (Rome: FAO, 2001).

Child malnutrition in the developing world, 1970–2020



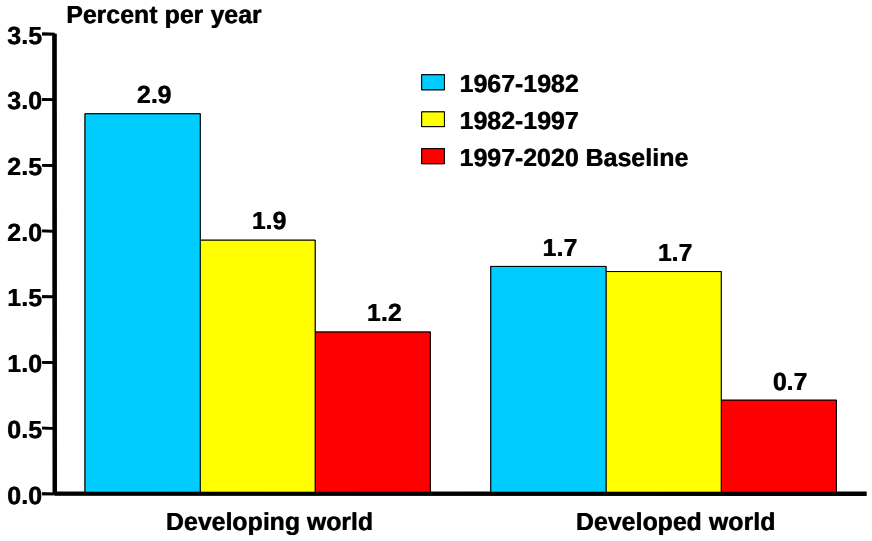
Source: 1970-95 data from Smith and Haddad, 2020 Discussion Paper 30 (2000); 1997-2025 projections from IFPRI IMPACT simulations (October 2000)

Cereal Demand:
Developing world accounts for 2/3 by 2020



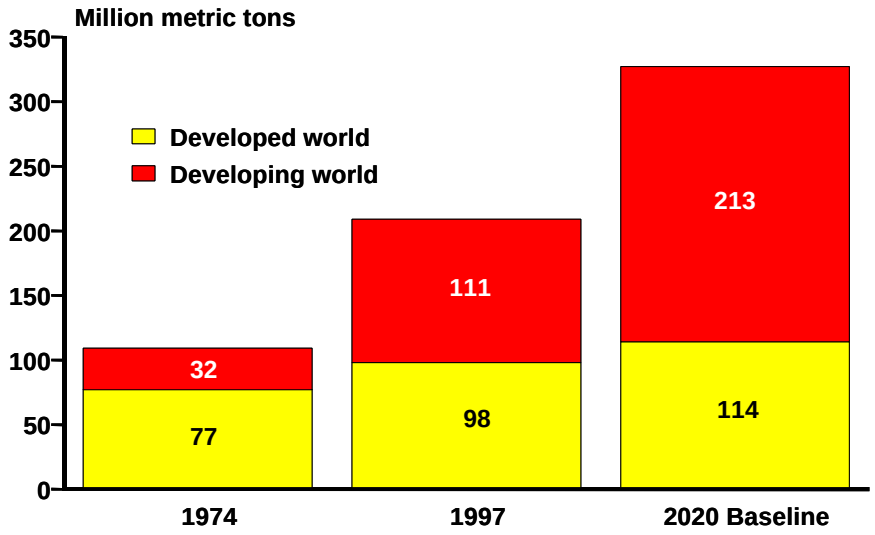
Source: IFPRI IMPACT simulation (August 2001).

Cereal yields:
Slowdown in growth



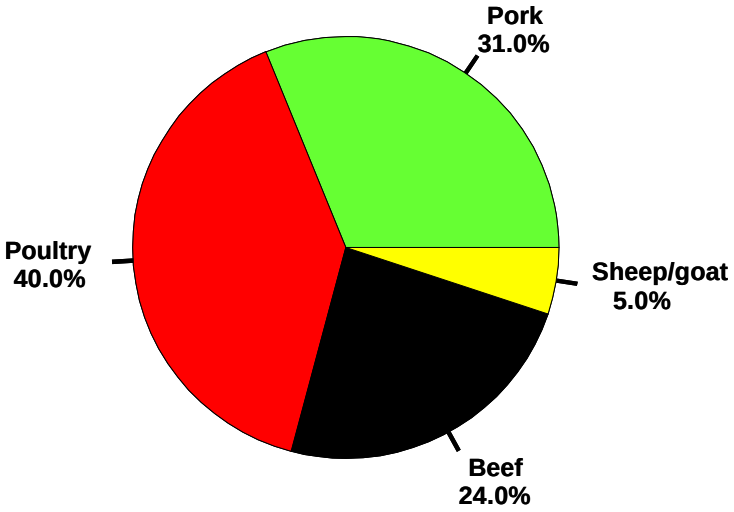
Source: IFPRI IMPACT simulation (August 2001).

Meat demand: Explosive growth in developing world



Source: IFPRI IMPACT simulation (August 2001).

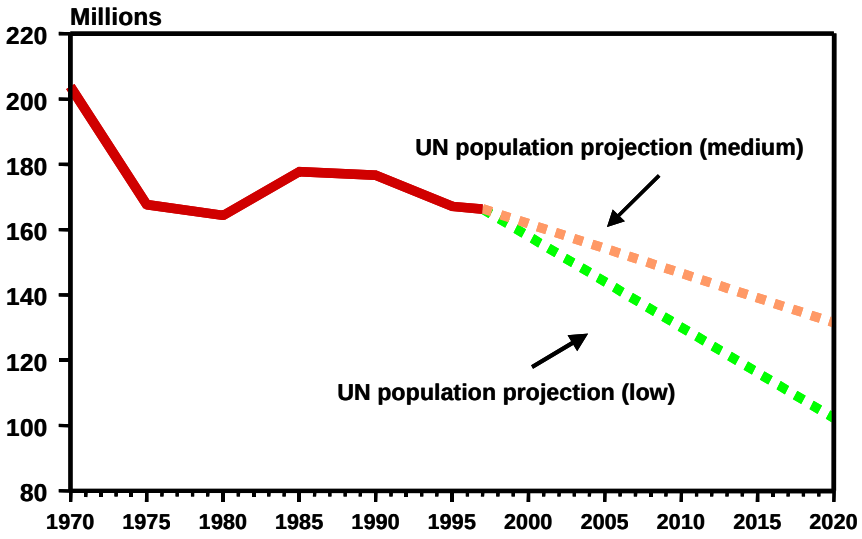
Distribution of the total increase in meat demand among types of meat, 1997-2020



Total meat demand increase is 119 million metric tons

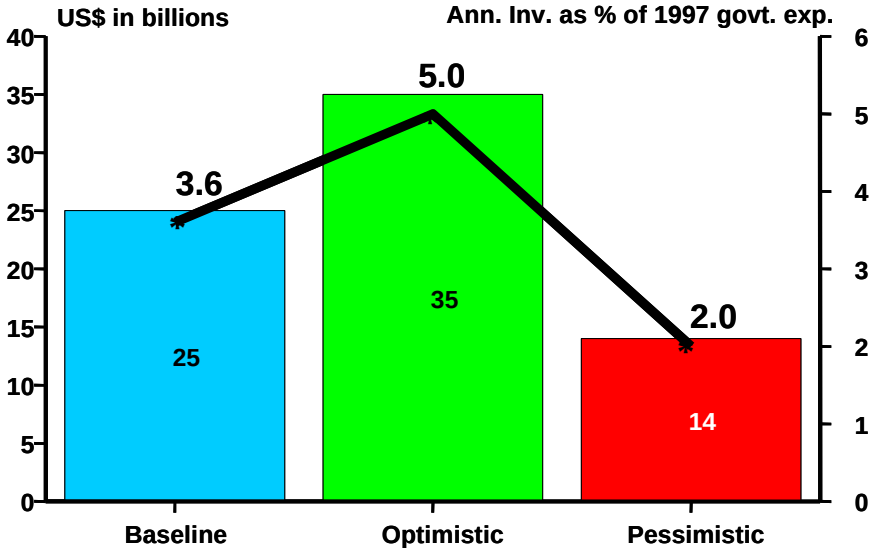
Source: IFPRI IMPACT projections, June 2001.

Child malnutrition under low and medium population projections, 2020



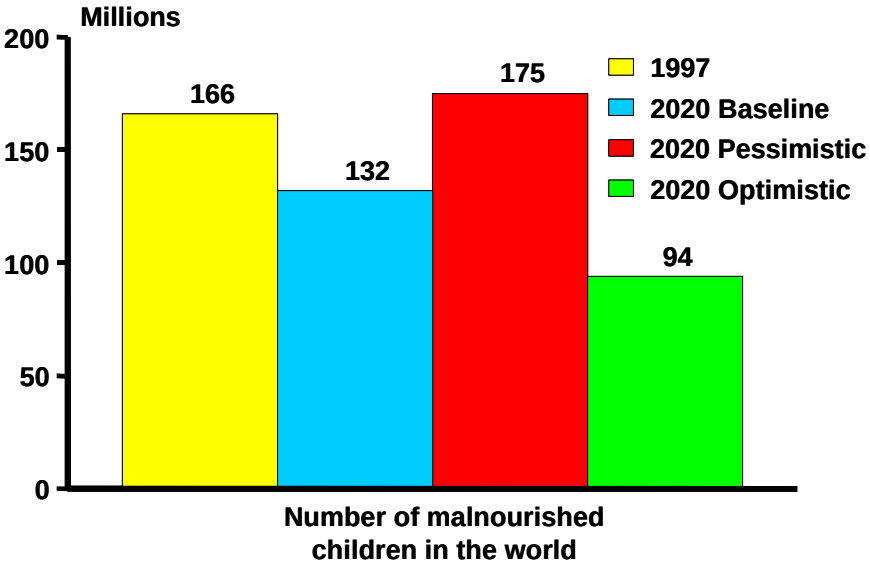
Source: 1970-95 data from Smith and Haddad (2000); 1997-2025 projections from IFPRI IMPACT simulations (June 2001),

Annual investment requirements
Developing countries, 1997-2020



Source: IFPRI IMPACT simulation (August 2001).

Malnourished children: We can make a difference



Source: IFPRI IMPACT simulation (August 2001).