

Uncommon Opportunities for Achieving Sustainable Food and Nutrition

Science Academies Summit

In July 1996 representatives from 25 scientific academies, governments, and intergovernmental organizations met in Madras, India, to discuss the future world food situation. They developed an agenda for future action to be adopted by world leaders at the World Food Summit in Rome in November 1996. Because this declaration of the Science Academies Summit fits closely with the action program of A 2020 Vision for Food, Agriculture, and the Environment, IFPRI sought and received permission from M. S. Swaminathan, president of the National Academy of Agricultural Sciences of India and chairperson of the Summit and a member of the 2020 Vision International Advisory Committee, to include it in the 2020 Vision Brief series.

We call upon the world leaders assembling at the World Food Summit convened by FAO in Rome in November 1996 to adopt this agenda as a means of harnessing science and technology for the transformation of agriculture into a primary instrument of a global Evergreen Revolution. Based on the principles of ecology, social equity, energy efficiency, employment generation, and economic viability, this revolution will provide the technical foundation for the universal eradication of hunger and the achievement of a food- and nutrition-secure world for all. At the same time, we wish to emphasize the urgent need for adoption, particularly by developing countries, of population policies that can ensure that children are born with a chance for happiness and not for mere existence.

A New Revolution in Agriculture

In the 50 years since FAO took up the challenge of "food for all," never before has science offered greater opportunity to achieve this goal for even the poorest of the poor. Scale-neutral innovations including those emerging from the fields of biotechnology and information technology as well as the holistic management systems of soil health care, conjunctive water use, integrated pest management, and integrated intensive farming represent only a few of the new opportunities to reach the nearly 800 million people lacking adequate nutrition.

Tapping this unprecedented potential will depend upon strengthening the capacity of national agricultural research and development systems to respond to these new challenges with creativity. Therefore, we urge world leaders to reverse the global trend of disinvestment in agricultural

research and development, convinced that such shortsighted policy can only have tragic results. At the same time, limited resources make prioritization of research initiatives essential, and it is intended that this agenda assist political leaders in that task.

Meeting the challenge of increasing food availability now and in the future demands equal focus on production systems and on the larger issues of access to food. Therefore, science must work in partnership with farmers to create a new agriculture. An Evergreen Revolution must bridge the gap between the past's gains in production and the persistent need for reliable access to food by all. This will require a number of innovative approaches, including

- * Transformation of the most marginalized farmers of the world into agents of poverty alleviation and environmental management through the blending of traditional and frontier technologies in socially equitable, economically viable, and environmentally sustainable ecotechnologies.

- * Production of more food from a diminishing resource base, requiring new agricultural technologies and management systems providing increased productivity per unit of land, water, energy, labor, and investment. Part of this will involve focusing research on neglected crops such as minor millets, grain legumes, and tubers, which can perform in times of environmental stress and in neglected areas such as arid and semi-arid coastal and mountain areas.

- * A systems approach marshaling the combined and coordinated efforts of physical scientists and agricultural researchers, as well as systems analysts, mathematicians, and social scientists. While agricultural production will remain the foundation of food and nutrition security, the larger scientific framework must integrate postharvest technology, distribution systems, and rural development, as well as economic and social empowerment of the poor, especially women. This holistic approach must also be taken in restructuring administrative systems, leading to a high degree of professionalism of such services.

Eliminating hunger among the poor of all nations will depend upon tapping the new opportunities offered in these unconventional approaches. Such uncommon opportunities are rooted in a new and broader conception of food and nutrition security which integrates multiple physical, social, economic, and environmental dimensions.

National policies for sustainable food and nutrition security should ensure

- ! that every individual has physical, economic, social, and environmental access to a balanced diet that includes the necessary macro- and micronutrients, safe drinking water, sanitation, environmental hygiene, primary health care, and education so as to lead a healthy and productive life;

- ! that food originates from efficient and environmentally benign production technologies that conserve and enhance the natural resource base of crops, animal husbandry, forestry, and inland and marine fisheries.

The principal operational implications of the above mission statement are the following:

- ! The *physical dimensions* of food and nutrition security will involve a transition from chemical- and machinery-intensive to knowledge- and labor-intensive farming technologies.

- ! The *economic dimensions* of food and nutrition security require the promotion of sustainable livelihoods through multiple income-earning opportunities, such as crop-livestock-fish integration and agroprocessing and agribusiness.

- ! The *social dimensions* of food and nutrition require addressing gender, class, and ethnic discrimination against marginalized sectors of society, who consequently tend to be the most food and nutritionally insecure.

- ! The *environmental dimensions* of food and nutrition security involve attention to soil health care, water harvesting management, and the conservation of biodiversity, as well as to sanitation, environmental hygiene, primary health care, and education.

Ultimately, self-reliance and skill- and labor-intensive technology must be the basis of food and nutrition security. As agriculture provides most of the jobs in many developing countries, the import of food by these nations would be equivalent to importing unemployment.

A Scientific and Public Policy Agenda for Sustainable Food and Nutrition Security

The following 10-point agenda can provide the basic scientific and public policy framework for achieving sustainable food and nutrition security at both the national and international levels:

1. *An Evergreen Revolution must increase output in an economically viable, socially equitable, and environmentally sustainable manner, focusing on the food and nutritional supply system as a whole. Beyond investing in new scientific technologies, this will require public policies that provide a supportive economic and social environment.*
2. *Science and technology for public good is the key to improving agricultural productivity among the poor. With the spread of free-market and intellectual property rights culture, it is essential that science designed for the public good receives adequate political and financial support. Scientists working in the areas of food and health security should regard themselves as trustees of their intellectual property.*
3. *Sound environmental policies must provide the foundation of agricultural sustainability. Therefore, a national natural resources conservation and enhancement strategy will be fundamental to a national food security system. High priority must go to combating desertification and deforestation and to restoring degraded land.*
4. *Entitlements, asset reform, and technological empowerment of the poor will be essential in ensuring economic access to balanced diets, and would help address the triple goals of natural resources conservation, poverty alleviation, and food security.*
5. *The gender perspective must be integrated into technological development and dissemination. A gender code, to identify and evaluate actions that ensure equity in food and nutrition security, should become an integral part of agricultural research programs.*
6. *Agriculture must serve as an instrument of income and livelihood opportunity as well as of food production. Therefore, it is important that the economic benefits of agroprocessing and agribusiness are taken to poor families through rural value-added enterprises and partnerships with the private sector.*

7. *Macroeconomic policies in the areas of pricing, trade, and investment should be based on environmental sustainability as well as gender and social equity. A systems approach must be taken, with a holistic view of production, distribution, and consumption.*
8. *The Information Age has provided tools such as the Internet and GIS mapping to promote a learning revolution in agriculture. Extension information should be disseminated through computer-aided information shops operated by village youth. Vocational polytechnic institutes should be established for the rural poor.*
9. *Existing global conventions must be implemented, including those on climate, biodiversity, desertification, as well as Agenda 21 of the United Nations Conference on Environment and Development and the global plans of action on population, gender, habitats, social development, and plant genetic resources.*
10. *Public policies for sustainable food and nutrition security must institutionalize procedures to focus on both production and access.*

To achieve the above, it will be prudent to develop legislation based on the following principles:

- ! *Develop a National Sustainable Food and Livelihood Security Act, including the following provisions: Promoting policies that can help to achieve a balance between human and animal populations and the supporting capacity of the ecosystem; promoting conservation and enhancement of the natural resource base; rehabilitating degraded soil, forests, and aquatic resources, and introducing scientific land and water use policies; ensuring economic and social access to food through steps that can enhance the livelihood security of the rural and urban poor, with special attention being given to children, orphans, and women; improving the biological absorption and retention of food through attention to sanitation, environmental hygiene, and primary health care; ensuring universal literacy and techniracy (imparting new technical skills through learning by doing) for both men and women at the village level; promoting the development and dissemination of ecotechnologies at the production and postharvest phases of farming, with special attention to waste treatment and recycling; improving postharvest technology including storage, non-CFC-based refrigeration, biodegradable packing material, and efficient transportation and delivery; establishing input and output pricing and credit and insurance policies that can help all farm families, irrespective of their innate input-mobilizing and risk-taking capacity, to benefit from new technologies and marketing opportunities; building and maintaining grain reserves and operating*

an efficient public distribution system for making essential commodities available at affordable prices to the poor; and developing a Hunger-Free Area Program in cooperation with local communities in order to demonstrate that chronic hunger and malnutrition can be overcome speedily by creating an enabling environment where every individual earns his or her daily bread.

- !** *Implement the equity provisions of the Biodiversity Convention.* Industrialized nations should contribute an additional 0.01 percent of official development assistance to be credited to a Global Fund for Biodiversity for Sustainable Food Security. Such a fund can be handled as a trust fund under the Global Environment Facility (GEF) for implementing the Global Plan of Action adopted at the International Technical Conference on Plant Genetic Resources held in Leipzig, Germany, in June 1996, and for recognizing and rewarding the contributions of indigenous and rural women and men to the conservation and enhancement of biodiversity, that is, Farmers' Rights. It should also be used to safeguard all megabiodiversity areas and "hot spot" locations where biodiversity is threatened, ranging from landscapes to individual species. In addition, for this purpose, developing nations rich in agrobiodiversity should levy a 1 percent cess on all agricultural produce to be credited to a National Community Gene Fund to be used to recognize and reward the contributions of tribal and rural families to the in-situ conservation and enhancement of agrobiodiversity. Such steps will help to restore and revitalize the on-farm genetic conservation and selection traditions of rural communities.

The Role of the International Community

To maximize efficiency and return on investment in the Evergreen Revolution, South-South partnership and cooperation in research and development will be essential, especially among nations with related agro-ecologies. The CGIAR centers should support these emerging regional networks and national systems, pursuing a policy of subcontracting present responsibilities as appropriate. We, the Summit participants, resolve to establish an international scientific steering committee for sustainable food and nutrition security, to provide political leaders with the scientific framework necessary to achieve food for all. Broader consensus can be fostered through a global coalition for sustainable food security, including farmers' organizations, civil society, academia, the corporate sector, service organizations, and mass media.

To convert the rhetoric of "food for all" into reality within a specified time frame, we urge the G-7 and G-15 countries to establish jointly a high level steering committee for sustainable food and nutrition security, for which FAO could provide the secretariat. This unique political body would be fundamental in reaching the shared goals of global food and environmental security, reduced

need for emergency aid, enhanced political stability, and the development of new markets for trade. This is a responsibility that the political leaders of the G-7 and G-15 countries must accept at the November 1996 World Food Summit if we are to enter the new millennium with hopes for a more humane world.

Participating Academies: African Academy of Sciences; Arab League Educational, Cultural and Scientific Organisation; Caribbean Academy of Sciences; Chinese Academy of Sciences; Hungarian Academy of Sciences; Kenya Academy of Sciences; Lithuanian Academy of Sciences; National Research Council, Canada; National Academy of Agricultural Sciences of India; National Academy of Madagascar; National Academy of Sciences, India; National Academy of Sciences, Italy; Pakistan Academy of Sciences; Third World Academy of Sciences; Uganda Academy of Sciences.

Participating Governments: Government of India, Government of Italy, Government of Tamil Nadu.

Participating Intergovernmental Organizations: Consultative Group on International Agricultural Research; Encyclopaedia of Life Support Systems; Food and Agriculture Organization; United Nations Educational, Scientific and Cultural Organisation; United Nations Development Programme; United Nations Environment Programme; United Nations Fund for Population Activities.

"A 2020 Vision for Food, Agriculture, and the Environment" is an initiative of the International Food Policy Research Institute (IFPRI) to develop a shared vision and consensus for action on how to meet future world food needs while reducing poverty and protecting the environment. Through the 2020 Vision initiative, IFPRI is bringing together divergent schools of thought on these issues, generating research, and identifying recommendations. The *2020 Briefs* present information on various aspects of the issues.