



# **Towards Sustainable Food Security**

**James Gustave Speth**

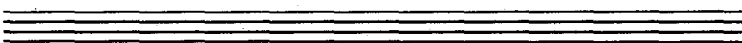
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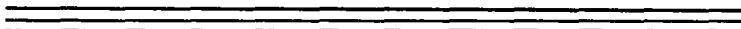
Sir John Crawford Memorial Lecture

International Centers Week

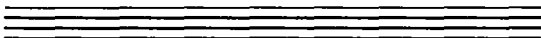
October 25, 1993

Washington, D.C.





**Published by the Consultative Group on  
International Agricultural Research, CGIAR  
Secretariat, 1818 H St., N.W., Washington,  
D.C., 20433, United States, January 1994.**



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## **Sir John Crawford Memorial Lectures**

- 1985 Robert S. McNamara, United States
- 1986 Bukar Shaib, Nigeria
- 1987 Amartya Sen, India
- 1988 Helen Hughes, Australia
- 1989 Jacques Diouf, Senegal
- 1990 M. S. Swaminathan, India
- 1991 CGIAR Twentieth Anniversary Commemoration
- 1992 Enrique V. Iglesias, Uruguay
- 1993 James Gustave Speth, United States

The Sir John Crawford Memorial Lecture has been sponsored by the Australian government since 1985 in honor of the distinguished Australian civil servant, educator and agriculturalist who was one of the founders of the Consultative Group on International Agricultural Research (CGIAR). Sir John (1910-1984) was the first chairman of the CGIAR's Technical Advisory Committee.

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# **Towards Sustainable Food Security**

James Gustave Speth  
Administrator  
United Nations Development Programme

It is a pleasure to be with you this evening. I appreciate deeply the honor of following in the footsteps of the other presenters of the Sir John Crawford Lecture.

Let me begin by acknowledging the contributions of the Consultative Group on International Agricultural Research (CGIAR) system and the scientists and development professionals working in it. You have contributed so much to the progress of recent decades. It is important to remind ourselves of what agricultural science has made possible. The dramatic, life-saving increases in yields and outputs of wheat, rice, and other crops made possible by CGIAR research are now recognized among the great accomplishments of the twentieth century. The United Nations Development Programme (UNDP) is proud to have been a cosponsor of the CGIAR and to have supported your work during this period. We look forward to even closer collaboration in the future.

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## **A Choice of Futures**

Despite these advances, and despite the potential offered by modern science and technology, we are living in a confused and volatile time. Rarely have so many opportunities and dangers been bound up in a single moment. Rarely have fears and hopes so intermingled in our feelings about coming decades.

Forces have been unleashed in recent years that could give us, early in the new century, very different courses. We could witness much of the world dissolving into ethnic violence, poverty, hunger, and social disintegration. Or we could be the beneficiaries of tremendous vitality and innovation for the creation of a new, just, and sustainable international order. There is still time for nations to devise a new system of shared international responsibility. And there is certainly still time to realize the bleakest visions of our science fiction writers.

Indeed, today armed conflicts and humanitarian emergencies seem to be spreading like a metastasized cancer. These acute crises are a double tragedy: not only do they devastate people and landscapes, but they also divert financial resources and human energies from the cause of human development.

These conflicts and emergencies fill the daily headlines. Yet, underlying these tragic events is the silent crisis - the crisis of underdevelopment, of chronic and growing poverty, of mounting population pressures, and widespread environmental deterioration. The "Human Development Report," "World Resources Report," and other surveys present the trends. They have bright covers, but they carry sorrowful messages.

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As efforts to respond to acute crises through peace-keeping, humanitarian relief, and refugee assistance grow larger, so must our efforts to respond to the silent crisis through the promotion of real development. It is far cheaper and more humane to act preventively, to address the root causes rather than the tragic symptoms. Moreover, whatever the causes of particular instances of violence or social disintegration, development is surely the major ingredient of the cure. Lasting peace and security depend on development that eliminates great disparities and great hardships, that binds societies together, and offers hope for the future. Indeed, it is doubtful that any of the goals for which the community of nations is working - not human rights or democratization, not environmental protection, not reduced population pressures, not disease control, not peace - can be achieved and sustained except in the context of development.

Ironically, despite the centrality of development to the concerns that so capture our political energies, international support for development is under attack and threatened, perhaps as never before. The threat comes from many sources, including aid fatigue, competing domestic priorities, sluggish economies, and lack of public understanding. The resources being devoted to peace-keeping, to humanitarian relief, and to support for political and economic reforms in the former Soviet Bloc are all increasing greatly; the support for development assistance to the poorer countries is increasing hardly at all. Official Development Assistance shows a slight upward trend since 1988, but perhaps not more than needed to compensate for inflation. Support for the science that is the basis for much of the optimism about the future is similarly constrained.

This threat to the resources needed to invest in the future is a challenge to which we must turn with de-

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termination and imagination. It requires that we state the case for development cooperation in modern terms, that we admit that past efforts have often failed and have often been more influenced by political priorities and the Cold War than by development needs, and that we embrace new development objectives and new means of promoting them.

### **Sustainable Food Security**

At the very center of concern about development must be a concern with food, agriculture, and people. Combining these three elements into an objective that is fundamental to all else in development is the concept of sustainable food security.

Achieving sustainable food security will require more than improving farm productivity and profitability while minimizing environmental impacts. The concept is broader than sustainable agriculture; it fuses the goals of household food security and sustainable agriculture. It requires both. It requires that we look not only at the aggregate supply of food but also at income and land distribution, at household livelihoods and dietary needs, at food distribution and waste, at women's status and their opportunities, at fertility and population issues, and at the protection and regeneration of the resource base for food production - terrestrial, aquatic, and climatic.

The challenge of food security is immense:

- In the developing countries, an estimated 13 to 18 million people, mostly children, die from hunger, malnutrition, and poverty-related causes each year.<sup>1</sup> That is about 40,000 people a day or 1,700 people an hour.

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<sup>1</sup>United Nations Development Programme (UNDP), Human Development Report 1993 (New York, Oxford University Press, 1993). The actual estimate is 12.6 million children, Table 3, p.141.

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- One billion people - 20 per cent of the global population - live in households too poor to obtain the food necessary for sustaining normal work. Half-a-billion live in households too poor to obtain the food needed for healthy growth of children and minimal activity of adults.<sup>2</sup>
  - One child in three is underweight by age five,<sup>3,4</sup> and more people are undernourished now than in 1950.
  - More than one billion people are plagued by intestinal parasites, which undermine nutrition and cause anemia, and 600 million people are seriously deficient in such micronutrients as iron and iodine, which can lead to long-term impairment or death.<sup>5</sup>
  - Most hunger - 85 to 90 percent - arises from silent poverty, and only 10 to 15 percent stems from famine and similar emergencies. Moreover, the United Nations projects that the number of people in "absolute poverty" will increase by 300 million in the next 30 years, from 1.2 billion today to 1.5 billion by 2025.

As the Bellagio Declaration on Overcoming Hunger in the 1990s states:

**In a world of potential food plenty, we have collectively failed more than one billion of our people.**

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<sup>2</sup>The Hunger Report Update, World Hunger Project, Brown University, Rhode Island, USA, 1991.

<sup>3</sup>Human Development Report 1993, UNDP, Table 11, p. 157.

<sup>4</sup>Robert S. Chen and Robert W. Yates, unpublished draft paper on "World Food Security", July 1993, pp.4-7.

<sup>5</sup>Ibid., pp. 4-7.

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But today's failure may be but prologue to a much larger failure in the future. Today the average person among the 4 billion in the developing countries consumes about 2,500 calories of food each day. The average person consumes 3,400 calories per day in Western Europe and more than 3,600 in the United States.<sup>6</sup> If the world's people are to have a nutritionally adequate diet, world food output must at least triple over the next half-century, given likely population increases.

It will be difficult enough to achieve this expansion under favorable circumstances, and conditions may be far from favorable. For example, according to recent estimates by the world's leading soil scientists, an area of about 1.2 billion hectares - about the size of China and India combined - has experienced moderate to extreme soil deterioration since World War II as a result of human activities. Over three-fourths of that deterioration has occurred in the developing regions from such causes as overgrazing, deforestation, land clearing, unwise agricultural practices, and increased soil salinity and waterlogging, largely from irrigation. Other environmental threats to the agricultural resource base include loss of water through contamination; loss of genetic resources, habitats, and species; adverse impacts of pesticides, and greater resistance of plant diseases, weeds and insects; and climate change, both local and global.

At the most aggregate level, the required increase in food production (measured in terms of calories) would be met if food production grew at the historic average, that is, the 2 percent per annum achieved over the past half-century. That sounds straightforward, even reassuring. But the comparison may be deceptive. To produce three times the basic calories consumed today, all the world's

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<sup>6</sup>M. Yudelman, "Demand and Supply of Foodstuffs up to 2050 with Special Reference to Irrigation," draft paper for IIMI, 1993, Table 3, p. 19.

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current cropland would have to be farmed as productively as Iowa's best cornfields.

To this challenge one must add the possibility of diminishing returns to the technological, energy and other inputs that have made agriculture so successful, not to mention the reality of a diminishing natural resource base. Some experts believe there may be only limited room for further growth in output of mainstay cereal crops by improving plant varieties, increased use of fertilizers and pesticides, and expanding the area under irrigation — three of the main sources of growth in recent decades.<sup>7</sup> What Yudelman calls the "easy options" for yield increase in the past may be running out.

From this perspective, the goal of achieving sustainable food security in the decades ahead emerges as one of the greatest challenges humanity has ever faced. Agricultural output must be tripled, and people must have the income to buy it. The erosion of the resource base must be halted and then reversed. Failure on any of these fronts will yield unprecedented international tragedy.

We must see sustainable food security as a fundamental aspect of global human security. The world needs to recognize the right to food as a universal human right.<sup>8</sup> This goes well beyond the mere endorsement of this right in principle, beyond the ringing denunciations of the use of food as a weapon, beyond the emerging idea that civilians in zones of armed conflict are entitled to food for survival, and beyond humanitarian food supply measures to prevent famine. It requires continuous practical action at all levels - international and national, household and

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<sup>7</sup>Ibid., pp. 75-79.

<sup>8</sup>Philip Alston, "International Law and the Right to Food," in Elde (ed.), *Food as a Human Right*, Tokyo, United Nations University, 1984. Also Chen and Yates.

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individual - on the basic social responsibility to ensure that everyone is adequately fed under all circumstances. It requires the adoption of concrete international goals such as reducing world hunger by half over the coming decade.

Above all, it requires a true global compact, including North-South collaboration and the concerted efforts of all of us working in the development cooperation field, UNDP and CGIAR included.

### **Real People, Real Needs**

These are general propositions, but they are deeply rooted in real needs of real people. I recently visited The Gambia, and learned of the work there that UNDP is assisting. One of the main themes of The Gambia's poverty alleviation program is that the definition of poverty and responsive measures should come from the poor themselves. So the Gambians undertook a series of meetings all over their country, asking questions about poverty. Here is the answer they received, and I quote from the UNDP report:

*Food security is viewed as the "number one" priority. Diversification of agricultural production (drought-resistant cereal varieties; vegetable gardens; small scale irrigation; animal traction; small ruminants) and promotion of non-farm activities in rural areas should protect farmers and rural families against the vagaries of the Sahelian weather and provide additional income for food purchases during July and August (the "hungry season") when food supplies are particularly low and farm work is particularly demanding.*

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At UNDP we plan to make helping the developing countries we serve achieve sustainable food security one of our primary objectives and major programs. We aim to be a more thematically focused and more substantive organization, one capable of both greater service and greater leadership. We will approach food security in the broad way outlined here. It is not just growing and marketing more food, as important as that is. We must also bear in mind what our friend M.S. Swaminathan said in this lecture in 1990: "To win the battle against hunger, we have to fight the 'famine' of jobs."

This truth, and the long-term nature of the battle, are recognized in an income-generating project for 30,000 groups of marginal farmers and the landless which UNDP is assisting in Indonesia between 1979 and 1996. Using participatory and workshop methods, the groups specify their problems and needs, identify business opportunities, prepare group business plans, obtain credit, and organize apprenticeships. Members of the first 3,000 groups increased their average real income by 40 percent, enabling them to afford housing and other improvements. The 10,000 additional groups established by last year are also succeeding, as witness their credit repayment record of over 99 percent.

## **Sustainable Human Development**

Development will bring food security only if it is people-centered, if it is environmentally sound, if it is participatory, and if it builds local and national capacity for self-reliance. These are the basic characteristics of sustainable human development.

People-centered agricultural development is development that puts poor farmers and rural people first,

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that equitably distributes the benefits of growth, and that attacks poverty with opportunities and education. It addresses, for example, the abhorrent neglect of females, young and old, in the development process. Literacy and education for girls and women have more influence on progress in sectors such as agriculture, health, and family planning than any other development indicator.

At every turn the lesson keeps hitting us in the face that involving rural people actively in the defining, designing, and decision-making stages of agricultural development is not optional but essential. We see this missing requirement in many projects that failed because they adopted top-down approaches, or because they were based on narrow technical specializations.

Sustainable agricultural development does not really come from just introducing better crops, new cattle breeds, more credit, or rural cooperatives, as vital as these may be. Rather, it is achieved by farmers working in very specific farm-household systems. It must be based on the tasks, needs, and aspirations of the farmers themselves and on the dynamics and constraints they face, not only in their farming but also in their domestic and non-farm activities. It must take account of their whole rural life situation, including real-world factors beyond the control of the household - the ecology and natural resources of the zone, the social-cultural environment in the community, and the policies, prices, services, and infrastructure that affect rural prospects.<sup>9</sup>

Also, the very definition of "farmer" often needs rethinking. It cannot absent-mindedly exclude, and must

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<sup>9</sup>"Agricultural Policy and Sustainability: Case Studies from India, Chile, the Philippines, and the United States," (World Resources Institute (WRI)), 1993, pp. 55-56.

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deliberately include, groups which have so far been severely disadvantaged: female farmers who frequently operate separate production sub-systems, marginal farmers, tenant farmers, farm laborers, sharecroppers, indigenous groups, the landless, small fishers, and people who work in rural handicrafts.

The fundamental importance of a much stronger focus on farmers is also recognized by many of the same experts who point to the shrinking potential for new plant varieties, more fertilizer and pesticide use, and expanded irrigation. Given the shrinking horizon for wider use of these inputs, it becomes essential for them to be used more efficiently. This makes the farmer's job more complex, requiring not just improved varieties but better crop management, integrated pest management to limit use of toxic pesticides, and not only irrigation but also drainage to reduce water-logging and salinity. Much of the future increase in production will have to come from raising yields per hectare off irrigated land. Achieving this means that hundreds of millions of farmers have to change from resource-intensive to knowledge-intensive techniques.

To illustrate forcefully the point about farmer involvement, we need only look at the World Bank's 1991 evaluation of benefits and problems in irrigation projects it financed in 14 countries between 1970 and 1986.<sup>10</sup> Among the problems underlying each significant shortfall in economics, operations, or resource management of these irrigation schemes were problems traceable to farmer participation and action. For example:

- lower economic rates of return, partly because farmers introduced irrigation over smaller areas than planned;

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<sup>10</sup>1991 Annual Review of Project Performance Audit Results, World Bank, Operations Evaluation Department, Washington, D.C.

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- reduced life span of reservoirs because of siltation resulting from failure to involve upstream forest, livestock, and farm producers in erosion control;
  - low efficiency of water use, attributable to authoritarian irrigation system management and insufficient organization of water users;
  - low cost-recovery, because users were reluctant to pay when water delivery was unreliable or untimely and revenue use was unclear.

CGIAR centers and your partners in the national programs have already made a difference in the lives of people. Credit is due you for the way your technologies and systems have helped stimulate a steady, low-priced supply of food. Yet the benefits have not always reached the poorest farmers. I hope you will redouble your focus on assisting the poorest people, who ask mainly that they be given genuine opportunities to help themselves.

### **Conserving and Regenerating Natural Resources**

If there was ever a revolution well-advertised, it has been the rapid merger of concerns for development and the environment in the last decade. Too often, though, environmental concerns are still thought of as exclusively aesthetic and non-economic by some, as pollution control and wildlife parks by others. There is a tendency to forget the need to regenerate the natural resource base and to increase dramatically the long-term productivity of the resource sectors.

Environmental deterioration must be seen for what it is - a major threat to development prospects and a

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major source of economic loss. A case in point is Costa Rica. It has protected its resources better than most, but in the 20 years between 1970 and 1989, it lost natural resources - forests, soils, and fisheries - worth more than one year's gross domestic product.<sup>11</sup>

The technique of "natural resource accounting" should be more widely adopted in order to measure economic loss from environmental damages, comparing conventional and alternative production methods. Case studies in the Philippines, India, Chile, and the United States suggest three important themes or principles:

First, economic analysis that fails to measure changes in the productivity of natural resources will make farming practices that degrade the resource base look more valuable than those that conserve it.

Second, when changes in the natural resource base are included in calculating farm income, resource-conserving production practices can compete economically and financially with conventional ones.

And, finally, policies that encourage inappropriate natural resource use can cause significant economic and fiscal losses, as well as environmental ones.<sup>12</sup>

The 1992 UN Conference on Environment and Development (UNCED) in Rio signalled that things must be different. Commitments were made to enhance development on an environmentally sound basis. Some important follow-up actions are already being taken. But,

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<sup>11</sup>Raul Solorzano et al., *Accounts Overdue: Natural Resource Depreciation in Costa Rica* (WRI, 1991).

<sup>12</sup>"Agricultural Policy," WRI, pp. vii-viii.

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in truth, governments have not pursued the Rio agenda with the dedication and commitment it deserves.

The CGIAR system has provided many farmers the tools to produce record increases in food production on flat to rolling lands. This has in many situations reduced the need to push agriculture further up the hill-sides or into other fragile lands that are most subject to erosion and easy deterioration. You have promoted integrated pest management and crop varieties that can resist the onslaught of insect pests and diseases without heavy pesticide use. You have helped farmers understand why the protection and conservation of natural resources is so fundamental.

I am pleased to see that you are not resting on past successes and are undergoing a restructuring of your programs to give more attention to natural resources, including land, forest and fishery resources, and to long-term sustainability. To succeed, this restructuring must go beyond surface changes; it must infuse and motivate your entire system. Also, in focusing on the rural development problems and opportunities in the world's major ecosystems, I hope you will interact increasingly with the people in those regions and seek their help in framing your research agenda. The CGIAR has an exceptional capacity to give reality to sustainable development through working in close contact with the largest group of environmental decision makers in the world - farmers.

Your expansion centers - in forestry and agroforestry, in fisheries, in irrigation management - are all steps toward building the world's strongest network of scientists working for sustainable management of natural resources. Efforts - backed by solid research - are urgently needed to improve soil, water, fishery, and forests

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management. Without early reversals of current trends in deterioration in these sectors, the goal of sustainable food security will remain only a dream.

### **Participation, Information Sharing, and Capacity Building**

Our development work must include real participation of, and ownership by, the beneficiaries of development. Top-down development is out. Development can be achieved only where people have an opportunity to participate in the events and processes that shape their lives; where entrepreneurs, women, non-governmental organizations, local communities, and others in civil society are empowered to take initiative and participate in both open markets and effective government.

In efforts to attain sustainable food security, this means we must stop looking at farmers mainly as crop producers and recipients of crop technology. A recent report from the CGIAR Centro Internacional de Agricultura Tropical (CIAT) put it this way:

Treat farmers as participants in research to solve their problems - as producers of improved seeds, as developers of markets for expanded produce, as managers of land, as members of communities....Come to terms more fully with the heterogeneity of agriculture, with the diversity of priorities in rural communities....Bring together the diverse array of local rural institutions — including farmer groups, private business, NGOs and public agencies. They and their constituencies must take charge of the local research agenda and problem solving process.<sup>13</sup>

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<sup>13</sup>"CIAT at the Threshold of Sustainable Development, 1992-1993."

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For those from outside farm communities who work on food and agriculture issues, it means "looking at decisions about agriculture through the eyes of the men and women who make them."<sup>14</sup>

You in the CGIAR centers have demonstrated your abilities to carry your research into farmers' fields through your extensive farming systems research efforts. As you plan and implement eco-regional and other research programs, the participatory process must be strengthened. Small farmers and local organizations - including farmer groups, private business, non-governmental organizations (NGOs), and public agencies - must be involved from the identification of problems and the first planning exercises. They must become co-owners of the research by clearly identifying their needs, by relating their past experiences and indigenous knowledge in meeting these needs, and by participating in the research process.

Empowering the people who work the land and who keep it productive is essential; then they can decide the most appropriate ways to graft new technology onto their own traditional knowledge of seed selection, plant protection, and nutrient-cycling. As Maurice Strong has said, more efforts are needed "to draw upon the extensive knowledge and experience that small farmers have gained through centuries of following traditional agricultural practices. It is of vital importance that this knowledge not be lost."<sup>15</sup>

For example, in Ifugao province in the Philippines, indigenous farming communities have two ecologically friendly but endangered systems. "Holok" uses local plant

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<sup>14</sup>"Human Development and Sustainable Agriculture: A UNDP Guidebook," UNDP, in press, 1994.

<sup>15</sup>Maurice Strong, Arturo Tanco Memorial Lecture of The Hunger Project, April 1989, Tokyo, p. 19.

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species for production of an organic pesticide; it is being eclipsed by growing applications of chemical insecticide which also poisons soil, water, animals, and people. "Muyong" is their indigenous method for forest management, including ownership and protection of forest lands. It is under pressure from population growth, increasing needs for cash and shelter, and handicrafts and small-scale commercial lumber production. With support from the UNDP small-grants fund in the Global Environment Facility, a provincial NGO is now documenting these systems, identifying the plants and the active substance used in "holok," and determining its effectiveness against various pests. Then an education campaign will be conducted in the province, in print and audio-visual form using local language, through an NGO network, schools, and farmers' and peoples' organizations. By promoting both systems in the province, including areas which depend on inorganic pesticides, this will give communities a choice of traditional and modern methods or a combination of them suited to their circumstances.

Participation is closely allied with the building of national capacities both in government and civil society. Both are critical for sustainable human development. The long-term goal of all external development agencies should be to work themselves out of a job. Every development project should have as one of its primary goals to leave our recipient partners stronger and more capable when the project ends than when it began.

From their very inception, CGIAR centers have been involved in capacity building. You and the centers have trained more than 40,000 cooperating scientists and extension workers. You have helped countries critically

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analyze their research institutions' needs and have helped them attract financial resources to satisfy these needs. You have also initiated numerous collaborative research networks that stimulated interaction with scientists and educators from other network institutions.

Looking ahead, you can help national scientists and producers use more sophisticated research tools than in the past, and make effective use of modern participatory research methodologies and communication networks. Research and extension institutions in developing countries will be strengthened as they participate as full partners with you.

In short, we need CGIAR research in the effort to shift to new paths of sustainable human development. We need you to help achieve sustainable food security. The global campaign to eradicate famine, undernutrition, and micro-nutrient deficiency needs your research, education, and organizational linkages.

We need your efforts to ensure that the best, most sophisticated science is deployed to these ends. That certainly includes biotechnology in both agriculture and forestry, as well as modern information technologies. A broad array of biotech techniques must be applied to finding improved pest and disease-resistant varieties, bio-control agents that reduce the need for pesticides, greater tolerance for heat and drought, adaptability to poor soils and salinated environments, and greater efficiency in the use of natural and applied nutrients and moisture.

However, in biotechnology as with the "green revolution," we must guard against the social dangers that

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can come with technical breakthroughs. The main safeguard against elitism in biotechnology and other agricultural innovations is, of course, to involve local participants and beneficiaries from the beginning, as already discussed. Another safeguard is to develop information and extension systems that share knowledge widely and speedily. In UNDP we are giving close attention to both approaches, at regional and interregional levels:

In Asia, we have a new regional program with eight core countries, called "FARM" (Farmer-centered Agricultural Resources Management). It includes seven subprograms to test participatory methods in watershed management, agro-forestry, rainfed farming, and other areas that would warrant wider adoption. Two of the subprograms consist of networks. A biotechnology and biodiversity network will link selected research institutes, the private sector, and potential end-users of new biotechnologies relevant to the needs of resource-poor farmers in rainfed areas. Another network will help formulate and promote pesticides that are safe in all ways - at the levels of production, field use, and effluent treatment.

In Africa since 1988, UNDP and five northern donors have helped national NGOs in the new "Africa 2000 Network" to fight drought and desertification and encourage food production and community development. In 15 countries it is helping them carry out some 400 grassroots projects that build on what locals have already established toward goals they have set for themselves. Country-level cross-fertilization of experience occurs through the network's national committees for project selection and monitoring.

Interregionally, UNDP is just about to launch a program for "Sustainable Agriculture Networking and

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Extension (SANE)," in nine countries from all developing regions. The central idea of SANE is to increase horizontal linkages and self-help among farmers and local institutions in participating countries. It would "offer life examples of grassroots experience" by the poorest men and women farmers who have to make a living on marginal lands. The substantive knowledge drawn from this experience, as well as lessons about discovering, mainstreaming, and adapting that knowledge, would be shared nationally, regionally, and interregionally.

Another important sharing exercise, one with which the CGIAR can help, is to forge linkages among researchers in industrial and developing countries, and thereby minimize the time lag between discovery and practical utilization. Future food security issues must also be examined with different scenarios of population growth, agricultural productivity, markets and trade, climate change, loss of soil, and biodiversity, and last but not least political instability, in order to devise options for rational choices.

We also need the CGIAR in the struggle to protect the global genetic heritage, both *in situ* and *ex situ*. Sustainable development requires the conservation of biodiversity of all types, including that in seedbanks and field genebanks. Consistent with the recommendations of the Global Biodiversity Strategy, it makes good sense for the CGIAR to call for the establishment of a global trust fund to maintain and expand the germplasm collections that exist in the international agricultural research centers, in national partner institutions, and elsewhere.

The work of the CGIAR, attentive to the needs of the majority of farmers, can be a primary element in sus-

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taining the promise of eradicating hunger in the world. So I urge you to proclaim this goal as your own and help show how we can get there. Join your forces with others, including UNDP, and let us work together on these matters in the years ahead. Let us join in promoting sustainable human development and the new approaches development cooperation requires. Let us make eliminating poverty and food insecurity and regenerating the resource base our core goals, and let us join in helping developing countries build the capacity to take on these challenges - not with short-term palliatives but with long-term economic opportunities, solid science, and first-class access to the benefits of modern technology.

Perhaps you recall Gandhi's talisman. It provides a fitting way to end this lecture, and a fitting beginning for a new phase of our development work. He said:

*I will give you a talisman. Whenever you are in doubt or when the self becomes too much with you, apply the following test:*

*Recall the face of the poorest and the weakest man whom you may have seen and ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to a control over his own life and destiny? In other words, will it lead to self-reliance for the hungry and spiritually starving millions?*

*Then you will find your doubts and your self melting away.*

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James Gustave "Gus" Speth is Administrator of the United Nations Development Programme (UNDP). He is the founder of the World Resources Institute and served as its president until becoming UNDP Administrator in 1993.

Mr. Speth served on President-elect Clinton's transition team, heading the group that examined the U.S. role in natural resources, energy, and the environment. Earlier, he served as Chairman of the Council on Environmental Quality during the administration of President Carter and was senior attorney with the Natural Resources Defense Council. In 1991 he chaired a U.S. task force on international development and environmental security which produced the report, "Partnership for Sustainable Development: A New U.S. Agenda."

Mr. Speth is a former Professor of Law at the Georgetown University Law Center in Washington, D.C. where he taught environmental and constitutional law. His awards include the National Wildlife Federation's Resources Defense Award and the Natural Resources Council of America's Barbara Swain Award of Honor.



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