

FOR IMMEDIATE RELEASE
September 15, 1987

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SWAMINATHAN ON FOOD AND FARMING ISSUES

Dr. Swaminathan's interests range far beyond food production to include environmental, political, technological and conservation issues related to food and farming. Following are excerpts of his views on these critical issues, taken from his speeches and lectures:

Environmental Amnesty

In Amnesty International we have a valuable mechanism for monitoring the publicizing human rights violations. We need urgently a similar organization characterized by political neutrality and professional integrity and credibility for monitoring natural heritage abuses resulting from political corruption and/or personal greed.

While human rights violations affect individuals, human heritage violations resulting in damage to life support systems cause genetic damage, since their harmful impact will extend to generations yet to be born. Natural heritage violations undermine the livelihood security of present and future populations and particularly of the poor.

Therefore, we need urgently an Environment Amnesty which will bring to public notice prominent cases of damage to the cause of sustainable development, resulting from the desire of some to make personal profit out of public property.

-- From opening address to the International Union for Conservation of Nature and Natural Resources, May 31, 1986.

Sustainable Nutrition Security for Africa: Lessons from India

Today, Africa is in the spotlight in humankind's struggle against hunger. In the mid-1980s, sub-Saharan Africa was the only major region of the world whose population growth rates were still increasing while per capita food production was declining.

Only 20 years ago, several food experts were predicting for many countries of Asia and Latin America a situation similar to that currently being witnessed in sub-Saharan Africa. India in particular was singled out as a hopeless case that could not be saved from hunger and famine. Today India has about 30 million tons of grain stocks, more than enough for maintaining a minimum food security reserve.

A sustainable nutrition security system for Africa can be devised. Such a system would contain all the components essential for giving every human being an opportunity to express his or her innate genetic potential. These components would include food, drinking water and minimum income security, nutrition intervention and education and population stabilization.

The African version of the Indian green revolution can be built on the twin foundations of ecological and economic sustainability if African political and professional leadership use wisely the knowledge gained in the past 20 years in India and other Asian countries.

Essentially the message from the Indian experience is one of assigning the highest priority to agriculture. This includes developing a strong national research capability and methods of transferring know-how and skills to farmers; introducing agrarian reforms that can stimulate and sustain the growth of market-oriented farming; encouraging consumption by the rural and urban poor; and considering agriculture as a powerful instrument for increasing income and employment.

An action plan for Africa would consist of seven points -- sustainable livelihood security for the poor; sustainable and equitable use of environmental systems; a symphonic agricultural system; science and technology; knowledge and skill sharing; resource mobilization and utilization; and political commitment and accountability.

To produce a sustainable agricultural production system in Africa will be no easy task. In agriculture, as in other areas of human endeavor, there are no miracles. Only hard and sustained work supported by selfless and visionary leadership will help to make the African agricultural opportunity a reality.

-- From summary of First Arturo Tanco Memorial
Lecture, World Food Council, June 17, 1986

Women in Agriculture

It is essential that the International Agricultural Research Centers avoid a laissez faire approach (to women's issues) and move positively and aggressively in the direction of assisting

women dependent upon agriculture for their well-being. This is particularly important in the context of the increasing emphasis placed by IARCs on attending to the problems of ecologically handicapped farming areas and economically disadvantaged farm families. It is precisely in such situations that the value of women's labor and income to household happiness and survival is immense.

...it is important to recognize that science is not a magic wand with which sex inequalities in workload and economic returns can be made to vanish. This should be emphasized clearly as otherwise false hopes will be aroused about the capacity of science and technology to remove deep-seated social maladies.

-- From address to Inter-Center Seminar on Women and Agricultural Technology, March 25, 1985.

Green Revolution Balance Sheet

We can now draw a balance sheet of this first phase of the green revolution. First, a most important gain of this phase has been the generation of self-confidence in many developing countries with regard to their capability for achieving food self-sufficiency.

Second, agriculture has achieved a higher social prestige, and it is now widely realized that modern farming requires not only brawn but also brain (technology) and bank (financial and other resources). This realization has led to enhanced support for national agricultural research and extension systems and greater flow of credit to the farm sector. Most political leaders now realize that a dynamic agricultural production program can neither be initiated nor sustained without the support of a dynamic national agricultural research system.

Third, the population-rich but land-hungry countries of South and Southeast Asia have been able to increase production through a vertical growth in productivity, thanks to the rapid spread of high-yielding varieties.

Fourth, a higher intensity of cropping could be achieved in irrigated and assured rainfall areas because of the availability of photoperiod-insensitive and short-duration varieties. For example, wheat acreage in Bangladesh expanded from about 120,000 hectares in 1974 to more than 600,000 hectares in 1984.

Fifth, several developing countries could start building national food security systems based on the purchase of surplus home grown wheat. India, which imported 10 million tons of wheat in 1966, had built a grain reserve of over 10 million tons by 1972 mainly with locally grown and purchased wheat. The grain stocks with the government of India now exceed 30 million tons.

These include the quantities needed both for food security and public distribution.

Finally, the old view that the illiterate farmers of India and other developing countries will not be able to take to new technologies easily has been disproved. Farmers of developing countries, whether literate or illiterate, have shown that they will adopt readily improved production techniques and high yielding varieties if they are convinced that these will help to improve their income and standard of life.

-- From the 20th anniversary symposium, CIMMYT, Sept. 22, 1986.

The Green Revolution: Next Phase

We can say the first phase of the green revolution, starting in 1966 and ending in 1986, has helped to disprove the prophets of doom and gloom, and has led to the birth among developing nations of a new confidence in their agricultural capabilities. We are now entering the next phase where new problems will have to be faced and solved.

First, we need to step up our research and training efforts, which can help increase and stabilize the production of wheat, maize and other crops, and improve the economic well-being of small farmers through diversified employment opportunities resulting in the generation of greater household income.

Second, we should try to raise further the ceiling to yield under irrigated conditions. ... In our legitimate desire to increase yield, we should not sacrifice resistance to pests and diseases. Stability of production is equally important. In this context, the role of genetic engineering techniques needs careful analysis.

Finally, the green revolution in developing countries essentially has been a public sector enterprise. The emerging "gene revolution," made possible by the explosive progress in molecular genetics, is predominantly a private sector enterprise in the developed world.

The rapid spread of green revolution technologies became possible because the research results were disseminated rapidly with the sole motivation of increasing production. Emerging technologies provide opportunities for adding a dimension of resource neutrality to scale neutrality in technology development.

-- From the 20th anniversary symposium, CIMMYT, Sept. 22, 1986.

Symphonic Agricultural System

The term "symphonic agriculture" designates the evolutionary stage reached in the development of sustainable agricultural production systems when all of the components of an agricultural action plan become mutually reinforcing. When synergistic packages of technology, services and public policies are developed and introduced in a mutually supportive manner, agricultural progress is rapid.

Further, government investment policies ultimately determine the fate of rural professions. Without adequate rural infrastructure such as roads, warehouses, electricity and facilities for education and health care, rural areas will not attract technically qualified people.

-- From the First Arturo Tanco Memorial Lecture,
World Food Council, June 17, 1986.

The Impact of Technology

While careless technology can cause unmitigated environmental disasters, technologies carefully tailored to specific agro-ecological and socio-economic conditions can help to provide bread together with freedom from environmental degradation on a sustainable basis.

Thus we can keep soil productivity at high levels today through adequate soil health monitoring and care. We can replenish soil fertility through an integrated nutrient supply system consisting of organic recycling, green manuring, scientific crop rotations and the use of the minimum essential mineral fertilizers.

The leguminous plant Sesbania rostrata from Senegal is a wonderful nitrogen-producing factory since it fixes atmospheric nitrogen both in the roots and stem. Because of the unusual possibilities now open for raising productivity of both crops and farm animals, we can release marginal land from annual crops and place them under sylvi-pastoral or sylvi-horticultural or other agro-forestry systems of land and water management. We can minimize or avoid the use of chemical pesticides through integrated systems of pest management.

Similarly, where water is extremely scarce, modern methods based on the delivery of water in closed conduits at high frequency and low volumes directly to the root zone can be modified and simplified to fit the needs of small holders.

Advances in molecular biology provide scope for the development of an integrated genetic conservation strategy ranging from the establishment and protection of biosphere reserves and national parks and other forms of in situ conservation, to the creation of DNA libraries, particularly in the case of species threatened with extinction.

Above all, the computer and communication revolutions have given us unusual powers for effective monitoring and dissemination of environmental information.

-- From the opening address to the International Union for Conservation of Nature and Natural Resources, May 31, 1986.

Evolutionary Steps in the Battle Against Hunger

1. Food Self-Sufficiency

Food self-sufficiency has become a statistical concept for measuring the quantitative adequacy of food availability within a country. The quantitative adequacy can come either from home grown food and/or food imported on commercial or concessional terms.

Food self-sufficiency does not imply the elimination of hunger, which can co-exist on a fairly large scale with food grain surpluses. Nevertheless, it is important that all countries try to achieve self-reliance in the quantitative availability of food grains for their population as a first step in their strategy for achieving freedom from hunger.

2. Food Security

Food security implies physical and economic access to food to all people at all times. Thus it involves concurrent steps in production and distribution. Countries that have achieved self-sufficiency should vigorously work toward attaining food security. This will involve efforts to generate adequate purchasing power among all sections of the population.

3. Nutrition Security

Nutrition security involves the quantitative and qualitative adequacy or food intake coupled with the availability of clean drinking water and environmental sanitation. Only when a country achieves nutrition security for all its people will it have provided an opportunity for every child and adult to express his or her innate genetic potential for physical and mental development.

It is the duty of every nation to achieve nutrition security for its population. This will call for development efforts and investment decisions which can, on the one hand, enhance the purchasing power of the poor, and on the other lead to improved sanitation and drinking water supply. Ultimately, the full flowering of a human personality depends on balanced nutrition and on the educational and sociocultural environment. Unfortunately, this goal seems to be a distant dream.

Rapid population growth, particularly in developing countries, is not only increasing unemployment, underemployment and poverty, but is tending to cause an imbalance between the human population and the life support systems of land, water, flora, fauna and the atmosphere.

Compounding this problem is the need for larger quantities of energy to produce a ton of grain. The lack of a system approach to development often causes unanticipated difficulties. For example, there is a growing investment in irrigation development. Unfortunately, however, several irrigation projects have resulted in salinity, alkalinity, water logging and other adverse soil problems.

Desertification, deforestation of tropical forests, airborne pollutants, acid rain, nitrate pollution of ground water and the "greenhouse effect," leading to a gradual overheating of the earth due to atmospheric pollutants, are all threats to sustainable food production.

-- From the inaugural Andrew Sharman Memorial Lecture, the Royal Society of Arts.

The Coming Disaster in Asia

Ten years from now, I predict that a future Tanco lecturer will have to deal with food problems of Asia rather than Africa. Asia has many more fundamental handicaps -- large population, growing unemployment, diminishing land resources for agriculture and varying degrees of damage to mountain, lake and river ecosystems.

We can avert the potential disasters in Asia in the 1990s provided a symphonic system of resource management can become the normal method of program development and implementation. Hunger is a multidimensional problem. Unfortunately, our planning and implementation procedures, both in the public and private sectors, are predominantly unidimensional.

-- From the First Arturo Tanco Memorial Lecture, World Food Council, June 17, 1986.

Message delivered by Philippine President Corazon Aquino at news conference announcing winner of 1987 General Foods World Food Prize, June 18, 1987.

"I am very happy and proud to share this moment with the Director General of the International Rice Research Institute, Dr. Swaminathan. He fully deserves the distinction of being the first recipient of the World Food Prize which is awarded to those who have made significant improvements in the world food situation. He receives the award for his outstanding work in improving the quality and the productivity of Asia's staple food, rice. We are proud to have hosted the I.R.R.I. for the past 27 years. Its goals are the same as those toward which this government strives - a better life for the farmer, enough food and good health for all. I congratulate Dr. Swaminathan on the high honor that is here conferred upon him. My prayers for continued success go to him and to those like him who have dedicated their lives and great talents to improving the food situation in the world. There can be no greater project or nobler cause.

Thank you."