

## Challenge Statements on Food Security from Invited Experts

An internet discussion was organised to provide views for a Food Security Forum held during the 14<sup>th</sup> World Congress of Food Science and Technology which was held in Shanghai, China on 19-23 October 2008. Three renowned experts were invited to provide challenges to the food science and technology community in addressing some of the issues contributing to food insecurity.

Challenge statements were provided by:

- *Dr M.S. Swaminathan*, Chairman, MS Swaminathan Research Foundation, Chennai, India, and World Food Prize Laureate 1987;
- *Dr Philip Nelson*, Professor Emeritus, Purdue University, West Lafayette, Indiana, USA, and World Food Prize Laureate 2007; and
- *Dr Ismail Serageldin*, Director-General, Library of Alexandria, Egypt, Chatby, Alexandria, Egypt.

Readers are invited to provide their views on the following statements, and suggestions for future action, to the International Union of Food Science and Technology (IUFoST) by e-mail to the Secretary-General Ms Judith Meech: [jmeech@iufost.org](mailto:jmeech@iufost.org) .

### **The M.S. Swaminathan Challenge – Achieving Sustainable Nutrition Security for All and Forever**

We need to bring about a paradigm shift in policy formulation from attention to food security at the aggregate level to nutrition security at the level of each child, woman and man. Nutrition security can be defined as physical, economic and social access to balanced diet, safe drinking water, environmental hygiene, primary health care and primary education. Thus, it involves both food and non-food factors from the point of view of professional and public action.

Physical access can be assured only if countries adopt the strategy of an ever-green revolution based on enhancing productivity in perpetuity without ecological harm. This will call for mainstreaming ecological principles in technology development and dissemination. Population rich, but land hungry countries have no option except to produce more food under conditions of diminishing per capita availability of land and water and expanding biotic and abiotic stresses, including the consequences of climate change.

Nutrition security safety nets for the economically under privileged population should be based on a life cycle approach, starting with pregnant mothers and ending with old and infirm persons. Attention to maternal and foetal under nutrition is particularly urgent, since in many developing countries every third child born is under weight. Such low birth weight children suffer from many handicaps including impaired cognitive abilities.

Denying a child, even at birth, an opportunity for the full expression of his/her innate genetic potential for mental and physical development is the cruelest form of inequity. Therefore those engaged in nutrition education and intervention should give priority to pregnant women belonging to the economic and socially underprivileged sections of society.

In a life cycle approach, the 0-2 age group requires particular attention since such children can be reached only through the mother. Even in India where there is extensive Integrated Child Development Services (ICDS), the 0-2 age group is often bypassed since ICDS interventions start with the nursery school upwards. For children in the age group 6-18, there is need for school noon meal programs which can provide the needed micro and macro nutrients. Such noon meal programs can be organised with community participation.

Food scientists can help in spreading nutrition literacy and in proposing feasible and affordable methods of achieving nutrition security for all. For example, home grown food is the best option in predominantly agriculture countries, since this will stimulate concurrently both production and consumption. Horticultural remedies can be applied for nutritional maladies, with particular reference to micro nutrients like iodine, zinc, iron and vitamin A. Such community nutrition security systems can help nations to leapfrog in achieving the UN Millennium Development Goal in relation to hunger [i.e. reducing hunger by 50% by 2015].

### **The Nelson Challenge – IUFOST Needs to Identify its Unique Role**

The purpose of this paper is to launch a discussion on World Food Security and to uncover ways that IUFOST members could address and contribute to the issues that might arise in these discussions. This is considered a brainstorming session meaning “anything goes” and there are no bad responses. The idea is to build on each others comments and follow this with a discussion at the World Congress. I will start the session with possibly debatable comments in order to get the discussion initiated.

There will always be hunger in the world. No matter how much we get involved or help, people will continue to die of malnutrition. This number is quoted to be over 800 million people. The World Food Program, already in place and other groups are already responding to these needs. While our involvement with this population would help, we will not be able to prevent starvation and would not be of such a scale to have significant impact. There will always be natural disasters, wars, diseases, and political uprisings that will continue to contribute to large populations requiring food aid in order to just survive. Then where could IUFOST be involved that would have an impact?

Over 1 billion people in the world live in poverty. They may have enough food to survive but do not have money. They live without hope but want to break out of this dilemma. It is not uncommon for them to produce enough food but still have significant food losses. In many instances, they are also affected with food borne illnesses. Could this be our focus group? Could our focus be on the population that can produce enough food but

do not know how to prevent spoilage and have no idea of how to market it? With our membership consisting of food scientists, food microbiologists and food engineers, we have the abilities to address these needs.

In the past, efforts were made to reduce food losses and certainly there are programs that address these problems today. But what is missing is an integrated effort that is coordinated worldwide on such a scale as to have a greater impact. Envision the coordination of programs that addresses food safety, preservation and market development. With the support of World Governments and Foundations and working with universities and industries within each country, I believe we could make a better and safer world. Could our membership lead these efforts?

### **The Serageldin Challenge – Seven Statements about Food Security**

- The key to handling food security requires increasing production to increase the caloric coverage for both food and feed at rates that will match or exceed the quantity and quality requirements of a growing population whose diets are changing because of rising incomes. This increase must be fast enough for prices to drop (increasing accessibility of the available food to the world's poor) and be achieved by increasing the productivity of the small-holder farmers in the less developed countries so as raise their incomes even as prices drop.
- Such productivity increases will require all the available technology, including the use of biotechnology for food and feed products, an approach that every scientific body has deemed to be safe, even though that is being bitterly fought by the organic food growers lobby and various (mainly European) international NGOs.
- Climate change has increased the vulnerability of the poor farmers in rain-fed areas and the populations who depend on them. Special attention must be given to the production of more drought resistant, saline resistant and less thirsty plants for the production of our basic staples that we rely on for both food and feed.
- The qualitative aspects of the food and feed and their production is important. Additional areas where research is needed and where specialists must provide guidance is to decrease postharvest losses, increase storability and transportability of food, and increase the nutritional content of the food through biofortification of the food crops.
- Bio-fuels should not be allowed to compete for the same land and water that produces food for humans and feed for their livestock. It is wrong to burn the food of the poor to drive the cars of the rich. We need to look into a new generation of biofuels, using cellulosic grasses in rain-fed marginal lands or other renewable energies (solar and wind) and not divert food and feed products for fuel production.
- Food security does not mean food self sufficiency for every country. We need a fair international trading system that allows access to food and provides some damping of sudden spikes in the prices of internationally traded food and feed crops.
- Public education campaigns about food security and eating habits of people is needed, and eminent professional groups should get involved. Like the global anti-smoking campaign, we need a global pro healthy food habits. But we also need to campaign with the governments to maintain buffer stocks and make available

enough food for humanitarian assistance that will inevitably continue to be needed in various hot spots around the world.