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GUEST EDITORIAL

Role of International Years in meeting the Zero Hunger Challenge

The UN Secretary-General, Ban Ki-Moon, launched, in 2012, the Zero Hunger Challenge Programme designed to achieve a hunger-free world, with the following words: 'In a world of plenty, no one – not a single person – should be hungry. I invite you all to join me in working for a future without hunger.' At a later meeting of governments, it was decided that 2025 should be the target year for winning the Zero Hunger Challenge.

The concept of zero hunger was introduced in Brazil in 2003, by the then President, Lula da Silva, who took steps to address, in an integrated manner, the three major dimensions of food insecurity, namely availability, access and absorption of food in the body. Availability of adequate food depends on both production and imports, while access is conditioned by purchasing power, and absorption by non-food factors such as clean drinking water, sanitation, primary health care and nutrition education.

Brazil achieved, in a short period of time, a substantial reduction in poverty and hunger, due to the Zero Hunger programme. Encouraged by the performance of Brazil, the UN Secretary-General has suggested coordinated action in five areas to achieve freedom from hunger by 2025. These are: zero stunted children less than two years, 100% access to adequate food all year round, promotion of sustainable food production systems, 100% increase in smallholder productivity, and zero loss or waste of food.

India has been described in the past as a country where mountains of grains and hungry millions often co-existed, thus emphasizing that food production alone is meaningless unless backed up by equity in access. Such a situation may not prevail in the future with the historic passage of India's Food Security Act in 2013, which makes access to the minimum quantity of food required by a person a legal right. The transition from a 'ship-to-mouth' existence to right to food with home-grown food marks a proud moment for every Indian.

There is, however, no time to relax since there are several serious threats to sustainable food security, such as loss of prime farm land to non-farm uses, water scarcity, climate change and lack of interest among youth to take to farming as a profession. It is in this context that agriculture-centric *International Years* assume importance in generating the necessary political action and public interest in fostering an ever-green revolution in agriculture, which can help increase productivity in perpetuity, without associated environmental or social harm.

The year 2013 was designated by the United Nations as the International Year of Quinoa (*Chenopodium quinoa*). Rich in protein, quinoa has played an important role in food and nutrition security among the Andean people. Thanks to the 'Quinoa Year', there is now greater interest in under-utilized crops and dying wisdom related to nutrition. The Quinoa Year has also helped stimulate interest in agricultural remedies to nutritional maladies in different farming systems. The diversification of dietary components has become urgent since recent reports suggest that climate change may result in crops like wheat and rice becoming less nutritive, with particular reference to iron and zinc[1].

Fortunately, the Indian Food Security Act provides for enlargement of the food basket under the Public Distribution System (PDS) by including a wide range of millets like ragi, as well as maize, sorghum, pearl millet (bajra), etc. If such a provision is supported by a nutrition literacy programme, agriculture can become the means for both food and nutrition security.

The year 2014 is the International Year of Family Farming. If the year is used for the revitalization of family farming traditions, with particular emphasis on the empowerment of women and young people, we can help improve small farm productivity and profitability, on the one hand, and nutrition-sensitive agriculture on the other. Family farming, as a way of life, and the means to sustainable livelihood, helps promote both job-led economic growth and conservation of biodiversity, thus protecting the ecological and economic foundations of sustainable agriculture. An estimated 500 million family farms are playing a vital role both in preserving our agricultural heritage and in combating hunger. Family farms can play a catalytic role in achieving a shift from food to nutrition security, since nutritional criteria can be integrated in the choice of crops cultivated by family farmers, particularly women. In contrast, corporate farming will tend to be based on mono-cropping.

The year 2015, dedicated to the conservation and enhancement of soil health, has been named the

International Year of Soils. Most of the food we eat today comes from the soil. Land and water-use decisions have a feedback relationship. A major threat to food security in the future may be climate change-induced inadequate and uncertain rainfall. There should be integrated attention to soil and water conservation and sustainable use during the Year of Soils, particularly in regions like South Asia and sub-Saharan Africa, where the adverse impact of higher mean temperature is expected to be high and where climate change adaptation and mitigation measures are as yet inadequate. A soil health care movement should be launched during the Year.

Finally, the year 2016 has been selected to highlight the role of pulses (grain legumes) in improving both human nutrition and soil health (through biological nitrogen fixation). Pulses occupy a central place in nutrition-sensitive agriculture, and every effort should be made during the Pulses Year to increase the production and consumption of protein-rich grain legumes, particularly among vegetarians.

Meeting the Zero Hunger Challenge should include attention to hidden hunger, caused by the deficiency of micronutrients like iron, zinc, iodine, vitamin A and vitamin B12. Naturally bio-fortified plants like moringa, sweet potato, breadfruit, and a wide range of fruits and vegetables should find a place in all family farms. Varieties of wheat, rice and pearl millet, rich in iron, zinc and other vital micronutrients, developed through conventional plant breeding are now available[2].

It would be appropriate to designate one year during this decade as the International Year of Bio-fortification and Under-utilized Crops. This will help promote nutrition-sensitive farming practices, and at the same time enable concurrent attention to ending all the three forms of hunger, namely calorie deprivation or under-nutrition, protein hunger and hidden hunger. This would also help move from food to nutrition security and thereby address the Zero Hunger Challenge in its totality.

Agenda for 2014

Some of the initiatives which could be undertaken for commemorating the International Year of Family Farming are the following:

Soil health monitoring and amelioration centres – Soil is the stomach of the plant and its importance to sustainable food security will be evident from the fact that UN has declared 2015 as the International Year of Soil. I suggest that starting from this year and extending up to the next five years, we may set up in every block of the country a Soil Health Monitoring and Amelioration Centre. There are excellent and effective new technologies of soil health monitoring which are now available. Such centres can also help farmers in the effective utilization of nutrient-based subsidies.

Water security – This is fundamental to both food security and ecological security. Our aim to ensure irrigation water for all can be realized only if rainwater harvesting, conservation and efficient use become mandatory. Ultimately, every farm should harvest both rain and solar energy.

Conservation of genetic resources – Reasonably satisfactory work is in progress in the area of conservation of biodiversity of plants. However, work on the conservation of indigenous farm animal breeds is poor. I suggest that in every state farm about 100 ha may be made available for the conservation of local breeds of cows, buffaloes, sheep and goat. We have already lost precious animal genetic resources, for example, the Badavari breed of buffalo found in Bundelkhand. This breed is reported to have 8–10% butter fat content.

Avoiding food losses

Our performance in the post-harvest technology sector has been poor. There is a mismatch between production and post-harvest technologies. We should end this mismatch by establishing a National Grid of Ultra-modern Grain Storage Structures. Preventing food losses is an exceedingly important and urgent need.

Finally, the Ministry of Agriculture both at the Central and State levels should be redesignated as Ministry of Agriculture and Farmers' Welfare in order to stress that the ultimate purpose of such government departments is for ensuring the income and livelihood security of the farming community, which constitutes over 60% of our population. The monsoon and the market are the two major determinants of the well-being of farmers. The Ministry of Agriculture and Farmers' Welfare should give priority to promoting climate smart agriculture and to minimizing price volatility in the market.

The foregoing agenda will help make the International Year of Family Farming a meaningful one, both for producers and consumers.

1. Myers, S. S. *et al.*, *Nature*, published online on 7 May 2014; doi:10.1038/nature13179.
2. Swaminathan, M. S., *Science*, 2012, **338**(1009).

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