

## Introductory Note

**A**n adequate food supply is paramount to the survival and well-being of nations. However, modern agriculture today is facing critical challenges. According to the United Nations Food and Agriculture Organization (FAO), the current number of undernourished people globally is estimated at more than 850 million. High food prices are putting at greater risk not only the hungry but also those on the brink of poverty. Rising standards of living, better diets and higher costs of petroleum (a major input to food production), combined with poor harvests and shrinking farmlands, in key countries are considered to be critical factors that lead to steep rises in food prices.

Rising environmental concerns too have an impact on food production. The indiscriminate and/or inappropriate use of chemical and biological technologies is known to produce negative impacts on the ecosystem and threaten the long-term viability of agriculture and food production.

The Intergovernmental Panel on Climate Change (IPCC) makes it clear that global warming is “unequivocal”, as observations of increases in air and ocean temperatures, widespread melting of snow and ice, and sea level rise are clearly evident. Agriculture will therefore have to cope with increased variability in climatic conditions and extreme weather events.

In recent years, concerns regarding the imminent dangers of food insecurity have forced policy makers and planners to adopt the idea of sustainable agriculture. According to FAO, sustainable agricultural development conserves land, water, plant and animal genetic resources, and is environmentally non-degrading, technically appropriate, economically viable and socially acceptable. Sustainable agricultural practices are known to mitigate the adverse consequences of modern technologies when applied to food production and thus ensure long-term food security, as well as human and environmental health. They help farmers to improve food production with low-cost, readily available technologies and inputs, without causing environmental damage. Sustainable agriculture could thus simultaneously meet a number of goals such as environmental health, economic viability of agricultural production, economic profitability, maintaining the natural resource base, and social and economic equity.

There is considerable scope for the promotion of sustainable agricultural practices and technologies. Some of these have already proved to be popular. These include: crop rotation; integrated pest management (IPM); soil conserving tillage; water conservation and harvesting practices; planting of leguminous crops; and the use of organic fertilizer or compost to improve soil fertility. New and innovative methods are constantly being evolved to suit local needs and conditions in areas such as: integration of natural and regenerative processes – for instance, nutrient cycling, nitrogen fixation, soil regeneration and the use of natural enemies of pests; minimization of non-renewable inputs (pesticides and fertilizers) that damage the environment or harm human health; reliance on the knowledge and skills of farmers and improving their self-reliance; promotion of people’s capacities to work together to solve problems; and deployment of locally-adapted practices.

Promotion of sustainable agriculture requires a range of essential support measures. Besides policy incentives, there is a need to promote and facilitate the adoption of: sustainable and lower input agriculture; environmentally friendly technologies and practices, including organic agriculture; practices that encourage local biodiversity and endemic varieties; sustainable water management practices; and decentralization of food and agriculture processing industries. It is also vital to encourage and facilitate farmer-to-farmer exchange of learning and experiences. Sustainable agriculture and food security requires integrated action by farmers and communities, R&D agencies, and policy-makers and planners.

This issue of the Asia Pacific Tech Monitor highlights important issues, challenges and opportunities related to sustainable agricultural practices and technologies in the Asia-Pacific region.

Dr. K. Ramanathan  
Head of UNESCAP/APCTT