

van Ginkel, Hans*

Thank you very much Mr. Chairman. Ladies and gentlemen, first of all I would like to congratulate JIRCAS and its President Iwamoto on its 10th anniversary. I think the work they have been doing over the last ten years is commendable.

It is an honor for me to welcome you all to the United Nations University and to address this symposium on the topic of international collaborative research for achieving food security and agricultural sustainability. It is timely to discuss this topic as the Consultative Group on International Agricultural Research has just been evaluated. The United Nations University is an international community of scholars engaged in research, graduate training, and dissemination of knowledge in furtherance of the purposes and principles of the Charter of the United Nations. UNU works through a global network of its own research and training centers and programs and of associated collaborating institutions and scholars to promote innovation, knowledge-sharing, and collaboration across different cultures, disciplines, professionals, and practitioners.

With concerted efforts in agricultural research and development, especially the Green Revolution in the past, global food production has kept pace with the population growth. However, in the midst of global plenty, nearly 800 million people still remain undernourished because they lack the resources to produce food themselves or the money to buy it. The majority of the resource poor live in the marginal areas where agricultural production and livelihood face complex constraints such as draughts, steep slopes, salinity, and lack of access to inputs and markets, among others. These marginal areas are often home to the world's most important biodiversity due to their remoteness. The functions of agriculture in this context go beyond food production to improve poverty reduction, sustainable rural livelihoods, and conservation of the natural resource base.

The daunting challenge, achieving food security in marginal areas in a sustainable way, needs enhanced international collaboration. Considering the constraints the resource poor are facing, improvement of crop yield potential and stability through enhancing crop tolerance to biotic and abiotic stresses and reducing the need for chemical inputs will contribute to food production and agricultural sustainability in marginal areas.

The new biotechnology should be employed to improve the diverse neglected orphan crops that are often cultivated in marginal areas such as cassava, millets, sorghum, sweet potatoes, yams, and plantains. Commercial interests in those marginal areas and crops are low due to risk and complexity. Public-supported research and capacity development of biotechnology are necessary. Professor Zakri of United Nations University on the program of this symposium tomorrow will inform you more about the prospects of biotechnology in agriculture.

New technologies such as improved varieties widen farmer choices for production. Many farmers throughout the world, including those in marginal areas, have continued to select and blend new technologies into their agricultural diversity. There are many ways in which farmers use the natural diversity of the environment for production, including not only their choice of crops but also the management of land, water, and biota as a whole. Natural diversity in marginal areas, including diversity at the genetic, species, and landscape levels as well as ecological processes, is harnessed to increase total production, enhance sustainability, and diversify sources of income.

It would be relatively expensive and ecologically risky to replace functions of biodiversity with nonrenewable inputs in marginal areas. In addition, side effects of excessive use of renewable inputs are already profound. Water pollution, loss of biodiversity, genetic erosion, and salinization are already major problems in areas where excessive nonrenewable inputs are used.

Evidence is accumulating that not only is there a wealth of good practice in many previously overlooked

* Rector, United Nations University (UNU), Tokyo

local techniques for biodiversity conservation, but also that such techniques reduce risks of land degradation and climate change, support local livelihoods, and give tangible evidence of sustainability. Agro-diversity is therefore a means for spreading production risk and diversifying sources of income in the context of social, economic, and environmental changes.

Recognizing the potential of agro-diversity for marginal areas, UNU initiated a global network, the Project on People, Land Management and Environmental Change (PLEC), in 1993. PLEC has brought together scientists and small farmers for identification, evaluation, and promotion of farmers' resource management systems and practices that conserve ecological processes and embrace diversity for generating income and coping with changes in social and natural landscapes. PLEC deliberately dwells on sustainable adaptations by small farmers to varied environments, growing population pressures, and all other forms of stress, principally the high degrees of structural, spatial, and tropic diversity as well as species diversity. Demonstration sites are set up in a wide range of agro-ecosystems in formerly forested regions, semiarid regions, mountains, and flatlands of globally significant biodiversity.

PLEC teams work in substantially different environments in 12 developing countries. Not only the biophysical environments, but also economic, social, and cultural contexts are quite different among the clusters. PLEC employs a flexible approach and allows locally adapted solutions to emerge. These teams have developed their own research and working methods suitable to the local situations. A variety of these best methods is then brought together for sharing and exchange through guidelines and recommendations. PLEC empowers expert farmers and enhances their expertise in agriculture and resource use by linking them to their fellow farmers, younger generations, extension workers, and officials. The demonstration element of the initiative is an expert- and farmer-led sharing of knowledge, techniques, and planting materials between farmers and between farmers, scientists, and all the local stakeholders. For example, PLEC Brazil identified a total of 136 resource management systems. Nineteen of them were selected for demonstration because they provided important sources of income for families and helped them to maintain high levels of biodiversity and land holdings.

Apart from publications, PLEC's lessons are also shared at international events and through the building of new partnerships. For example, UNU, Kyoto University, and JIRCAS recently co-organized an international symposium for the "Sharing of Lessons Learned on Alternative Approaches to Enhancing Small-Scale Livelihoods in Marginal Areas of Monsoon Asia" on October 29-30 just a few weeks ago. PLEC shared its experience with all the partners, especially those from Japan, at this symposium. A regional training program with a range of stakeholders for mountainous mainland Southeast Asia is under development for scaling up best practices in the region.

Building upon the lessons learned from PLEC and all the partners, UNU will continue to play its part to the best of its ability in supporting research, training, and dissemination that contribute to rural poverty reduction through integrated management of biodiversity, soil, and water in agricultural ecosystems.

You may imagine that I have mentioned PLEC and its development all over the world with GEF support because it works in the same area as JIRCAS. This is true, and many activities have been developed in parallel and in collaboration. More recently, we are working in new areas in addition to those that PLEC initially chose. We are now moving on to mountain slopes and areas with more moderate climates, as well as dryland areas. Just yesterday we received the information on our proposal to start work in [Japan] outside the tropical lands, but it is nevertheless interesting for us that the proposal has been approved for a GEF B grant. That will promote and support the work in that area very much.

Last, but not least, once more I would like to congratulate you all, particularly those of you have the main responsibility of the progress of JIRCAS. I wish you a very successful conference.

Thank you very much.