

Keynote Address

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IRRIGATION MANAGEMENT AND CROP DIVERSIFICATION IN RICE-BASED FARMING SYSTEMS

IT IS **MY** distinct honor to be among the best experts in Asia in irrigation and crop diversification and other guests who are gathered at this Progress Review and Coordination Workshop on Irrigation Management for Rice-Based Farming Systems.

I understand that this activity is the first of its kind jointly sponsored by the International Irrigation Management Institute (IIMI) and the Philippine National Committee on Crop Diversification. It is appropriate that we congratulate the organizers of this important undertaking. I sincerely **hope** that your activities for the duration of your **stay** here will turn out to be both productive and meaningful.

I would like to take this opportunity to share with you some experiences of our activities and current efforts in increasing production and farm profits as they relate to the theme of this workshop, "Management Arrangements for Accommodating Nonrice Crops in Rice-Based **Systems.**"

As you may all know, agriculture still dominates the Philippine economy. Agriculture is the largest contributor to the Gross Domestic Product (GDP) and agricultural products contribute substantially to export earnings. About 70 percent of our population living in the countryside depend on agriculture and agriculture-related activities for their livelihood. In 1989, it was determined that a rural family earns an average of P2,401 a month. This is about 25 percent lower than the poverty line which is P2,700 as established by the National Economic and Development Authority (NEDA).

In our efforts to make Philippine agriculture a profitable venture, irrigation and crop diversification are both proven to be indispensable tools.

As in other countries in Asia, agricultural production in the Philippines is traditionally concentrated on a few main crops. Benchmark surveys conducted by the Department of Agriculture (DA) in 1981 indicate that the majority of Filipino farmers are monocroppers with rice and corn as the traditional monocrops. Recent surveys confirm that this is still the case with a large number of farmers.

Monocropping may not be the problem per se. But as we face an intense race between population growth, spiraling prices, and food production, it becomes clear that monocrop-

ping is inappropriate for most of our farmers in addressing food and fiber scarcity. Under Philippine conditions, monocropping is inefficient as it does not maximize the use of farm labor or increase returns from the land. Also, it cannot provide our farmers insurance from the vagaries of weather, pests and diseases, and price fluctuations.

Indeed, crop diversification finds relevance in **the need to** increase agricultural production and farm income. The fulfillment of this need is at the heart of the DA's plans and programs. Thus, in its medium-term plan, crop diversification is explicitly identified as one of the strategies in **pursuing** its objectives.

While crop diversification is an old practice in the Philippines, intervention by the government has helped spread its use among farmers. Current estimates show that of the country's 3.2 M ha of potential irrigable lands, 1.47M ha or **47** percent are provided with irrigation facilities. In some of these irrigation service areas, the National Irrigation Administration (NIA) has identified the following conditions which have brought about crop diversification to its present form:

1. Widespread inadequacy of water supply during the dry season to support the production of the **high-water-requiring** rice crop.
2. Natural necessity for vegetables as they constitute one of the components of the balanced diet of Filipinos.
3. Inherent better suitability, as regards productivity of nonrice crops over rice in certain soil types.
4. Higher profitability per unit area of nonrice crops versus rice crop, especially when harvest time is a particularly advantageous period.
5. Mutual desire between farmers and irrigation personnel to **maximize** utilization of available land and water resources.
6. Occasional very favorable price situations and attractive market facilities for the produce for particularly on-demand kinds of nonrice crops.
7. Adeptness of farmers in the technique of selecting and growing promising high-market-potential nonrice crops in rice fields.

The first official involvement of the government in promoting crop diversification as a strategy to increase farm productivity and income began in the early 1970s. Some of the more notable programs which included crop diversification as a strategy are:

1. The Asian Rice Farming Systems Network (ARFSN). This was established in collaboration with national programs to increase **the** productivity and income of small-scale rice farmers in different rice environments. The Philippine agency involved in this network is the DA. Results of ARFSN on-farm testing have proved that production in lands traditionally planted to rice alone can be intensified through planting of a variety of crops.
2. Irrigation Management for Crop Diversification Project. This is implemented by IIMI in collaboration with several local institutions like NIA and DA. IIMI's studies are focused **on:** a) determining irrigation practices most likely to enhance cultivation of selected diversified crops; b) field-testing of the most promising practices in selected areas; and c) identifying various factors that may influence the

management and decision-making procedures at all levels for irrigation systems with diversified cropping.

3. Farming Systems Research and Development **Project: Bicol Region (FRSDP-Bicol)**. This is a project of the DA funded by the United States Agency for International Development (**USAID**). Among the project's prominent activities that started in **1984** are: a) on-farm research on multistory cropping in coconut-based systems; b) cropping **pattern** trials and component technology tests for coconut-based areas, rain-fed rice-based areas **and** open upland areas; c) crop-livestock integration and goat production under coconut, supplemented by pasture **lots** of improved grasses and legumes; d) income-generating **home** industry projects focused **on** female labor; e) cash-generating activities targeted towards production of short-term, high-value **crops**; and f) **multilocation** testing and initial diffusion of information **on** promising enterprises and technologies. With these activities, the project developed several promising technologies, some of which include: a) direct-seeded rice grown in plots with *sesbania* (*S. oculeata*) as green manure; b) upland crops under coconut; c) peanut after rice; etc.
4. **KABSAKA: The Rain-fed Farming Systems Project**. Funded by the World Bank and implemented for a five-year period (1981-85), this project is considered as the first major effort to support **multiple** cropping as a means of raising agricultural productivity in the rain-fed areas.

There are numerous projects carried out in the Philippines showing great potential for crop diversification. Results of many of these projects conclude that crop diversification adds to the net benefits derived from the farm and we can readily say that technologies and experiences for increasing cropping intensity are available.

Promotion of crop diversification and its adoption, however, are not at all simple. There are several problems and issues which policymakers and administrators contend with and which we have just begun to address. These issues involve: a) the need to increase investment for research and extension; b) inadequate and poor infrastructure facilities for marketing of farm produce; c) inadequate **postharvest facilities**; and d) availability of technologies for crop diversification with *different* crops under various *agro-climatic* conditions.

The other considerations for planning and implementation of crop diversification programs which researchers **and** policymakers should give careful attention to are: a) management capabilities of farmers; b) stability of water **supply**; c) socioeconomic considerations, i.e., profitability of the **enterprise**, availability of credits and inputs; d) acceptability of new crops; e) availability of **postharvest facilities**; etc.

It is readily admitted that the economics of crop diversification are **enormous** and so are the problems that need to be solved. Needless to say, success is linked with the overall socioeconomic and political spectrum and the commitment of policymakers, researchers and extension workers. It also depends **on** the **willingness** of farmers to adopt measures **recommended** for their benefit. To assure this, people of the community must be involved in and consulted **on** the identification of crop diversification programs that suit their needs.

Meanwhile, economic infrastructures need to **be prepared** to cope with second generation problems like marketing and distribution, **resulting** from increased production of **agricultural goods**.

I am certain that you will think through all the issues and problem confronting irrigation management and diversified cropping systems. I hope I have provided you some helpful ideas in your effort to plan your activities for resolving some of the significant problems on behalf of all concerned farmers.

Thank you.