I—Monadic Structures: expressions which contain one topic and nothing else. e.g.
umuulan 'it is raining'
aray! 'ouch!'
sulong! 'forward!'
isa, dalawa 'one, two. . . .'

II—Diadic Structures: expressions which contain at least one topic and at least one qualifier:
a. Subordination—Attributive constructions.
b. Co-ordination—Serial constructions.

Perceptions of Some Laguna Rice Farmers About the Masagana Rice Culture

DANILO T. BAUTISTA and ROGELIO P. MEGINO*
University of the Philippines
College of Agriculture
College, Laguna

Every innovation, when viewed in the light of agricultural economic development, must not be a simple fad that flares up, fizzles and eventually dies. Apparent is every agricultural innovation's investment quality—the government outlays resources in the form of capital and manpower so that the change may release incentives to the rural folks for future increments in national production. All aspects contributory to a new technique's fad-like color points to collosal losses in terms of wasted government funds and efforts and the loss of faith of the farmers.

But why the common waste? Why the inhibitions of farmers to adopt new, fully-tested techniques? When these questions are left unanswered in spite of optimum economic programmings and models, rational cost and returns analysis, and so on down to the minutest economic variable, the only primordial origin might be the human essence in economic development. The attitudes maintained by the farmers may answer for the ephemeral sustenance of innovations introduced, the reaction being more predominant in an underdeveloped economy like the Philippines!

The rising problem between increasing material expectations and social attitudes is a great truism in underdeveloped countries like the Philippines. Eugene Black,[1] in the "Diplomacy of Economic Development" mentions: "However inadequate the traditional ways of the rural population may be on the onslaughts of technology, the hold of tradition on these people is a very strong one. And it is not wholly illogical by any means; the traditional societies of the world supplied many fundamental requirements for the human being which no amount of material progress has enabled him to live contentedly without. People living in these societies were accepted by their neighbors without question: they knew where they stood. If they are now attracted by the trappings and trinkets of modern economic life, we have no reason to think they desire to give up the security of their old ways for these

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[1] Eugene R. Black, *The Diplomacy of Economic Development* (Cambridge: Harvard University Press, 1961).

things. In fact, as far as we know, most of those living in the rural areas of the underdeveloped world have not broadened their horizons much beyond their age-old desires for land enough to feed their families and freedom from oppressive debt."

But "change is becoming the price of survival." Production has to go up in order to keep pace with other affluent nations. This is the crisis of every underdeveloped government and so the "enlightened" leaders tag the rural folks along toward more production, their actions being born out of national pride and fear of subjugation through economic differences and economic colonialization.

Farmers in the Philippines are in this crossroad. In recent years, many new practices have been introduced to the rural farm level for increasing the yield of the country's staple crop and, eventually, toward national opulence. But in spite of government and private support, our national rice output is thoroughly lamentable. Now and then, the government has anticipated shortages in rice supply, resulting in the importation of rice from countries like Thailand and Burma. If production can be the only basis of national development, it is sad to note that the Philippines is relatively stagnant. Our state as a rice-producing country is born out of interlocked production and social pressures. The importance of social forces is exhibited when we assume that profit maximization is the Filipino farmer's primary goal, which is the ascribed goal for any progressing business entrepreneur. But the irony of the whole thing is that most studies, be they economic or social in nature, have proved otherwise—Philippine farm families have proliferated goals other than profit maximization.

Much is left to be desired of the attitudes of Filipino farmers toward changes in agriculture. Most farmers to-date are still on the verge of doubts and they prove themselves hostile to the change by clinging to their century-old practices. More often than not, their hostilities are rooted on valid reasons, true to their own little spheres of experiences. The objective of this article is to present empirical findings on the reactions of farmers toward a new scientific method of rice culture—the *Masagana* system[2] which has been accepted by the government extension people and recommended for use by farmers as a yield-increasing practice. The *Masagana* represents the cumulative efforts of policy-makers, researchers and scientists to improve conditions in the Philippine farm areas. The *Masagana* is a typical example of technological change and it is of particular interest since it has been introduced years ago and it is still being used by Filipino lowland rice farmers.

A Description of the Farmers

The farmers interviewed last January, 1964, were cooperators of the Commission on Agricultural Productivity who agreed to follow the suggested cultural practices involved in cultivating rice, the *Masagana* way. They were distributed in eight municipalities of Laguna, namely: Biñan, Sta. Rosa, Calamba, Los Baños, Bay, Calauan, Pila, and Victoria. Farmers had an average farm size of 2.6 hectares and their farms were all gravity-irrigated. Most of the cooperators studied were tenants with an average age of 45 years old; majority had elementary schooling and a great majority too was well-informed for they have heard of the *Masagana* system even before it was first formally introduced and adopted by them. Of the different palay varieties used by the farmers in the area, *Malagkit* excelled in additional yield per hectare after the implementation of the *Masagana*. The increase in yield per hectare was from 64.5 cavans to 88.7 cavans or an average differential of 23.2 cavans. This

[2] Description of the system in the Appendix.

difference was statistically significant at a 20% level of significance using the T-test.

Attitudes About Particular Aspects of the System

1) *Amount of work involved*—Farmers agreed that the *Masagana* was comparatively tedious than the ordinary method of rice cultivation. Majority believed that additional labor was required during the early stages of palay growth (weeding, transplanting, and pulling seedlings) and that the use of mechanical devices had simplified work although a felt need for additional labor input was inevitable. Farmers were conscious of the incremental difference between the shift from ordinary to *Masagana* and they declared that this increment was rooted to the proper combination of various factor inputs like labor, fertilizer, irrigation, and chemicals in addition to proper distancing and care.

2) *Expenditures involved*—Fifty-six per cent of the farmers claimed that based on their brief encounter with the *Masagana,* it was believed to be more expensive because extra labor during the weeding stage required additional expense on the farmers' pockets. Due to consequential increase in demand for skilled laborers in the locality, the market value of labor jumped up, but still, farmers considered *Masagana* as economical because less number of people were needed in planting and high cost of labor was overridden by a general stepping up of the yield.

3. *Quantity of seeds involved*—Praiseworthy was the general contention that farmers found economy in seeding. Sixty-five per cent of the farmers agreed that less seeds were required by the system, though seeds involved had to be well-selected. An incongruity was exhibited by the attitude of farmers toward the rate of seeding. Very few farmers strictly followed the suggested rate of seeding of 15 gantas to a hectare and they projected this by compromising between the traditional and the innovated rates.

4. *Quantity of fertilizer used*—The new technique fostered a discriminating bi-application of fertilizer throughout the growing period of the crop. Fifty per cent of the farmers shared the vision that the rate of fertilizer did not vary as compared to the ordinary method. Twenty-five per cent opined that the rate was higher, but this was taken care of by a balancing 25% who considered the amount in fertilizing as low to moderate in extent.

General Reactions Toward The Masagana System

Although farmers attested to the contention that the *Masagana* method of lowland rice production was more laborious and expensive, farmers still favored the use of the new technique. Around 83% of the interviewees declared that the new system is acceptable and was effective in increasing their yield as well as their income.

The continued use of the *Masagana,* even with its favorable yield increasing quality, was doubtful. After a year of collaboration with the CAP extension workers, only about half the number of farmers continued applying the principle involved (or being true to the system). Twent-nine per cent reverted to ordinary planting and about the same number followed a modified system of planting, that is, far-fetched from the nature and composition of the original *Masagana.*

Continuity then, after obvious favorable effects, must be the most rational course. But in the future, only 75% of the CAP cooperators will continue the employment of this particular production method. Some reasoned out that the adequacy of water and fertilizer promoted the success of the new system. Since increased production was assumed and proven by *Masagana,*

many farmers will not lose faith in adopting the method. However, there were some variables that farmers believed hampered their plans—unavailability of capital, especially cash for payment of additional hired labor, and increased wage rates due to increments in demand for skilled laborers. The function of capital as a means for profit acquisition was not sought, for payment of labor was interlocked with deep social values. This was true in cases where farmers still provided food for their laborers—a manifestation of Filipino hospitality and an additional factor for increased cost.

General Attitudes as Influenced By Socio-Cultural Factors

1) *Farmers' origin and attitudes toward Masagana adoption* — Percentage-wise, it is interesting to note that many farmers of other places of origin were enthusiastic to continue adopting *Masagana.* From the results, it could be deduced that migrants have to sacrifice and work harder in order to surpass community pressures and cope up with the existing community standard. Results showed that people who came from other places were generally successful in operating their farms. These are the people who perhaps have the management talent and ability. They are the people who are the most-probable-operator[3] or manager.

2) *Operator's age and attitudes toward Masagana*—Covar[4] assumed that "there are socio-cultural barriers, such as respect for old age and farming experience which very much affect acceptance of new technology in agriculture." Sixty-seven percent of older farmers (40 years and above) were observed to react positively toward adopting *Masagana.* The rest of the older cultivators reacted unfavorably. As contrasted, 81% of the younger farmers (39 years old and below) were eager to maintain *Masagana.* As an implication which might prove vital to acquiring cooperators for future introductions of new technology, dynamic young farmers should be taken for greater success.

3. *Education and attitude toward Masagana*—The fact that Filipino palay cultivators are close to subsistence level, even the more educated ones seem to give doubts regarding the practicability of the new method. This feeling of the few conservatives resulted to further observations and trials of the system. To adopt *Masagana* may be as dangerous or may be more dangerous than not doing so, and for farmers who have less capital, finding other alternatives was predominant. Majority of the schooled farmers were positively reacting to adopting the system, though as educational attainment increases, there was an observable decrease in the favorable attitude and an increase in the "still observing" category.

Attitudes of End-Users Must be Considered in Economic Innovations

A doctor of this stage of treatment might be puzzled. There are various symptoms and probable origins of the ailment. It is obvious from this study that disillusionment of end-users are existent not because of simple economic considerations. The *Masagana* system was one of the cures forwarded for the underproductivity ailment. Though it was economically feasible, it has met problems that were social in nature.

What the *Masagana* system as a prescription points out is the fact that it was given on the basis of only one primordial cause—underproductivity of rice. The *Masagana* is a scientific measure for increasing productivity of the staple crop. It

[3] Harold Corklin of Cornell University introduced this concept. It means that a particular farmer has the managerial ability and can visualize the capital resources needed in farm acquisition.

[4] Prospero R. Covar, *The Masagana/Margate System of Planting Rice.* A Study of an Agricultural Innovation, CDRC, Series No. 5, (Quezon City: University of the Philippines, 1960).

has solved this definite ailment as found out in scientific experiments and in this survey conducted. But the *Masagana* is still facing the hard test of being socially accepted, and if we diagnose the under-productivity illness as purely economic in origin, we are taking a very harsh step. With the inception that the practice is yield-increasing, farmers are equally shying away from its being continued. After a year of being in touch with the supposed cure, farmers are reverting to the ordinary method. So the heart of the matter rests on this predicament. For a cure or for any innovation to be extremely effective, it must take the form of panacea, an all prevading solution—for even if one continues with particularized innovation and the subject still clings with temerity to primitive methods of production, the innovation is pointless.

The *Masagana* system is still at its height. It might eventually die or it might be socially and economically accepted after a series of full-blown advertisements and a changing of ethnically inert social attitudes. Assessing the whole system, it is obvious that it is economically acceptable for it would contribute to increased national production and affluence. But unless the economic implications can be socially sustained by farmers, the *Masagana* system or any innovation for that matter, may prove futile and wasteful towards the end. In a developing country, economic principles must be compromised with social acceptance to insure economic growth.

Appendix I

Description of the Masagana Rice Culture

Selecting seeds—The Masagana system suggests that seeds should be selected from vigorous plants, one at a time; 15 gantas of palay per hectare; after harvesting, seeds should be thoroughly dried.

Preparing the seedbed—Land should be plowed immediately after harvest to aerate the soil. The number of plowing and harrowing is not specified; seedbeds should be raised 8 centimeters. A space of 30 centimeters is left, between beds. The standard ratio of 15 gantas of seeds per hectare requires 15 seedbeds.

About 100 kgs. good animal manure should be mixed with soil in each bed.

Use 2-3 kgs. of complete fertilizer, evenly applied in the top layer; then, cover the bed with finely powdered, dry carabao manure about 3 millimeters thick.

Sowing the seeds—Make a solution of salt and water—2 small milk canful of common salt and one five-gallon kerosene can of ordinary water; seeds should be soaked to separate good from the bad seeds; soak the seeds overnight. Sow one ganta per bed. After sowing, the bed must be covered evenly with a 3 mm. thick fine soil.

Preparing the field—Field should be thoroughly puddled; plow field immediately after harvest; plow under 5-10 tons of carabao manure per hectare. Plow the field for the second time and then harrow.

Transplanting or pulling the seedlings—Seedlings should be pulled out one at a time; remove soil by washing it off with water.

Transplant 3-4 seedlings per hill. Transplant seedlings straight up, not slanting. Planting should be done in a straight line.

Caring of the crop—Two weeks after transplanting the weeds should be removed; weeding should be done at least four times during the growing season, should stop two weeks before booting.

Apply fertilizer when needed and should be done in two installments—one immediately after feed and then one week before booting. Water should be drained 2 days after applying fertilizer.