
PALAWIJA

NEWS



The CGPRT Centre Newsletter

Volume 12, Number 4

December 1995

Gender Roles and Attitudes in Upland Farming Systems in the Philippines

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Introduction

The persistence of poverty in the Philippines is a source of concern for many government planners and decision-makers. While most ASEAN countries have demonstrated a decrease in poverty levels and an improvement in employment conditions, the performance of the Philippines in these developmental areas has lagged behind in the past decade. High unemployment and under employment rates have continued to plague the country and the incidence of poverty was close to 50% at the national level in the late 1980s. This problem is particularly acute in the rural areas where poverty levels are usually higher, reaching more than 65%. Upland areas, in many instances, are the most affected. In the uplands, most farms are dependent on rain for their water requirement. Likewise, they are distant from processing and market centres, with poor farm to market roads and with a general lack of services such as health, water and electricity. The inherent physical characteristics of these areas put them in a relatively disadvantaged situation and hence, poverty is not an uncommon problem.

In light of this, coupled with the increasing pressure due to population increase and environmental problems, upland development is becoming a more important issue. In planning for development, governments must exercise caution and ensure that the needs of the target

beneficiaries are taken into consideration. The roles of men and women, and their interaction with the environment and institutions surrounding them, must be better understood to come up with sound policies and programs.

The role of women is particularly relevant because of its multiplicity. Women not only undertake household tasks but are generally involved in farm work, off-farm work and non-farm labour. In addition, activities of women have a direct bearing on the welfare of the family as they generally look after all individuals of the household. In attempting to respond to the problems in upland areas, it is therefore important to include women in planning development. Micro-studies in upland areas are therefore essential in devising more equitable and effective development programs.

Objectives of the study

The general objective of the study is to examine the role of women in an upland farming system in the Philippines to be able to provide some information that may be used by policy-makers in designing rural development programs. Specifically, the study aims to:

- analyze the allocation of productive activities within the farming systems, including the role of members in the household and agricultural activities;
- identify the productive resources available to household members;

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- study the factors that determine access to and control over use of resources, and the distribution of the benefits of production; and
- suggest policy directions to be taken to respond to the needs of rural households accounting for gender differences within the household.

Methodology of the research

The study was conducted in Plaridel, a village under the political boundary of the municipality of Claveria, Misamis Oriental in Northern Mindanao, Philippines. This is a relatively small upland village with a total population of 1,518 in 1992.

A total of 149 respondents, comprising 75 household, was included in the study. Households were selected by random sampling. Both the husband and the wife were interviewed using two sets of formal questionnaires. The questions referred to detailed information on crop production, cropping patterns and practices, income sources including off-farm and non-farm sources of income, and other agricultural and non-agricultural activities. Likewise, data were gathered on family structure, age and educational attainment of each household member, marital status and family size to provide background information. Detailed information was also gathered on areas such as labour allocation in farm and household activities, access to and control of resources, sources of knowledge and information, training, interests, problems and goals.

Informal interviews with some key persons in the village (e.g., *barangay* captain or village leader, farm leaders, selected farmers, *barangay* secretary, and the village nurse) were also conducted to gather basic information and to verify farmer responses. Information gathered during these sessions provided a picture of the cropping patterns, cultural practices, existing wages, labour usage and services in the village.

Study site

The total land area of Plaridel is around 1,218.5 hectares and the distance from the town proper is around 14 km. Claveria is divided topographically into two areas based on the altitude and the amount of rainfall. Seven villages and the Claveria town proper constitute the upper Claveria zone. Elevations in these areas range from 700 to 1,000 meters above sea level. The remaining seven villages, including Plaridel, comprise the lower Claveria zone. Elevation is around 100 to

600 meters above sea level. Cereals root crops and some perennials such as coconut, cashew, banana and jackfruit are the main crops produced in the lower areas.

The climate in Claveria can be characterized by an average of five to six wet months (>200 mm/month) and two to three dry months (<100 mm/month). The higher rainfall zones included Claveria *poblacion* (town proper) and the *barangays* (villages) of Ane-I and Minsacuba. Plaridel, falls under the lower rainfall zone. The soil type is volcanic Plateaus Clay and the slope of the crop land is around 3 – 35%. The main problems are poor soil fertility and soil erosion.

Findings

Major sources of income and employment

Agriculture is the main source of employment in the village. While on-farm cultivation is the primary occupation of most farmers, off-farm and non-farm work represent other sources of income. Agricultural labour is a major source of income and employment, with around 89% of the husbands and 40% of the wives involved. The average income from agricultural labour of the husbands is US\$ 54.78 per year and US\$ 20.52 per year for the wives (US\$ 1 = P27).

Salaried work either in government or private agencies pays more remuneration than the other forms of employment. However, only around 4% of husbands and only 4% of wives are employed in salaried positions in neighbouring towns or in the city.

The family is the primary source of labour in farming, with hiring done in some farm operations, particularly land preparation, weeding and harvesting. Several labour arrangements exist, depending on the farm size, crops grown and social relationships. One such type of arrangement is that of giving a higher priority, when selecting harvesters, to the people who were previously hired for weeding.

The prevailing wage rate in the area is substantially lower than in the neighbouring villages. In Rizal for instance, the current daily wage rate is US\$ 1.85 per day, 40% higher than the existing wage rate in Plaridel which is only US\$1.11 per day with a few farmers paying up to US\$ 1.30 per day. If the tasks involve animals as for plowing, harrowing and leveling, the wage rate increases two-fold to around US\$ 2.78 per day for a man with an animal (if the animal is not owned by the employer).

Message from the Director

The meetings of the Technical Advisory Committee (TAC) and the Governing Board (GB) of the CGPRT Centre for the year of 1995 are over. First of all, I would like to say thank you very much to all of the participants of the meetings and to the Centre's staff for their generous cooperation.

The TAC meeting was attended by eight members and one officer representing the ESCAP Secretariat. As stipulated in the Centre's Statute, TAC reviewed the programme activities of both projects completed in 1995 and on-going projects. The discussion was very open and free in exchanging opinions and information, sometimes quite academic and critical, and yet quite encouraging and supportive to the Centre. Some important points raised in the discussion were the comparability and applicability of the outcomes of the research projects among countries in our region. The Centre, as far as it concerns those different conditions of the countries in the region, must pay keen attention to these points throughout its project activities.

Although some frantic effort was needed by the ESCAP Secretariat and the CGPRT Centre to establish the meeting in terms of getting a quorum, the GB meeting was also significant and fruitful. The meeting was chaired by the Ambassador of Sri Lanka in Jakarta throughout

the three-day session. The attendance of the Executive Secretary of the ESCAP Secretariat at the opening session and his statement gave the Centre high recognition and encouragement. More time was devoted to programme activities than in the previous sessions, so it was possible to deliver more detail of the outcomes and impacts of the projects implemented in 1995. Of course, inquiry and discussion were active and the Board provided significant directions to the Centre. Among which was the suggestion that the Centre's research projects should stand on the basis of regional agriculture as well as commodity-oriented research, and important consideration for the Centre's future projects. Strong support was also given to the Centre's efforts to find ways of strengthening its financial as well as staffing status.

In both the meetings, a one-hour free discussion was held to deal with subjects relating to the evaluation of the Centre's activities. Both the necessity and the difficulty of evaluation were recognized. It was suggested that an evaluation scheme should be developed with the guidance of the ESCAP Secretariat.

On the whole, the meetings were successful and satisfactory. The warm consideration extended to the Centre throughout the meetings was very impressive. Much advice and many suggestions were provided by the members of the meetings. Keeping these in mind, we will move forward again in 1996.

HARUO INAGAKI

Gender roles in agricultural production

In crop production, some activities are done solely by men, while some are shared by men and women (Tables 1, 2 and 3). For maize and cassava, land preparation (which includes plowing, harrowing and leveling) is done entirely by men. Similarly, furrowing, off-barring (in the case of cassava and mixed crops), hilling-up, and pesticide/insecticide application are men's domain. Hauling is predominantly men's task. Women's input is high in planting, weeding, harvesting, shelling/threshing, drying, peeling and chopping (in the case of the cassava), and sacking/packing (in the case of maize). In other words, it would seem that the majority of the post harvest activities are

predominantly women's work, while on-farm (field) work is predominantly men's, with the exception of weeding and harvesting where women and children largely participate. Women and children also have high participation rates in clearing prior to harvesting. In the case of rice, land clearing is considered as solely men's domain. Men also perform most of the land preparation and hauling, although some women participate in these activities. On the other hand, women have a higher contribution in harvesting. Weeding, threshing and drying are activities that men and women share. Marketing is also a shared task. Both men and women are involved and share responsibilities in marketing agricultural produce. Men, however,

Table 1 Average family, hired and exchanged labour use in rice production, by gender (mandays/ha).

Activity	Family				Exchanged		Hired		Total		
	Adult	Adult	Sons	Daughters	Adult	Adult	Adult	Adult	Adult	Adult	Children
	Male	Female			Male	Female	Male	Female	Male	Female	
Clearing of land	4.0	0.0	11.1	0.0	0.0	0.0	5.0	0.0	9.0	0.0	11.1
Land preparation	23.8	0.0	10.2	0.0	1.4	0.9	14.8	0.0	40.0	0.9	10.2
Sowing/broadcasting/planting	1.8	2.8	3.2	0.6	5.5	0.0	5.3	0.0	12.7	2.8	3.8
Weeding	18.8	12.2	27.7	5.4	20.1	0.0	26.6	43.1	65.6	55.2	33.1
Fertilizing	2.0	0.0	2.0	0.0	1.3	0.0	1.3	0.0	4.7	0.0	2.0
Pesticide/herbicide application	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0
Harvesting	3.4	3.2	6.9	2.9	0.0	4.0	9.3	10.6	12.6	17.8	9.9
Threshing	1.6	2.3	1.4	1.3	8.0	4.0	5.5	4.7	15.1	11.0	2.6
Drying	1.4	1.7	1.6	1.1	0.0	0.0	2.5	0.6	3.9	2.3	2.7
Hauling	0.8	0.0	1.0	0.0	1.1	1.0	0.5	0.2	2.4	1.2	1.0
Marketing	1.7	0.0	4.1	0.0	0.0	0.0	0.0	0.0	1.7	0.0	4.1

Table 2 Average family, hired and exchanged labour use in maize production, by gender (mandays/ha).

Activity	Family				Exchanged		Hired		Total		
	Adult	Adult	Sons	Daughters	Adult	Adult	Adult	Adult	Adult	Adult	Children
	Male	Female			Male	Female	Male	Female	Male	Female	
Land preparation	20.7	0.0	14.9	0.0	7.0	0.0	8.1	0.0	35.8	0.0	14.9
Furrowing	1.2	0.0	2.9	0.0	1.0	0.0	1.8	0.0	4.0	0.0	2.9
Sowing/broadcasting/planting	10.4	1.9	2.6	2.6	0.0	1.5	2.1	3.3	12.4	6.7	5.2
Off-barring	3.1	1.0	3.3	0.3	1.5	0.0	0.7	0.0	5.3	1.0	3.5
Weeding	14.5	5.4	12.9	2.4	16.0	0.0	4.7	7.3	35.2	12.6	15.4
Fertilizing	1.6	0.6	3.0	0.0	0.0	0.0	2.0	0.0	3.6	0.6	3.0
Hilling up	4.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	4.0	0.0	3.7
Pesticide/herbicide application	5.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	5.0
Clearing prior to harvesting	9.8	6.5	7.5	2.0	0.0	0.0	0.0	0.0	9.8	6.5	9.5
Harvesting	2.8	2.2	2.6	2.6	1.0	0.0	4.2	3.0	8.0	5.2	4.8
Shelling/threshing	4.0	3.0	5.2	2.9	0.0	0.0	0.0	2.0	4.0	5.0	8.1
Drying	0.8	0.9	2.8	0.3	0.0	0.4	0.0	0.0	0.8	1.2	3.1
Hauling	1.2	2.5	1.2	1.1	0.0	0.0	2.6	2.0	3.9	4.5	2.3
Grading/sorting	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Sacking/packing	0.2	0.3	0.7	1.5	0.3	0.0	0.0	0.0	0.4	0.3	2.2
Storing	0.2	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.6
Marketing	0.5	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.2	0.0

higher participation rates, whether the produce is picked-up or delivered. Marketing is done by men alone, women alone or together.

The most common place of selling maize, cassava and the other main crops is in the town market which is about 14 kilometers from the village and the most common mode of delivery is by Jeep (local vehicle). Only a small amount is sold on the farm or at home. Farmers have no control over the price of their produce. They are mainly price-takers.

Labour allocation in household and other activities

In general, household work is the responsibility of women. However, men and children also share in some tasks. More women than men participate in all household activities (Table 4). The average number of hours per week spent by women is also higher for each household task with the exception of collecting and cutting firewood, wherein more men (69% of husbands as compared to 24% of women) participate. The average hours spent men (4.2 hours) also exceeds that of women (2.8 hours). Food preparation for breakfast, lunch and

dinner, dish washing, taking care of the children, washing clothes and fetching water are predominantly women's work. These tasks are time consuming and take long hours to perform. Food preparation alone, for instance, involves approximately 1.8 hours per day. This figure increases occasionally if food is provided in exchange for hired labour during weeding and harvesting time. Female children help considerably in household chores. They make a large contribution in washing and ironing clothes, cooking, house cleaning, fetching water and looking after their younger siblings. Male children, on the other hand, largely participate in collecting and cutting firewood, fetching water and farm work.

Off-farm and non-farm activities are seasonal. In general, there is an indirect relationship between the time spent for farming and time spent for off-farm/non-farm activities, if the latter is a secondary occupation. That is, the respondents try to find employment on other farms within the village or in neighbouring villages and towns during off-peak periods in their own farm operations.

In general, women spend four to six hours daily

Table 3 Average family, hired and exchanged labour use in cassava production, by gender (mandays/ha).

Activity	Family				Exchanged		Hired		Total		
	Adult	Adult	Sons	Daughters	Adult	Adult	Adult	Adult	Adult	Adult	Children
	Male	Female			Male	Female	Male	Female	Male	Female	
Land preparation	12.8	0.0	13.1	0.0	0.0	0.0	13.0	0.0	25.8	0.0	13.1
Furrowing	1.9	0.0	2.0	0.0	4.0	0.0	3.0	0.0	8.9	0.0	2.0
Putting up sticks	2.6	2.2	10.9	0.0	0.0	0.0	7.0	3.9	9.6	6.1	10.9
Digging	0.0	1.0	0.0	0.0	4.0	0.0	0.0	0.0	4.0	1.0	0.0
Planting	5.5	5.0	9.5	8.0	6.0	2.0	3.3	2.8	14.8	9.8	17.5
Off-barring	2.7	0.0	6.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	6.0
Weeding	8.7	6.0	9.9	9.4	22.0	0.0	18.3	23.0	49.0	29.0	19.2
Fertilizing	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.5	3.0	0.5	0.0
Hilling up	1.3	0.0	8.0	0.0	0.0	0.0	3.0	0.0	4.3	0.0	5.0
Clearing prior to harvesting	5.3	5.3	26.3	36.8	0.0	0.0	31.5	36.8	36.8	42.0	63.0
Harvesting	9.3	7.0	11.4	12.5	0.0	0.0	29.4	19.2	38.7	26.1	23.9
Drying	4.1	4.1	12.1	5.1	0.0	0.0	16.7	2.6	20.8	6.7	17.2
Hauling	2.0	0.0	0.8	0.0	0.0	0.0	13.8	1.1	15.7	1.1	0.8
Peeling/chopping	6.3	5.9	16.4	10.4	0.0	0.0	26.2	7.4	32.4	13.3	26.9
Sacking/packing	1.3	1.2	1.9	0.0	0.0	0.0	5.8	0.6	7.1	1.8	1.9
Storing	3.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	3.1	0.0	1.2
Marketing	1.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.4	0.0

Table 4 Participation of household members in household and other activities.

	Participation				Average hours/week							
	Husband		Wife		Daughters*		Sons*		Husband	Wife	Daughters	Sons
	No.	%	No.	%	No.	%	No.	%				
Go to market	30	(40.54)	61	(81.33)	14	(35.80)	8	(19.05)	3.49	3.81	0.97	0.70
Cook breakfast	17	(22.97)	67	(89.33)	15	(38.46)	5	(11.90)	1.52	4.10	2.72	0.87
Cook lunch	13	(17.57)	66	(88.00)	16	(41.03)	3	(7.14)	2.28	4.42	2.74	0.78
Cook super	14	(18.92)	67	(89.33)	17	(43.59)	6	(14.29)	2.09	4.21	2.67	1.89
Wash dishes	13	(17.57)	60	(80.00)	26	(66.67)	10	(23.81)	0.75	1.70	1.74	1.01
Wash clothes	11	(14.86)	66	(88.00)	19	(48.72)	4	(9.52)	3.41	6.11	6.87	0.75
Iron clothes	1	(1.35)	23	(30.67)	3	(7.69)	0	(0.00)	1.00	2.07	2.42	0.00
Fetch water	39	(52.70)	42	(56.00)	25	(64.10)	30	(71.43)	4.04	4.79	7.58	5.23
Clean house	13	(17.57)	65	(86.67)	24	(61.54)	7	(16.67)	1.58	5.14	4.34	1.12
Cut/collect firewood	51	(68.92)	18	(24.00)	6	(15.38)	21	(50.00)	4.21	2.79	2.69	3.90
Vegetable gardening	25	(33.78)	40	(53.33)	10	(25.64)	8	(19.05)	2.49	4.88	1.32	1.24
Fruit gardening	9	(12.16)	13	(17.33)	2	(5.13)	3	(7.14)	1.90	2.51	2.25	1.17
Look after children	24	(32.43)	50	(66.67)	13	(33.33)	4	(9.52)	4.22	18.36	12.71	4.81
Take children to school	0	(0.00)	6	(8.00)	0	(0.00)	0	(0.00)	0.00	1.81	0.00	0.00
Play with children	36	(48.65)	40	(53.33)	14	(35.90)	10	(23.81)	4.39	7.44	9.24	3.76
Take to doctor, hospital/clinic**	5	(6.76)	41	(54.67)	0	(0.00)	0	(0.00)	NA	NA	NA	NA
Farm production***	63	(85.14)	46	(61.33)	11	(28.21)	25	(59.52)	35.99	35.99	8.36	27.84
Care of livestock	48	(64.86)	35	(46.67)	8	(20.51)	24	(57.14)	7.70	7.70	0.80	4.69
Care of poultry	24	(32.43)	24	(32.00)	9	(23.08)	9	(21.43)	2.28	2.28	1.09	0.58
Off-farm activities***	48	(64.86)	27	(36.00)	8	(20.51)	17	(40.48)	20.04	20.04	20.50	20.76

NA = not applicable.

* Daughters and sons 7 years and over.

** Not on a regular basis but only when someone needs medical attention.

*** There is an indirect relationship with farm production and off-farm activities (i.e., during slack demand for farm labour, off-farm activity rises and vice versa).

performing household activities and may spend eight to twelve hours in productive (remunerated and unremunerated) work. Generally, the time spent in household activities remains constant throughout the year. Farm labour input of women varies depending on the season. During planting and harvesting seasons, women's work load may increase. During these seasons, women often wake up earlier than usual to do housework and cook food before going to the field. These estimates vary depending on the family circumstances. For instance, if there are older female children in the family, the time spent by women in household

chores may decrease considerably but at the same time, on-farm labour contribution or time spent on off-farm and non-farm employment may increase. On the other hand, if there are infants and small children, women spend more time at home and do more household work. It is also not uncommon for women to do multiple tasks at the same time. For instance, a woman may tend to her store while taking care of the children and cooking.

Labour allocation in home gardening and animal raising

The vast majority of households engage in

home gardening. Seventy-five per cent of the households have vegetable gardens, 20% have fruit trees in their backyard and 12% plant rootcrops and tubers (sweet potato and cassava). Many households also raise animals. More than half of the respondents have cattle and/or carabao which are mainly used as draft animals in the field. Around 63 per cent are involved in raising swine either fully-owned or on shared-basis, 31% have goats and 52% of the households own chickens. Share-raising of swine is a traditional arrangement in the village wherein one household (which has the capital) provides the animal to another household which takes care of the animal (i.e., shoulders all the labour involved in taking care of the animal) and provides feed (usually left over food from the household or collected from neighbours). In return, the offspring of the animal are shared on the basis of a pre-arranged agreement (e.g., all male offspring go to the carer, female offspring to the owner; or the two parties alternate turns with the offspring, i.e., the first goes to the owner, the second to the carer, and so on).

Home gardening is a family affair. There is no rigidity as to the division of labour in the care of home gardens. In general, however, women devote more time to vegetable gardening (4.9 hours per week) and fruit gardening (2.5 hours per week) than men (2.5 hours and 1.9 hours per week, respectively). Looking at the involvement of men and women in the different activities in home gardening, it would seem that men tend to be active in seedbed/land preparation (Table 5). More women do the weeding, watering and harvesting. Children also have considerable input in weeding and watering vegetable gardens.

In animal raising, husbands are more involved in the care of large livestock. Eight-five percent of the men who owned cattle participate in grazing/herding and feeding and/or providing water. Women also participate in the care of cattle, but cattle and large livestock raising are predominantly the responsibility of men as, ostensibly, these larger animals are more difficult to handle than smaller animals. Women, on the other hand, are largely responsible for raising smaller livestock such as swine and goats. There are more women than men involved in feeding/watering, grazing/herding or in bringing them to the fields for tethering, and cleaning both shelter and animal. Men, however, are responsible more for building shelters of swine. Children are also active in caring for smaller livestock and are especially involved in grazing/herding and feeding. The care of poultry is

almost equally shared by men and women, with considerable help from children. These results are all shown in Table 6.

Table 5 Participation in home gardening by household members.

Crop Type/ Activity	Husband		Wife		Daughters*	
	No.	%	No.	%	No.	%
Vegetable						
Land preparation	33	58.93	21	37.50	12	21.43
Seedbed preparation	7	12.50	6	10.71	1	1.79
Seedbed care	5	8.93	7	12.50	1	1.79
Planting	26	46.43	42	75.00	17	30.36
Weeding	28	50.00	45	80.36	24	42.86
Watering	13	23.21	27	48.21	14	25.00
Fertilizing/pesticide application	4	7.14	5	8.93	1	1.79
Harvesting	22	39.29	39	69.64	18	32.14
Marketing	1	1.79	8	14.29	2	3.57
Rootcrops and Tubers						
Land preparation	8	88.89	4	44.44	1	11.11
Seedbed preparation	1	11.11	0	0.00	0	0.00
Planting	8	88.89	0	66.67	0	0.00
Weeding	7	77.78	6	66.67	1	11.11
Watering	4	44.44	5	55.56	0	0.00
Fertilizing/herbicide application	0	0.00	0	0.00	1	11.11
Harvesting	5	55.56	9	100.00	1	11.11
Fruits and Other						
Land preparation	5	33.33	4	26.67	0	0.00
Seedbed preparation	1	6.67	1	6.67	0	0.00
Seedbed care	1	6.67	1	6.67	0	0.00
Planting	6	40.00	4	26.67	0	0.00
Weeding	5	33.33	3	20.00	1	6.67
Watering	3	20.00	2	13.33	0	0.00
Fertilizing	0	0.00	0	0.00	0	0.00
Harvesting	12	80.00	10	66.67	3	20.00
Marketing	0	0.00	0	6.67	1	6.67

To summarize, in contrast to the main agricultural produce, women's participation in marketing home garden produce and animals is greater, with the exception of cattle and goats where men were found to have greater participation. Generally, large livestock are sold to meet major expenses, for instance, financing a relative who is going abroad or to meet emergency medical expenses such as hospitalization or to finance large education expenses such as tuition fees and allowances for children entering tertiary education. Proceeds from sale of smaller livestock and poultry are usually spent on daily needs, for example, food and other consumable goods such as soap, salt, sugar and other miscellaneous items.

Labour allocation in home gardening and animal

Both men and women participate in various decision matters. Food, clothing, household tasks

and children's education are predominantly women's areas of decision-making (Table 7). More husbands, however, participated in making decisions on house repairs and purchase of services. Surprisingly, the participation of men in social activities is higher than that of women. This may be due to the fact that when *barangay* meetings are called (which usually happens in late afternoons or at night as the men are working in the field during the daytime), it is usually the husbands who are invited to attend while the wife takes care of the children at home. Furthermore, membership in the co-operative is open to men only. Hence,

meetings are usually male dominated. A considerable number of women (62 women or 83%) participate in decision-making in social activities particularly in church activities and village festivities.

In most households, decision in almost every household matter is reached by consensus, wherein husbands and wives decide equally, with the exception of decision about household tasks, wherein more women (44%) were found to be the sole decision-maker.

Table 6 Participation in animal raising by household member.

Activity	Large Livestock											
	Carabao and Horse						Cattle					
	Husband		Wife		Children		Husband		Wife		Children	
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Grazing/herding	4	100.00	0	0.00	1	25.00	36	85.71	14	33.33	13	30.95
Feeding/watering	4	100.00	0	0.00	1	25.00	36	85.71	14	33.33	14	33.33
Cleaning animal/ cleaning shelter	3	75.00	1	25.00	0	0.00	26	61.90	8	19.05	10	23.81
Waste disposal	1	25.00	1	25.00	0	0.00	15	35.71	12	28.57	7	16.67
Gathering forage	3	75.00	0	0.00	0	0.00	16	38.10	3	7.14	5	11.90
Buying animal	0	0.00	0	0.00	0	0.00	4	9.25	1	2.38	1	2.38
Buying feed	0	0.00	0	0.00	0	0.00	6	14.52	4	9.52	2	4.76
Marketing animals	0	0.00	0	0.00	0	0.00	6	7.14	3	7.14	0	40.00
Building of shelter	6	12.77	4	8.51	2	4.26	3	13.04	3	13.04	2	8.70
Grazing/herding/tethering	5	10.64	15	31.91	5	10.64	14	60.87	14	60.87	9	39.13
Feeding/watering	21	44.68	41	87.23	14	29.79	11	47.83	12	52.17	7	30.43
Cleaning shelter/ waste disposal	10	21.28	27	57.45	6	12.77	8	34.78	8	34.78	5	21.74
Cleaning animal	16	34.04	33	70.21	10	21.28						
Gathering forage	1	2.13	5	10.64	0	0.00	6	26.09	3	13.04	4	17.39
Buying animal	5	10.64	3	6.38	0	0.00	2	8.70	1	4.35	0	0.00
Buying feed	10	21.28	17	36.17	6	12.77	3	12.04	1	4.35	0	0.00
Marketing animals	5	10.64	6	12.77	0	0.00	2	8.70	0	0.00	0	0.00
Building of shelter	4	10.26	3	7.69	2	5.13	0	0.00	0	0.00	0	0.00
Feeding/watering	26	66.67	28	71.79	14	35.90	1	25.00	4	00.00	1	25.00
Cleaning shelter/ waste disposal	7	17.95	5	12.82	5	12.82	1	25.00	1	25.00	1	25.00
Cleaning animal	2	5.13	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Buying animal	5	12.82	4	10.26	0	0.00	0	0.00	0	0.00	0	0.00
Buying feed	11	28.21	4	10.26	3	7.69	0	0.00	1	25.00	1	25.00
Marketing												
a) animals	6	15.38	7	17.95	0	0.00	0	0.00	0	0.00	0	0.00
b) products (eggs, meat, etc)	5	12.82	2	5.13	0	0.00	0	0.00	0	0.00	0	0.00

Table 7 Participation in decision-making in various matters by household members.

Decision matter	Husband		Wife		Male children*		Female children	
	No.	%	No.	%	No.	%	No.	%
Food	54	(73.0)	74	(98.7)	4	(20.0)	3	(16.7)
Clothing	57	(77.0)	71	(94.7)	4	(20.0)	4	(22.2)
House repair	59	(79.7)	48	(64.0)	4	(20.0)	3	(16.7)
Appliances & other durable goods	51	(68.9)	49	(65.3)	3	(15.0)	3	(16.7)
Services	55	(74.3)	46	(61.3)	2	(10.0)	2	(11.1)
Social activities	66	(89.2)	62	(82.7)	5	(25.0)	4	(22.2)
Borrowing money	64	(86.5)	59	(78.7)	4	(20.0)	3	(16.7)
Lending money	62	(83.8)	61	(81.3)	3	(15.0)	4	(22.2)
Household tasks	43	(58.1)	73	(97.3)	4	(20.0)	5	(27.8)
Children's education	56	(75.7)	64	(85.3)	8	(40.0)	6	(33.3)
No. of children/family planning	63	(85.1)	66	(88.0)	4	(20.0)	3	(16.7)

Percentages were computed based on the total number of household with male and female children 16 years and over, respectively.

Table 8 Decision-making in agricultural matters, by gender.

Decision matter	Male		Female		Total Respondents	
	No.	%	No.	%	No.	%
Main Agricultural Crop						
Choice of crop	60	(93.8)	46	(71.9)	64	(100)
Buying seeds	57	(90.5)	37	(58.7)	63	(100)
Choice of seeds (HYV, local, etc)	60	(93.8)	42	(65.6)	64	(100)
Buying fertilizer/pesticide	36	(59.0)	27	(44.3)	61	(100)
Hiring of labour	54	(87.1)	40	(64.5)	62	(100)
Purchase of agricultural equipment	50	(80.6)	36	(58.1)	62	(100)
Applying fertilizers, pesticides & chemicals	38	(61.3)	30	(48.4)	62	(100)
Packing	31	(50.8)	14	(23.0)	61	(100)
Hauling	58	(90.8)	19	(29.7)	64	(100)
Selling	46	(71.9)	36	(56.3)	64	(100)
Membership in cooperative	38	(59.4)	27	(42.2)	64	(100)
Home Gardens						
Choice of crop	49	(75.4)	53	(81.5)	65	(100)
Buying seeds	52	(78.8)	53	(80.3)	66	(100)
Choice of seeds (HYV, local, etc)	55	(83.3)	52	(78.8)	66	(100)
Buying fertilizer/pesticide	24	(40.7)	23	(39.0)	59	(100)
Applying fertilizers, pesticides & chemicals	25	(42.4)	21	(35.6)	59	(100)
Watering caring	26	(42.6)	29	(47.5)	61	(100)
Selling	24	(38.7)	38	(61.3)	62	(100)

With regard to agricultural matters, more men are involved in decision-making for the main agricultural crop grown, although women participate as well (Table 8). Higher rates of participation of women were recorded in home gardens. More women have a say on what crop to grow in home gardens, although more men make decisions on the choice of seed (e.g., variety) and on matters related to fertilizers/pesticide use. In

most agricultural decisions, however, the husbands and wives decide equally. For instance, 50% of the respondents said that the choice of crop to be planted was decided equally by both husband and wife. Around 55% replied that hiring labour was also decided equally. A majority of husbands and wives also equally make decisions on the marketing of the main agricultural crop. With home gardens, however, there were equal percentage of the respondents (26%) who replied that marketing decisions are made solely by the wives, and equally decided by both husbands and wives.

Women generally hold the purse strings, and hence, they have a certain degree of control over disposition of income. However, final decisions on where income will be spent is still largely affected by who is considered to be the source of the income. This is especially true in cases when there are conflicting ideas on where to spend income.

With regards to access to other resources (credit, inputs, services), however, women are disadvantaged relative to their male counterparts (Table 9). Few women have access to formal credit institutions such as banks or co-operatives. More women, however, have access to informal credit (i.e., informal lenders, neighbours and relatives compared to men. Access to the input market and to services is also biased towards men.

Generally, the men have more farming experience than women. More women (20%) than men (13%) have 5 or fewer years of farming experience, while more men (45% compared to 31% for women) have at least 21 years of farming experience. However, the average years of farming experience is 21 years for the husbands and 17 years for the wives. Most women have no formal training in agricultural matters. Many of them derived their knowledge from their parents, through personal experience or through their husbands. Men, on the other hand, credit their parents, own experience, information from radio and farm leaders as their sources of knowledge. Co-operatives (28%) and extension workers (26%) are also good source of information for men. Few women, in contrast (11%), cited extension worker. In fact, many of them have not yet met the agricultural extension worker who normally visits the village and talks with farmers during *barangay* meetings which are mainly attended by men. This probably has a direct bearing on women's access to new technology. Women have limited access to new agricultural technology, although most of them indicated a strong interest in learning new farming techniques and new technologies.

Table 9 Access to resources by gender.

Type of Resource	Husband		Wife	
	No.	No.	No.	No.
Credit				
Bank	3	48	2	32
Co-operative	4	58	2	34
Informal lenders	4	63	3	50
Neighbours	5	73	5	68
Relatives	5	70	5	78
Other	1	13		10
Input				
Buy seeds	5	73	3	48
Buy fertilizers	3	52	2	29
Buy pesticides	3	50	2	28
Hire tractor	1	23		9
Hire thresher	1	17		8
Others		10		4
Access to services				
Middlemen	5	73	3	46
Agricultural extension worker	5	78	2	38
Government officials	5	79	3	50

Problems and constraints faced by women

Low remuneration

One of the main problems voiced by women in the study is the low remuneration they received from paid off-farm work. In general, men and women are paid equal wages for similar types of work. In most cases, however, men and women have different areas of specialization. For instance, men tend to do the heavier jobs such as the initial land preparation and hauling, while women are more active in weeding. Weeding is considered tiring and burdensome and wages are relatively low.

The same case has been reported in some post-harvest activities. Although hired and exchange labour are utilized, the family is the main source of labour in cassava peeling and chopping. The wives and children provide the primary labour input. This activity is seasonal but very time consuming and laborious (using only simple manual implements such as knives) and existing wages are low. It takes one day for a woman to chop around three to four sacks of cassava providing an income of roughly US\$ 0.45 a day.

Lack of tools and equipment

Most of the work done by women is tiring and burdensome. In most cases, only simple manual tools are used. For example, weeding is done manually using a simple tool called the *bolo* (a kind of knife). Chopping of cassava is also done manually. Similarly, shelling and grinding of maize are arduous tasks. Since there is no mechanical sheller in the village, shelling and grinding are done manually using traditional tools. Rather than go to the town proper or to a neighbouring village for

shelling, women opt to shell maize manually. Although it is an onerous task, women still prefer to do the work rather than walk long distances to the neighbouring village to have maize shelled or to pay the extra cost of transportation.

Performing household tasks is also regarded as time consuming and repetitive in nature. Although not normally considered as economic activities, household activities are necessary to the sustenance of the family. Women in the study area spend an average of four to six hours per day performing household chores. These activities range from food preparation and cooking, cleaning the house, fetching water and taking care of young children. Women are encumbered by the lack of services in the village, for instance the lack of adequate electricity and water systems. Often women have to join a queue (sometimes from one to two hours) just to get water since there are only two water systems that service the entire village. To aggravate matters, during the dry summer months when water is most needed, only a small trickle of water comes out, so the waiting time is a lot longer.

Cooking, cleaning the house and looking after children are also time consuming. If women could save some of the time involved in these activities, they could then devote more time to leisure or to off-farm/non-farm work, home gardening, and animal raising.

Limited access to formal credit

The study found that some women are willing and enthusiastic to engage in other productive activities. However, they are constrained by the lack of capital to start and to maintain an activity such as home gardening, animal raising, cottage industry and trading. Although women are interested in increasing the volume of home garden produce, they complained that their production was low due to lack of capital to buy fertilizer or to buy good seed. Capital is also needed to buy pesticides to reduce loss due to pests and diseases.

Raising animals is also hampered by the lack of capital. Many women want to raise livestock (cattle, swine and goats for fattening) and poultry for home consumption and for supplementary income. However, they do not have the money to buy the animal to start with. Operating capital for maintenance of animal production and to buy feed, vaccines, etc. is also a problem.

Women have difficulty in obtaining formal credit as credit in the village is linked with membership in the farmer's association. Since membership in the farmer's association is almost exclusively male, women generally do not have access to services provided, including credit.

Furthermore, borrowed money obtained from the farmer's association is usually allocated for farm inputs. There is virtually no source of formal credit for other activities of interest to women such as home gardening and animal raising either for the home or market.

However, women generally have access to informal sources of credit such as private money lenders, neighbours, relatives and friends. Money obtained from these sources is, however, used for immediate short term needs of the family such as food or other emergency needs and is not normally used as capital for productive activities.

Limited access to agricultural extension services

Women's access to new technologies is inadequate, in spite of the fact that women indicated their interest in learning new technologies and new techniques or practices in farming. One of the factors that may have contributed to women's limited access to information on new agricultural technologies is that they have very little contact with the extension worker. Although the agricultural extension worker sometimes attends the farmer's group or *barangay* (village) meetings, these meetings are mainly attended by men. Men are usually targeted for agricultural extension matters, while women are targeted for health, nutrition and home care related extension services. The effect is that women are often left out of formal extension on agriculture even if they are farmers in their own rights. There is an implicit assumption that the knowledge that men gained during extension meetings or demonstrations will flow to the women (their wives). There is no assurance, however, that there is indeed a transfer of information from the men to the women.

Policy directions, summary and conclusions

Both men and women make a contribution to the survival of the family. Under pressing economic conditions, they contribute and complement each other in performing farm, household and other activities necessary for the survival of the household. They each try to contribute as much as they can. Women, in particular, are keen to make an economic contribution, in addition to performing their traditional role as the principal career of the household. However, it cannot be denied that several barriers exist that not only limit women's capacity to realize their full economic potential, but also do nothing to alleviate women's work burden. Unless these barriers are bridged or removed, the welfare of women and their households will always be compromised.

The findings of this study show that, in general, men are involved in all farm operations,

predominate in most heavy field work and are solely responsible for the performance of specific farm tasks such as land preparation, furrowing, and pesticide and insecticide application. Women, on the other hand, have a major contribution in relatively lighter tasks such as weeding, harvesting and post-harvest activities (i.e., shelling maize, threshing rice, peeling and chopping cassava and processing cassava into cassava chips). It has been customary practical for men to do the heavier work for practical reasons (i.e., they are stronger). Social norms and values may have indirect bearing on this, as families who allow their women to do the plowing (traditionally considered as man's work) may be frowned upon. However, practically is probably the major determinant. For instance, post-harvest activities are preferred by women because it allows them to perform other jobs and responsibilities concurrently such as looking after the children, keeping an eye on tethered animals and home gardening.

The findings also show that most of the activities that women do involve long hours of work, are monotonous, repetitive and boring in nature. In addition, there are only few and mostly traditional tools available for their use. This problem is compounded by their limited access to information, agricultural extension and credit. The women in the study indicated their willingness to improve their present circumstances. However, this may only be realized if conditions are made more favourable for them. Clearly, a concerted effort is necessary: government planners, policy-makers, government and non-government organizations, academic and research institutions, funding donors and most especially women, must all work together in improving women's status and strengthening their role in upland farming systems. Some suggestions on areas for improving women's conditions follow.

Technology generation

Development of technology that would reduce the drudgery of women's work and would allow them more time to engage in productive activities to augment the household income is important. This includes creation of labour-saving devices especially for post-harvest processing and household tasks. Specifically, technology that would increase the productivity of women or reduce the number of hours spent in cassava chipping and maize shelling/grinding could be developed. However, care must be exercised since, although cassava chipping and maize shelling are laborious tasks, they are income generating activities of women. Introduction of modern technology must, therefore, be designed for women so that they are

not displaced or replaced by men, which has been reported previously in some studies. Instead, the technology must reduce the time spent in that activity and hence, their total workload.

To reduce time spent in performing household tasks, household durables such as kitchen stoves that use indigenous materials e.g., crop by-products could be developed. Currently, cooking is done by open-hearth fire using stones as the main support for the pots and pans, which wastes much heat and is therefore inefficient in the utilization of firewood. Development of an improved stove would reduce the time spent by men, women and children in gathering firewood for fuel and would give them extra time to devote to other activities.

In developing these new technologies, it is important to include target beneficiaries in the planning stage to ensure that their specific requirements are taken into account. The new technology would not be of value if the target beneficiaries did not use it. Hence, potential users must be considered even at the early stages and during fine-tuning of the technology to avoid wasting time and money.

Improving women's access to credit

Provision of credit and finance is important in farm production, off-farm and non-farm activities and in providing fixed capital for household improvement. One of the major constraints identified by women in engaging in home gardening and animal raising is the lack of capital. If women had greater access to credit, they could buy the necessary farming tools and inputs such as seed and fertilizer for home gardens. Similarly, they could buy animals and feed to maintain animal production. In like manner, development of labour-saving post-harvest facilities and kitchen stoves would be useless if women did not have the resources to gain access to them. Hence, barriers to credit must be removed. There is probably a need to restructure existing credit institutions (e.g., credit through cooperatives) to incorporate women's activities so that women can avail themselves of finances necessary to operate other commercial activities.

However, credit needs to be matched to capacity to repay. Many credit schemes have failed because inadequate attention was given to the means of sustaining credit. However, there are also several reported cases of successful credit projects that have benefited women. The Grameen Bank is a good example and it may be worthwhile to consider such schemes, making the necessary adaptations to local conditions. This is one area that needs more attention.

Improving access to agricultural training and extension

Women actively participate in decision-making in almost all aspects of agricultural production, home gardening and animal raising. Yet, they have limited access to formal credit, extension workers, training, education and the input sectors. A concerted effort must therefore be made to improve women's access to these resources and sources of information. Access to resources would give them a better chance of being effective farmers by eliminating some of the barriers which they normally encounter. Greater access to knowledge through training and education would help them be more efficient farmers. Most of the women do not have formal training but indicated their eagerness to learn new and modern techniques in farming.

Access to information and new technologies may be more effective and equitable if women are included in agricultural extension programmes. Women must be encouraged to participate in agricultural extension meetings. As women have not been used to attending agricultural production related meetings in the past, there may also be a need to find ways of changing this view of 'women for home and family care extension' and 'men for agricultural extension'. One way of addressing this may be to increase the number of women agricultural extension workers, and also to find an appropriate time when both women and men can attend the meetings (for instance, during lunch break when both of them are usually available). In addition, extension on other activities such as home gardening and livestock raising may be beneficial as these are also important activities in upland farming systems and are special areas where women take a major interest.

Men, women and children would all benefit from training on new techniques for home gardening. Knowledge of the kind of crops suitable to their area, the necessary inputs to increase productivity, use of manure and compost as alternatives to commercial fertilizer, crops adaptable to rainfed conditions, crops with low water requirements or drought tolerant crops would be useful for farmers. For those who indicated that land was a constraint, knowledge of and access to alternative crops that can be grown on small areas may be helpful. Likewise, educating them on the nutritive (food) value and economic value (income and savings they will gain) will encourage them to be efficient producers.

Similarly, in animal raising, training and education of men, women and children would be advantageous since all of them participate in

animal production activities. Providing support services such as preventive and curative care of animals would address their problems with pests and diseases.

Home gardens and animal raising are important because they are major sources of nutrients for the household and they offer women the opportunity of generating income through marketing of surplus produce and from the savings derived by producing items which were formerly bought by the household. Similar programmes have been introduced in Bangladesh (the Local Initiatives for Farmers' Training or LIFT project) and the Philippines (Bio-intensive Gardens or BIG project). These programmes can be used as models and appropriate extension services must also be included.

Creation of women's group

At present, there is a cooperative in the village, the *Bagong Silang Multi-purpose Cooperative*. However, membership is limited to farmers and, since most of the households are male-headed with only the husbands usually recognized as farmers, women generally do not have access to the membership to women or creating a women's group could increase women's access to credit and other services. Furthermore, an institution is helpful in ensuring that an introduced technology will be used long after its introduction. For instance, one factor credited with the success of the micro-mill introduced by IRRI to women in the Philippines is that the management of the micro-mill was left to the women's group rather than to selected individuals. Hence, since officers of the group were responsible for its upkeep, continued use of the mill was reported.

Perhaps of more significance, women's groups are particularly important because they can be avenues of change. Due to social, cultural and economic factors, women are often disadvantaged. They are sometimes demoralized and feel helpless. Group action can usually change that. Quite apart from self-help, an empowered population will put pressure on governments to do more for them in areas where government action is indeed necessary. Because of the intricacies of the causes and effects of policies, obviously more in depth studies may be required before specific policy suggestions can be made. It is, however, hoped that this discussion will provide directions on ways of improving the status of upland women in the Philippines.

In conclusion, clearly, women's role is not confined to the limited spheres of reproduction and house-care, but encompasses remunerative and unremunerative productive work as secondary income earners. Performance of roles is partly determined through society's expectations and manifested in traditional realms of gender functions. Roles are not stationary but continuously evolve depending on the demands of society and time. While it was customary for women to stay at home in ancient times, economic, political and social changes call for the revision of women's traditional role. As roles change, there is also an accompanying moral obligation to ensure that the well-being of women is not diminished, by trying to influence the direction of policies to make sure that the welfare of everyone, including women, is considered.

Finally, if we have a strong conviction the women have a direct bearing on the welfare of the entire household, then improving women's lot is, indeed, a worthwhile endeavour.

CGPRT Centre News and Activities

Thirteenth Session of the Technical Advisory Committee 28-30 November 1995

Fourteenth Session of the Governing Board 4-6 December 1995

At the end of 1995, the CGPRT Centre held the Thirteenth Session of the Technical Advisory

Committee (TAC), and the Fourteenth Session of the Governing Board.

Technical Advisory Committee (TAC)

The Centre's Technical Advisory Committee discussed and provided advice on the Centre's programmes for the period of 1995-1996. Dr. W.G. Wolters opened the session, and, on behalf of the members, congratulated Dr. Haruo Inagaki for his taking up the position of Director of the Centre. The Director of the Centre welcomed the members of the TAC, expressed his appreciation for the continuous support of the TAC, and introduced Dr. A.M. Fagi and Dr. R.D. Ghodake as new members

of the TAC. The meeting was also attended by Dr. Euan Fleming, Dr. S.M. Elias, Dr. Claude Aubert, Dr. Masao Kikuchi, and Dr. Boonjit Titapiwatanakun as TAC member.

The Director introduced several issues for discussion by the TAC, including the need for follow-up of the projects, the issue of translation of the Centre's reports in national languages, and the broad issue of evaluation/assessment of the Centre's project impacts, as indicated by the Centre's auditors.

The TAC elaborated on the issue of the Centre's impact and its relationship with the Centre's output. It was observed that research agencies usually produce their output in the form of recommendations, or, more commonly in the case of economic research agencies, as policy implications. It was underlined that the Centre has no real expectation to submit recommendations for action by national governments, because that is the role of the national agencies and government organizations. It was indicated that the Centre can conceive its catalyzing role in participating in research and discussions at the national level.

Governing Board

The Chair of the Thirteenth Session, the Ambassador of Papua New Guinea, Mr. Alan Oaisa, opened the Fourteenth Session of the Governing Board of the CGPRT Centre. He thanked the country delegates for their attendance and noted that a quorum was reached.

The opening session was attended by representatives of France, India, Indonesia, Japan, Myanmar, Pakistan, Papua New Guinea, Republic of Korea, Sri Lanka and Thailand as members of the Board. The Executive Secretary of ESCAP and the Ambassadors of Sri Lanka and Papua New Guinea attended. Representatives from two international organizations, the United Nations Development Programme (UNDP) and the Food and Agriculture Organization (FAO), attended as observers.

The representative of Sri Lanka, the Ambassador, Mr. Ratne D. Senanayake and the representative of Thailand Mr. Boontam Prommani, were elected as Chairman and Vice Chairman, respectively. The representative of India, Dr. R.C. Maheshwari, was elected as Rapporteur.

The Executive Secretary of ESCAP, Dr. Adrianus Mooy, thanked the host country, Indonesia, for its continuing support to the Centre and expressed his pleasure in Dr. Inagaki joining the Centre as Director. He thanked the major donors of the Centre: the developing member

countries of ESCAP and France, Japan, Republic of Korea, Austria, the UNDP and their Netherlands, and also expressed his appreciation to the Director and the Centre's staff for their commitment and dedication. He stated that the CGPRT Centre has the full support of ESCAP. He suggested that the members of the Board urge their authorities to endow the Centre with more financial and in-kind resources.

The Board was informed of the Centre's activities in 1995, and considered the planned work for 1996-1998. The Board expressed satisfaction with activities in 1995, and further for 1996, and the Centre's emphasis on transferring knowledge and strengthening its relation with its partners. It approved the proposed programme of work for 1996.

Participation of F. Lançon in two symposia in France

Symposium on Globalization of the Agricultural and Food Economies, Situation and Perspective. Paris, 16-17 October 1995.

The symposium was organized by the French Society of Rural Economy. Its aim was to review prospects and trends regarding the increasing inter-linkage of agricultural and food national economies through trade, commodity chain integration and capital investment. Regarding trade, it was underlined that during the eighties the European Union share of world agricultural trade, equalized with that of North America. In terms of commodities, the share of cereals is declining whereas the trade of fruits and sea products is growing rapidly. The discussion confirmed that agro-industries and processed food products are at the forefront of the globalization process while trade of commodities is not as important as it was during the seventies.

The development of regional free market zones is considered more as a vector supporting national agricultural sector integration within the world economy than a process competing with the globalization of trade. Thus, countries or regions (like Africa, Central America) which are not participating in such regional trade agreements will face more difficulties in joining the globalization momentum. As in other economic sectors, the Asian region is the fastest agricultural and food products growing market.

A paper, "Soybean market regulation in Indonesia: constraints and justification," was presented.

Symposium on Small-Scale Agro-Industries: Organization, Characteristics and Diversity.
Montpellier, 19-20 October 1995

This symposium was organized to discuss the results of the three year research programs conducted by CIRAD and partner institutes in Sub-Saharan Africa and Latin America. Experience from European countries and other regions of the world was also presented. Forty-five papers were presented along the following themes

- management and assessment of production systems,
- Definition of small-scale industry and manager,
- Inter-linkage between farm and small-scale industry creation and transfer,

- small-scale industries network and procurement and marketing systems,
- small-scale industries network organization and management procedure,
- support program for small-scale industries development in Africa and Latin America,
- technical support to small-scale industries and industrialization process.

The discussion confirmed the importance of small-scale industries in supporting rural development and agricultural modernization.

A paper, "Food processing small-scale industries facing agro-industrial sectors modernization: the case of *tahu* producer in Indonesia," was presented.

International Courses and Meetings

Training Program on Computer Simulation of Crop Growth and Management Responses

May 27 – June 7, 1996, Athens, Georgia

Presented by the University of Georgia College of Agricultural and Environmental Sciences and Georgia Center for Continuing Education.

The program will describe the practical approaches to simulating the effects of soil, climatic, management, and pest factors and their interaction with the input needs of crops. The program will demonstrate how the processes of crop growth and development, water uses, uptake of nutrients and response to irrigation, fertilizer, and other management decisions can be simulated. The program will make extensive use of practical sessions on personal computers that demonstrate the application of simulation models to cropping systems in various regions of the world.

The program will make extensive use of the CERES (maize, wheat, rice, sorghum, barley, and millet), CROPGRO (groundnut, soybean, dry bean, and tomato), SUBSTOR (potato), and CROPSIM (cassava) models for crop growth, development, and response to water and nutrients. The crop simulation models, data preparation, and application programs have been integrated into the new Decision Support System for Agrotechnology Transfer (DSSAT) v3 software package,

Participants will be provided with a complete copy of DSSAT v3.

For further information, contact:

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Georgia Center for Continuing Education

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International Symposium on Cassava, Starch and Starch Derivatives

November 11-15, 1996, Nanning, China

Co-sponsored by: Guangxi Association for Science and Technology; International Center for Tropical Agriculture (CIAT); China Starch Industry Association (CSIA); Guangxi Starch Association; Guangxi Cassava Technical Development Centre; and Guangxi Subtropical Crops Research Institute

Objectives of the symposium are:

- To discuss and exchange ideas about the latest development in:
 - i. Technology and R & D in transforming native starch into modified starch, sweeteners, alcohol, sorbitol and many other organic chemicals.

- ii. Production and application of processing technology of different kinds of starches, such as cassava, potato, sweet potato and corn starch.
- iii. Root crop varietal improvement and agronomic practices, with emphasis on cassava.
- To discuss collaboration between government agencies and the private sector, and to better integrate root crop production, processing and marketing.

All correspondence should be addressed to:

Mr. Li Bao Shuo
 Guangxi Association for Science and Technology
 31 Gucheng Rd., Nanning, Guangxi
 China 530022
 Tel./Fax: 88-771-2806194

International Meeting on Tropical Tuber Crops: Food Security and Nutrition

December 1996

Organized by Indian Society for Root Crops

The meeting is expected to bring together sciences working on various aspects of crop improvement, production, protection, nutrition and utilization.

Sessions will cover management of genetic resources, management of crops and soils, management of pests and diseases, processing and product development, human and animal nutrition, biotechnology, and transfer of technology and market development.

For further information, contact:

The Secretary
 Indian Society for Root Crops
 Central Tuber Crops Research Institute
 Sreekariyam, Trivandrum 695 017
 Kerala, India
 Fax: (0091) 471-448431
 E-mail: ctrl@x400.nicgw.nic.in

14th International Symposium on Sustainable Farming Systems

November 11-16, 1996, Colombo, Sri Lanka

Organized by the Association for Farming Systems Research and Extension and Asian Farming Systems Association in collaboration with Ministry of Agriculture, Lands and Forestry, Sri Lanka.

The program features a keynote address, invited papers on each of the five symposium themes, forum discussions, panel discussions, posters and a tool bazaar.

The workshops, the major form of oral presentations at the symposium, are developed around five themes, namely:

- Household food security.
- Environment and agricultural resource management.
- Innovations and social change: who is empowered?
- Methodological issues: systematic questions to basic disciplines.
- Policy and macro economic issues.

The for a will focus discussion on the following topics: i) agro-ecosystems and alternative frameworks for monitoring farming systems development, ii) sustainability indicators, iii) farmer perceptions of changing opportunities, iv) gender issues, v) human resource development for farming systems approaches, vi) indigenous knowledge, vii) changing roles of institutions, viii) integrated farming systems, ix) farming system modeling, and x) participatory methods.

The panels will encourage the presentation of contrasting views on the following topics: i) differing institutional experiences and perspectives, and ii) information technology and data management.

For further information, contact:

Symposium Coordinator, Secretariat, 14th International Symposium on Sustainable Farming Systems, P.O. Box 42, Socio Economics and Planning Centre, Peradeniya, Sri Lanka

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CGPRT Centre

The Regional Co-ordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific (CGPRT Centre) was established in 1981 as a subsidiary body of UN/ESCAP.

Objectives

In co-operation with ESCAP member countries, the Centre will initiate and promote research, training and dissemination of information on socio-economic and related aspects of CGPRT crops in Asia and the Pacific. In its activities, the Centre aims to serve the needs of institutions concerned with planning, research, extension and development in relation to CGPRT crop production, marketing and use.

Programmes

In pursuit of its objectives, the Centre has three programmes which are mutually supportive:

1. Research, which entails the preparation and implementation of studies covering production, utilization and trade of CGPRT crops in the countries of Asia and the South Pacific.
2. Training of national research and extension workers,
3. Information and documentation which encompasses the collection, processing and dissemination of relevant information for use by researchers, policy makers, and extension workers.

Palawija News

Contributors are invited to submit concise summaries of significant social research related to CGPRT crops for publication. Figures (graphs or tables) may accompany the article. All articles are subject to editing to meet space limitations.

Please send all queries relating to articles in *Palawija News* to Publications Section, CGPRT Centre, Jalan Merdeka 145, Bogor 16111, Indonesia.

Palawija News is distributed free of charge to interested individuals and institutions. Please send address corrections and additions to the Distribution Officer, Publications Section.

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Palawija News
Volume 12, Number 4
