
PALAWIJA

NEWS



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Stabilization of Upland Agriculture under El Nino-induced Climatic Risk: Impact Assessment and Mitigation Measures in Indonesia

*Bambang Irawan**

El Nino and La Nina: tendency during 1876-2000

El Nino and La Nina events were shown by SOI value (Southern Oscillation Index). El Nino events were shown by large negative SOI, while La Nina events were correlated with positive SOI. The frequency of El Nino has tended to increase from once per 8 years during 1876-1976 to once per 4 years during 1977-2000 (Table 1). The extreme negative SOI particularly occurs in March, April, June, July, September, and October. This indicates that those months have higher probability than other months for drastic decrease of rainfall and increase of ambient temperature. This pattern of SOI is a disadvantage for Indonesian agriculture, because September/October is planting time and March/April is the maturing period for wet season farming which contributes more than 60% of yearly production of food crops. For wet season farming, the decrease of rainfall occurring in September/October would result in failure of

planting, while the decrease in March/April would result in failure of harvest because of water shortage.

Impact of El Nino in 1982 and 1997 on rainfall

The El Nino events of in 1982 and 1977 are the biggest ones in history, where the annual average SOI values were -21.4 and -18.1 respectively. The negative SOI occurred for 13 and 14 months respectively during similar periods, i.e. from March/April until May/June, while the large negative SOI lasted 11 months. Both El Nino events resulted in decrease of rainfall, particularly during the dry season, which occurred from May to August. The 1997 El Nino caused a greater decrease of rainfall than the 1982 event; -30.8% and -62.2% for wet and dry seasons in 1997, and -17.3% and -44.0% for wet and dry seasons in 1982.

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* Center for Agro Socioeconomic Research, Agency of Agricultural Research and Development, Indonesia. This paper is taken from Stabilization of Upland Agriculture under El Nino-induced Climatic Risk: Impact Assessment and Mitigation Measures in Indonesia, Working Paper No. 62, CGPRT Centre, Bogor.

In Java and Sulawesi the decrease of rainfall was consistently higher compared to the average over all provinces in both the 1997 and 1982 El Ninos. Since Java and South Sulawesi are major food producers (about 65% of national food crop production), El Nino events could disturb national food security. In Kalimantan the decrease of rainfall was relatively high during the 1997 El Nino, but quite low during the 1982 event. On the contrary,

Sumatra, Bali and Nusa Tenggara experienced decreases of rainfall which were quite high in 1982 but relatively low in 1997 (Table 2). In irrigated areas, the 1997 El Nino resulted in a decrease of water debit of about 33% at the Jatiluhur Reservoir and about 30% at the Rentang Reservoir in West Java. Decrease of water debit also occurred in reservoirs in Central Java of between 5% and 60% in 20 observed reservoirs.

Table 1 El Nino and La Nina events by 25 year interval in 1876-2000.

Period	Number of El Nino and La Nina Events	El Nino Events		La Nina Events	
		Year	Annual SOI	Year	Annual SOI
I (1987-1901)	3 El Nino	1877	-10.04	1879	12.85
	3 La Nina	1888	-10.92	1880	7.80
		1896	-15.73	1886	7.68
II (1902-1926)	4 El Nino	1905	-20.01	1910	12.73
	3 La Nina	1912	-8.48	1916	7.40
		1914	-7.93	1917	20.79
		1919	-9.35		
III (1927-1951)	2 El Nino	1940	-13.85	1938	9.13
	2 La Nina	1941	12.83	1950	15.38
IV (1952-1976)	2 El Nino	1965	-8.43	1955	10.58
	6 La Nina	1972	-7.35	1956	10.73
				1971	10.95
				1973	7.28
				1974	9.90
				1975	13.60
V (1977-2000)	9 El Nino	1977	-9.90	1988	7.82
	3 La Nina	1982	-13.05	1989	6.77
		1983	-8.33	1999	7.95
		1987	-13.08		
		1991	-8.78		
		1992	-10.38		
		1993	-9.47		
		1994	-11.93		
		1997	-11.67		

SOI = Southern Oscillation Index.

Impact of El Nino on food crops area

The decrease of the food crops harvested area caused by El Nino was estimated at about 1.25 million ha in 1982 and 1.18 million in 1997, or -8.6% and -6.4%, respectively. The decrease occurred particularly in the dry season harvest (-15.3% and -11.4%) which covered areas of 821,000 ha in 1982 and 775,000 ha in 1997. Since most secondary crops are cultivated in the dry season, the impact of decreasing harvest area caused by El Nino was relatively high for those crops, i.e. between -8.6% and -22.0%, while the decrease of rice wetland harvest area was about -4.5% and -4% for 1982 and 1997, respectively (Table 3).

Five major provinces which suffered from decrease of food crops harvested area of more

than 100,000 ha during the 1997 El Nino were Lampung, West Java, Central Java, East Java and South Sulawesi. These high figures could be understood, since those provinces are known as major food crops producers. Regarding the percentage of harvest area decrease, the eastern Indonesia region such as Sulawesi and Maluku suffered from quite high harvest area decrease, i.e. between -8.4% and -19.2%. Most of the provinces in Sumatra, such as Riau, Jambi, Bangka, and Lampung, also suffered from quite high harvest area decrease, while in Java only Central Java suffered from quite high harvest area decrease, i.e. -8.4% (Table 4).

Message from the Director

The year 2001 has passed. It was the beginning of 21st Century and a commemorative year for the CGPRT Centre, since it is the 20th Anniversary of the Centre which was officially established on 29 April 1981.

During the year 2001, there were so many incidents in the world. In particular, the tragedy in the USA has made the world unstable, and we are afraid that a worldwide economic depression will occur. It was the year in which we really recognized the importance for securing socially, economically and environmentally sustainable societies in the countries where poverty does not prevail, and also have recognized the importance of the coexistence of diverse senses of values.

Human security was one of the major concerns in the world, and various issues have been deliberated. And I do believe that alleviating poverty, and ensuring food security and environmental security are key factors for securing a better human life.

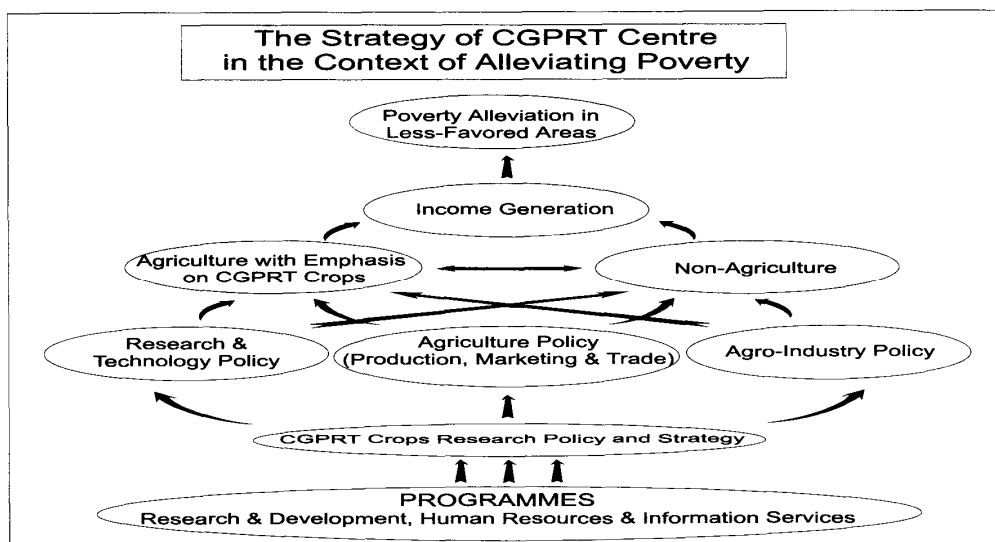
During the last 20 years, the CGPRT Centre, as one of the subsidiary bodies of ESCAP, has been making its utmost effort in line with its mandate stated in its statute, under Research and Development, Human Resources Development, and Information Services and Database Programmes. And I do believe that the Centre has been contributing substantially to meeting its mandate.

However, our mission has not been achieved yet. Hunger, malnutrition and poverty are still prevailing in the region. Therefore, we need to continue our utmost efforts for further contribution to alleviating poverty, in particular, through rural development in a sustainable manner.

The CGPRT Centre would certainly like to further strengthen its catalytic role and coordination function, in collaboration with the member countries, in implementing programme activities. The first step is to elucidate the real situation of agriculture and the rural economy, and the second is to enhance the capability of doing socio-economic research and policy planning for the future development of agriculture, and for realizing the economically and ecologically secure and equitable society in the developing countries in the region.

For this purpose, the Centre identified a research strategy, in which the emphasis would be placed on seeking better policy options which could provide more income generation opportunities to the farmers living in less-favored areas through their agriculture and related activities based on CGPRT crops. We believe that this is one of the measures for alleviating poverty in rural areas in the region, and it explains what the Centre can contribute through its activities.

NOBUYOSHI MAENO



Impact on harvest pattern of food crops

El Nino, which causes decreased rainfall, stimulated farmers to harvest their food crops earlier to avoid harvest failure from water insufficiency. During the 1982 El Nino, about 9% of the wet season harvest area was harvested earlier than the normal harvest pattern, while for the dry season the proportion was about 10%. For the 1997 El Nino those percentages increased to 18% for the wet season and 11% for the dry season. This

reflected the farmers' response in facing climate uncertainty. Because of the long dry season in 1997, harvesting of food crops for the next season, which was the wet season in 1998, was done later than the normal harvest pattern. The late harvested food crops area during the wet season in 1998 was estimated as much as 24% and 14% in the dry season. This strategy, however, resulted in lower yield and poor quality.

Table 2 Rainfall drop in 1982 and 1997 compared with average rainfall 1970-1997 by season and by province (%).

Province	1997			1982		
	Wet Season	Dry Season	All Seasons	Wet Season	Dry Season	All Seasons
Aceh	-5.6	-30.1	-13.2	-19.8	-6.9	-15.8
North Sumatra	-12.2	-3.9	-8.9	-82.9	-89.8	-85.7
West Sumatra	-63.4	-61.8	-62.8	-18.4	-46.9	-29.3
Riau	-24.7	-2.3	-17.0	-8.0	-11.3	-9.1
Jambi	-74.3	-86.8	-77.9	-7.2	-25.5	-12.5
South Sumatra	-15.1	-42.2	-21.8	-19.4	-19.3	-19.4
Bengkulu	-52.8	-84.5	-61.5	-11.6	-28.7	-16.3
Lampung	-35.0	-66.8	-44.7	-2.5	-24.1	-5.6
West Java	-37.1	-54.9	-40.4	-4.0	-64.1	-15.1
Central Java	-35.6	-78.4	-47.2	-22.1	-82.4	-38.4
Yogyakarta	-45.7	-100.0	-52.4	-3.2	-100.0	-15.1
East Java	-17.8	-86.4	-24.6	-15.2	-91.9	-22.9
Bali	-33.8	-88.4	-41.5	-44.8	-97.0	-52.1
West	-40.9	-65.5	-44.2	-23.9	-94.0	-33.4
Nusatenggara						
East Nusatenggara	-3.7	-92.2	-6.2	-9.1	-34.9	-9.8
West Kalimantan	-34.5	-32.0	-33.6	-2.1	-30.9	-12.1
Central Kalimantan	-32.9	-50.7	-37.9	-2.2	-50.7	-15.9
South Kalimantan	-20.5	-79.3	-34.4	-16.2	-24.0	-18.1
East Kalimantan	-45.0	-65.6	-53.6	-1.5	-43.6	-19.1
North Sulawesi	-23.1	-74.3	-38.3	-40.2	-8.3	-30.7
Central Sulawesi	-13.1	-32.0	-22.5	-57.8	-29.1	-43.6
South Sulawesi	-35.3	-83.8	-40.1	-16.5	-73.3	-22.1
Southeast Sulawesi	-40.9	-78.6	-55.4	-25.0	-22.8	-24.1
Maluku						
Maluku	-13.2	-52.8	-40.0	-4.7	-27.1	-19.9
Sumatra	-38.3	-46.4	-40.9	-18.7	-35.2	-24.0
Java	-33.4	-76.8	-41.2	-11.9	-81.7	-24.4
Balinus	-26.5	-78.5	-32.0	-26.4	-90.8	-33.2
Kalimantan	-32.5	-54.4	-39.9	-5.7	-37.8	-16.1
Sulawesi	-30.7	-70.2	-40.9	-28.5	-24.4	-27.4
Indonesia	-33.3	-56.2	-39.9	-17.2	-39.6	-23.7

Table 3 Area harvested of food crops in Indonesia in El Nino 1982/1983 and 1997/1998 compared with 3 year moving average.

	Wetland Rice	Dryland rice	Maize	Cassava	Groundnut	Sweet Potato	Soybean	Total Crops
Area decrease ('000 ha)								
1982	-367	-82	-507	-91	-45	-27	-133	-1,254
1983	-308	-97	-72	-111	-40	-12	-81	-721
1997	-398	-82	-303	-113	-68	-16	-196	-721
1998	-305	-109	-54	-114	-57	-13	-142	-792
Area decrease (%)								
1982	-4.5	-7.1	-22.0	-6.7	-9.0	-12.2	-18.3	-8.6
1983	-3.8	-8.4	-3.0	-8.5	-8.2	-5.7	-11.7	-5.0
1997	-4.0	-6.3	-8.6	-8.7	-10.1	-9.2	-15.3	-6.4
1998	-3.0	-8.7	-1.5	-8.9	-8.8	-7.3	-12.0	-4.3

Table 4 Area of food crops compared with 3 year moving average by province in 1997.

Province	Area Decline ('000 ha)	Percentage (%)
Aceh	-29.6	-6.1
North Sumatra	-8.1	-0.7
West Sumatra	-20.2	-4.4
Riau	-19.5	-10.8
Jambi	-25.0	-10.3
South Sumatra	-32.9	-5.5
Bengkulu	-15.2	-8.2
Lampung	-218.2	-18.4
West Java	-117.9	-4.6
Central Java	-230.9	-8.4
Yogyakarta	-10.3	-2.8
East Java	-167.6	-4.6
Bali	-8.4	-3.3
West Nusatenggara	-15.2	-3.1
East Nusatenggara	-5.2	-1.0
West Kalimantan	-13.6	-3.4
Central Kalimantan	-7.7	-3.9
South Kalimantan	-21.6	-4.7
East Kalimantan	-10.4	-5.7
North Sulawesi	-29.9	-13.5
Central Sulawesi	-17.4	-8.4
South Sulawesi	-123.6	-9.2
Southeast Sulawesi	-14.4	-9.2
Maluku	-13.9	-19.2
Average	-49.0	-6.4

Table 5 Rainfall decrease, area decrease and vulnerability index by group of kecamatan.

Variable	Description of Variables	Group of Kecamatan			
		Lowland Area		Upland Area	
		G-1	G-4	G-2	G-3
Characteristics of kecamatan					
IN4	Proportion of village with paved main road	high	low	high	low
IN5	Ratio of number household/number of cars	low	low	low	high
IN6	Ratio of wetland area/number of water pumps	low	low	moderate	high
IN7	Ratio of wetland area/number of agricultural inputs kiosk's	high	high	low	high
HH1	Ratio of wetland area/household numbers (ha/household)	high	moderate	low	low
HH2	Mean wetland size (ha/farm household)	high	moderate	low	low
HH3	Percentage of farm household with wetland size < 0.50 ha per household (%)	low	high	low	high
R1	Crop intensity per year (%/year)	low	high	low	high
	Number of kecamatan	67	150	40	78
	Percentage of kecamatan	20.0	44.8	11.9	23.3
	Number of kecamatan with area decrease	37	76	23	66
	Percentage of kecamatan with area decrease	55.2	50.7	57.5	84.6
	Rainfall decrease (%/kecamatan)	30.1	28.5	45.5	42.4
	Wetland rice area decrease (%/kecamatan)	3.56	4.24	5.61	8.16
		(-253)	(-120)	(-103)	(-264)
	Mean of vulnerability index	0.157	0.199	0.137	0.129
	Wetland area (ha/kecamatan)	4,466	1,847	1,277	1,982
	Production share to Java production (%)	0.156	0.061	0.038	0.068

Note: () Area decrease in hectare per kecamatan in 1997.

Spatial distribution of vulnerable kecamatans and socio-economic and natural resource characteristics: the case of Java

On Java 1,456 kecamatans were analysed to understand the spatial distribution of wetland rice area decrease caused by the El Nino 1997. Wetland rice area decrease occurred in 58% of kecamatans with an average rate of -6.9% per kecamatan, whereas those percentages for dryland rice area were 52% and -19.0%, respectively. This indicates that the El Nino led to a higher rate of area decrease for dryland rice, but the spatial distribution is lower compared to wetland rice. Most of the kecamatans under wetland rice area decrease were located in West Java, particularly in southern parts such as the districts of Sukabumi, Tasikmalaya, Garut, and Serang, and in southern parts of Central Java such as Wonogiri, and Magelang. Those kabupatens are generally located in highland regions.

To understand more details of kecamatan characteristics under wetland rice decrease, "Principal Component Analysis Methods" were applied. This analysis included 16 variables which reflected characteristics of natural resource endowments, infrastructure, farmer households, and wetland rice performance for each kecamatan. The results show that kecamatans could be grouped into two major groups (G-1, G-4 and G-2, G-3 in Table 5) based on their natural resources: (a) kecamatans located in lowland regions which have low rainfall (about 1,600 mm per year), high proportion of technical irrigated land and moderate rainfall decrease in 1997 about 29%; and (b) kecamatans located in highland regions which have fairly high rainfall (about 2,000 mm per year), low percentage of technical irrigated land, and higher rainfall decrease in 1997 about 43%.

Due to higher rainfall decrease and poorer irrigation network, the impact of area decrease is higher on highland kecamatans compared to lowland kecamatans. The wetland rice area decrease in both kecamatan groups occurred particularly in kecamatans with the following characteristics:

- high intensity of rice culture per year; in other words, most sawah lands of dry season were rice cultivated. Since the 1997 El Nino led to rainfall decrease, particularly in the dry season, this cropping pattern has higher

probability of harvest failure for dry season culture;

- remote area or poor transportation infrastructure;
 - less availability of input kiosks; and
 - high proportion of small farm sizes (Table 5).
-

Paving the Way for Objective Agreements by Revealing Subjective Perceptions of Reality: the Underlying Principles of the Approach

*Franck Jésus**

Decision making and institutional analysis

Making decisions in complex situations with multiple stakeholders holding multiple objectives is a difficult task. Economic approaches have proposed methods, such as cost/benefit analysis, and models to help decision-makers better assess the comparative advantages of different options for future actions. Notwithstanding the fact that these approaches can provide useful insights, it should be noted that they consider stakeholders' behaviour as predictable on the basis of an objective appraisal of a situation. However, as mentioned above, the existence of partial perceptions of reality implies speculative anticipations from stakeholders, which may not be *objectively* rational and, therefore, cannot be predicted by these methods.

Other scientists working on policy development and project definition have tried to take account of the existing uncertainties in stakeholders' behaviour. They pointed out that unpredictability of reform outcomes called for stronger attention to the implementation processes where, following decisions, a lot of adaptation was to be expected to fit initial objectives with stakeholders' reactions. Without any effort to adapt reforms during the implementation process, stakeholders are likely to oppose them. Such

* Cirad-Amis, ECOPOP, France. This paper is taken from P.A.C.T. A Pro-Active Conciliation Tool: Analysing Stakeholders' Inter-Relations. CGPRT Monograph No. 41, CGPRT Centre, Bogor.

opposition can easily lead to failure while "failure to effectively implement policy wastes increasingly scarce resources, undermines prospects for sustainable development, and eventually threatens the legitimacy of the regime itself" (Brinkerhorff 1996).

In most cases, though, leaders cannot control the actions of other stakeholders. The results that leaders can achieve through their decisions depend on how these decisions combine with actions taking place at other levels through other actors.

Critics of government interventions have argued that governments cannot efficiently administrate these interactions. However, it has also been proven more recently that the existence of externalities, public goods, imperfect information and incomplete markets makes it impossible for market mechanisms alone to ensure efficient stakeholder coordination.

In any society, coordination by market mechanisms or government at various levels means interaction with a wide range of stakeholders: from individuals to representatives of formal or informal institutions. Since the mass of individuals is far from homogeneous, comprising citizens with very different opinions and capacities, the diversity of actors is even greater. Moreover, the historical development of the State generated a diversity of actors in itself through the creation of numerous governmental organisations, services and enterprises, each focused on specific tasks and goals. In such situation, problems that require actions going beyond the decision level of one of these actors become difficult to tackle with the existing institutions. They require mechanisms to coordinate the actions of multiple actors, and multiple organisations.

Although coordination problems are not specific to the State (private enterprises or development projects, for instance, often face important coordination problems), they bear a special resonance in its case. "The task facing policy managers (...) calls for actions that cross agency boundaries and, in many cases, extend beyond the public sector to incorporate private sector and nongovernmental actors" (Brinkerhorff 1996). Very often, though, rather than seeking stakeholders' involvement, governments facing multiple actor or multiple institution problems have sought to solve them through a hierarchical mode of decision, allocating the task to one state service or even creating a new one for the purpose. In many cases, doing so encourages stakeholders to

rely on the government to solve most problems; it leads to the development of a "demand of State actions (...), which justifies its existence but also weakens it" (Ollagnon 1998).

Considering that "successfully pursuing (...) reforms (...) involves not just knowing which direction to move in, but paying attention to how to get there" (Brinkerhorff 1996), analysts have often proposed to use the "Stakeholder Analysis" method, which is designed to evaluate the position of various actors concerned with a reform or a project, to support successful implementation processes. This method aims at assessing which actor is likely to oppose or to support a given decision. It considers that leaders (in most cases the State, the government) are the ones who make decisions and changes, and that they should know whom to ally with in order to ensure the successful execution of their decisions. It enriches decision-making with practical strategic considerations for implementation, but still views decision-making as a hierarchical process.

Recent works on policy-making, public economies, government and institutions tend to present a different view of the problem, where the State is no longer the only leading actor who has to take account of all in order to achieve good decisions. Some consider that the advantages of the two prominent institutions namely the State and the market should be combined. Stiglitz (1998), for instance, investigates "how (...) government and the private sector can act together, as partners, or (...) in a complementary fashion". Ostrom (1997) recognises "that order and comparatively high performance can be achieved in local public economies where large, medium and small governmental and nongovernmental enterprises engage in both competitive and cooperative relationships". More generally, cooperation and strategic convergence between government institutions, the civil society and markets are considered more and more as a necessity to achieve efficient and feasible changes in a society.

The State is, thus, considered as one of the multiple actors whose interaction with the others defines the changes. This shift from leader to co-decision-maker and co-manager may not be an easy one for governments to undertake, but some analysts argue that it is a crucial one. Policy failures or inadequacies, and an increasing demand for participation in decision-making by local stakeholders are strongly challenging the legitimacy of the governments' traditional *modus operandi*.

Involving themselves in a role of negotiator, facilitator, mediator of decisions involving multiple actors may be the way governments can have a strong and legitimate role in the future.

The institutional analysis method presented in this document relates to these latter points of view and suits objectives of co-decision-making and co-management. By collecting and analysing information on the perceptions of stakeholders concerning a situation or a problem, this approach can help the stakeholders solve, avoid conflicts, or take advantage of existing possibilities of collaboration. It can be used to solve problems where co-ordination of objectives and actions between many different stakeholders is necessary.

Rather than aiming at making leaders more successful in passing their reforms, as "Stakeholder Analysis" tries to do, this method aims at helping all stakeholders find conciliation procedures, define common or collective management rules, or set up common or collective organisations to solve the problems they are facing or to enhance the development of their region.

It can be used as a research tool, but its main aim is to help stakeholders build a common and commonly accepted action path for future changes. It is specifically shaped to deal with problems involving multiple stakeholders with various opinions and options of action, who interact on the same reality.

Moreover, successful application of the method implies the respect of some rules of conduct while implementing interviews and reporting results of analysis, and an agreement with stakeholders on its use as explained in Chapter III.

Another important point is that this approach does not provide users with objective information allowing the assessment of the technical or economic feasibility of changes. Therefore, its use should be combined with other, more quantitative, technical and economical approaches. The present paper, though, will not deal with the issues of method combination.

In the next chapter, the main principles of the approach will be presented, followed by the software user guide, and the institutional analysis method itself.

CGPRT Centre News and Activities

FEED

After appointment of the national experts, the project is now conducting country studies in India, Nepal, Pakistan and Sri Lanka until the end of February. The submission of draft country reports is expected by March 2002. Prior to the country study, the pre-planning consultative meeting with the regional advisor was undertaken in Bogor in August 2001, and the planning meeting with the national experts and the regional advisor in September 2001. The objectives of the meetings are: (i) to develop clear understanding of the project goals, (ii) to construct common methodologies to be applied in country studies, (iii) to set agreement and approval of the overall workplan for the project and general workplan of each country study, and (iv) to establish good communication channels.

ELNINO

The interim review of the Philippines was conducted in November 2001. The small Water

Impounding Project (SWIP) in Nueva Ecija, Luzon island, project site for 2nd phase country study, can be a showcase of participative approaches of irrigation development contrasting to the top-down mode of national project type irrigation development. At the planning stage, the farmers were well aware that management and maintenance of the facilities was to be done by themselves. The method of compensation to the owners of submerged lands and other management matters were decided by involved people with assistance of local/central government. The process seemed to facilitate the ownership concept among the farmer members, which is mostly lacking in the case of national irrigation schemes. Once they recognized their own responsibilities, they organized a self-governing body for management. In the process of collective decision-making/action, they were empowered to overcome the constraints. Now they are seeking to fully use the dam for activities other than the original purpose of irrigation. In short, "capacity building" as an intangible effect of the SWIP should be the focus of the study, though production stability,

enhancement and other tangible effects are to be measured quantitatively. However, equity issues such as method of compensation, how to share and/or expand the benefit to non-members still remain to be considered.

Editing of the 1st phase report of the Malaysian country study has been completed. The report, "Stabilization of Upland Agriculture under El Nino-induced Climatic Risk: Impact Assessment and Mitigation Measures in Malaysia" will be published soon in the working paper series of the CGPRT Centre.

MAPSuD/Metropol

The Centre survey database has been filled with answers from 65% of the questionnaires sent for the first step survey. A preliminary analysis of data shows the share in terms of education level of the scientists involved in activities related to socio-economic and policy analysis for CGPRT crops in the region for the responding centres (Figure 1). It also shows the main types of topics/issues that were mentioned as relevant topics for future CGPRT crop research (Figure 2). In relation with these topics, Figure 3 displays the tools the respondents think to be important to master in order to properly deal with these topics.

These results show that with a share of respectively 20%, 50% and 30% of professional staff with Ph.D, M.Sc and B.Sc diplomas the qualification level of scientists is rather high, allowing for potential in-depth training and capacity building activities in the field of socio-economic and

policy analysis. As far as topics are concerned respondents expressed a need for further research on economic assessment of technology, for market and trade analysis, as well as for production economics. In relation with these topics data acquisition methods appear to be the most needed element before complex data analysis methods. This reflects the situation of the CGPRT crops, for which reliable data are not very much available throughout the region. Without these data, more sophisticated analysis cannot be properly conducted.

These initial results confirm the strategy of the Centre in focusing and developing a regional database on CGPRT crops and indicate that the Centre should play a role in strengthening the capacity of regional professional to use these data for more complex analyses.

These results will be further analysed through the combined analysis of topics and tools.

A more detailed survey at research and development unit or programme level has started, based on the information received from the Centres. It focuses on both the past and current activities of these units and on future topics of relevance. This will help us to refine the assessment of the needs and to map the existing expertise that can be tapped for strengthening the overall capacity of these units in the region. Results will be also entered in a database and a report will be sent to all respondents, including proposals for training courses to be coordinated by the CGPRT Centre.

Figure 1 Distribution of diplomas among scientists working on socio-economic and policy analysis of CGPRT crops.

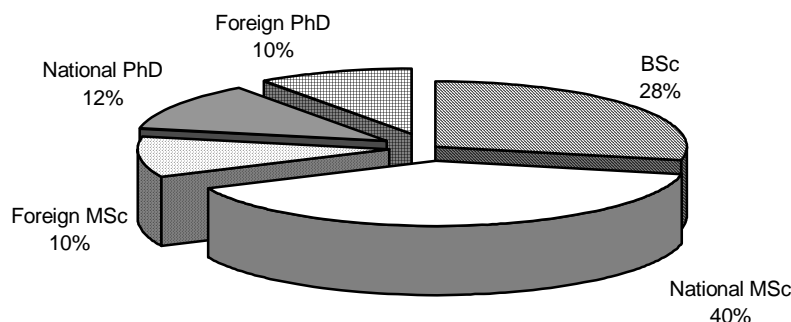


Figure 2 Priority topics related to socio-economic and policy analysis of CGPRT crops.

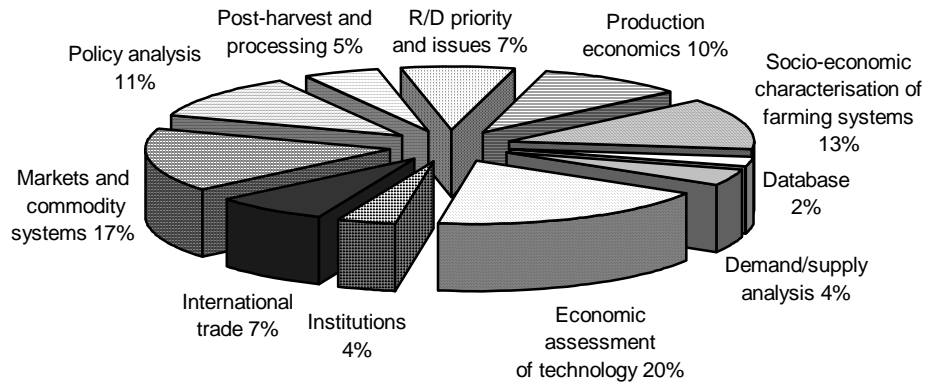
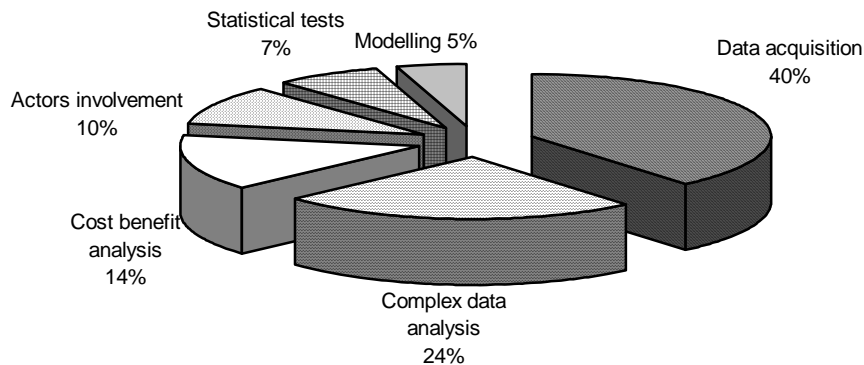


Figure 3 Distribution of tools used for socio-economic and policy analysis of CGPRT crops.



The CGPRT Centre and the MAPSuD/Metropol Programme thank all the contact persons and respondents who have so kindly helped us and answered the first step survey. We hope that your commitment will still remain high for the following steps of this project so that we can succeed in identifying and responding accurately to the needs of the region in terms of CGPRT crop development.

IS/DB

Information Services:

- CGPRT Centre Monograph series no. 41 entitled "P.A.C.T. A Pro-Active Conciliation Tool: Analysing Stakeholders' Inter-Relation", which is the outcome of the ECOPOL project, has been published and is ready for distribution.
- Editing of Working Paper no. 61: "Stabilization of Upland Agriculture under El Nino Induced Climatic Risk: Impact Assessment and

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- Mitigation Measures in Malaysia” nearing completion. This will be a country report of Malaysia under the El Nino project.
- The IS/DB posters and photo display board have been completed.

Database:

- The restructuring of the Centre’s Database on-line has been completed.
- The collection and compilation of Indian country data have started.
- The on-line full text PALAWIJA News in PDF format is now available.

Announcements

Course on Management of Rural Development Organisations

**An organisational learning approach
3 - 25 April, 2002**

The course focuses on helping managers to guide organisational transformation.

The organisational implications of delivering participatory and network-oriented services for rural development, whether as a private, government or non-government organisation, are examined.

Current rural development trends and practices are linked to theories of organisational change and learning. Participants’ organisations and operating environments are analysed. Management roles, practices and styles are discussed and consolidated through practical exercises and group work. Specific attention is given to enhancing staff performance and motivation and gender issues.

Course on Network Development for Agricultural Innovation

**Rethinking research, agribusiness, extension and farmers’ linkages
3 - 25 April, 2002**

Course participants will:

- Assess how service delivery and research can be more collaborative in development processes, action oriented and utilisation focused,
- Enhance understanding of network theory in agricultural development,
- Learn about and use practical methods and tools for analyzing, establishing and facilitating networks,

- Analyse changing conditions for agricultural innovation, trends in public sector reform, agricultural markets, globalisation, economic ideas, agricultural research, extension and policy-making,
- Study new models of extension and review recent experiences in the privatisation of advisory services.

Course on Participatory Planning Monitoring and Evaluation

**Learning for impact
3 - 25 April, 2002**

This course focuses on how to design and institutionalize participatory planning and monitoring and evaluation systems in projects and programmes for continuous learning and enhanced performance. Particular attention is paid to the relationship between management information needs and responsibilities and the planning and monitoring and evaluation functions.

Training Programme on Integrated Pest Management (IPM)

**22 April - 28 June, 2002
6 courses**

The whole programme is composed of 6 courses. Although each of the courses is designed to stand alone, the training programme facilitates various combinations. It should be noted that for the courses on Development of IPM approaches and Role of pesticides in IPM basic computer skill (Windows, Internet, and Word) are required, which are given in the course Introduction to IPM.

- Introduction to IPM
- Participatory extension for sustainable crop production
- Development of IPM approaches
- Organic farming: analysis, design and management
- Role of pesticides in IPM
- Literature search

Horticultural Training Programme

21 April - 30 June, 2002
9 courses

The whole programme is composed of 9 courses. Although each of the courses is designed to stand alone, the training programme facilitates various combinations.

- Introduction to horticultural training programme
- Horticultural production technology
- Protected cultivation
- Post harvest technology of fresh horticultural produce
- Marketing of horticultural fresh produce
- Organic farming: analysis, design and management
- Floriculture
- Mushroom production
- Literature search

Training Programme on Biotechnology, Plant Breeding and Seed Technology

April - July, 2002
14 courses

The IAC training programme on biotechnology, plant breeding and seed technology offers a variety of short courses, addressing different aspects of the developments mentioned above. The programme consists of 14 different courses, organised within a period of 10 weeks. Although each of the courses is designed to stand alone, the training programme facilitates various combinations. This set-up allows for individual packages, tailored to the specific requirements of the participants.

- Introduction to molecular genetics
- Seed quality aspects
- Plant biotechnology and biosafety
- Genetic distinction and molecular markers
- Management of seed programmes
- Master class on seed physiology
- Breeding for resistance
- Seed enterprise development
- Plant variety protection
- Socio-economic perspective of plant breeding and seed production
- Integrated quality management
- Genetic conservation and agro-biodiversity
- Selection of crop varieties
- Seed agronomy

For further information, contact:

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Statistical Profiles

Bangladesh

Agriculture plays an important role in the growth and stability of the economy of Bangladesh. The great uniformity of the landmass, the fertile alluvial soil and the tropical monsoon climate provide excellent conditions for agricultural production. Although the share of agriculture in the gross domestic product is likely to decline, agriculture will remain the single largest contributor to the economy in the years to come. The food crop sub-sector dominates the agricultural scenario in Bangladesh, accounting for about three-quarters of the total agricultural output. Rice is the major cereal and largely determines the rate of progress in this sector.

“An Agricultural Statistical Profile of Bangladesh, 1947-1999” is the seventh in the series of the CGPRT Centre’s publications providing specific and wide-ranging agricultural data focusing on coarse grains, pulses, roots and tuber (CGPRT) crops in Asia. This volume covers 17 CGPRT crops and two major cereals showing area, production and yield.

The agro-statistical indicators are divided into a number of groups as follows:

- (1) General indicators: population, GDP and meteorological data;
- (2) Agricultural census: structure of agricultural holdings, households by size and type of farm;
- (3) Crop statistics: major cereals: rice and wheat; coarse grains: maize, barley and jowar; pulses: gram, arhar, masur, motor, mungbean, mashkhalai, khesheri and til; oilseeds: rape, mustard, groundnut and linseed; roots and tubers: sweet potato and potato;
- (4) Commodity prices: monthly wholesale price by commodity;
- (5) Food balance: foodgrain production and requirement gap; foodgrain budget and stock position;
- (6) Foodgrain import: foodgrain import by source and type; annual and monthly;
- (7) Foodgrain distribution: public distribution by channel; monthly off-take and shares;
- (8) Agricultural inputs: distribution of improved seeds, chemical fertilizer, pesticides and irrigation by method (low lift pump, deep tube-well etc.); and
- (9) Agricultural land use: land utilization, cropping patterns, cropping intensity, area irrigated by crop and method.

A brief introductory text and a rough interpretation are presented here along with general comments on the prospects of agriculture of Bangladesh.

Philippines

"CGPRT Crops in the Philippines: A Statistical Profile, 1990-1999" is the eighth in the series of the CGPRT Centre's publications providing specific and wide-ranging agricultural data focusing on coarse grains, pulses, roots and tuber (CGPRT) crops in Asia. An earlier series was published in January 1992 in collaboration with the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) covering the period 1960-1990. In keeping pace with the previous publication, this updated volume covers eight crops: corn (maize), mungbean, soybean, groundnut, cassava, sweet potato, white potato and rice. Although not a CGPRT crop, rice is the most important crop in the Philippines in terms of area planted and production, hence it has been included in the series for easy reference and comparison.

The statistical indicators are divided into five groups at geographic scales (nation, region and province), namely:

- 1) General indicators: population, households, labour force, employment status, land classification, consumer price index, GDP, foreign trade, money supply and inflation;
- 2) Crop Statistics: major cereals: rice, coarse grains: corn; pulses: mungbean, soybean, groundnut; roots and tubers: cassava, sweet potato and white potato;
- 3) Commodity prices: monthly average farm gate price, wholesale price and retail price of listed crops;
- 4) Supply and utilization accounts: all listed crops; and
- 5) Climatic data: monthly rainfall by selected station.



Available Now

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

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 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.

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