

II Contents of the Project Planning

I. *History and Background of the Project*

1.1. *Characteristic of village in Indonesia*

(1) Process of modernization in Indonesia's traditional rural society

The cornerstones of Indonesia's traditional rural society are said to be Gotong Royong (the mutual assistance system) and Semangat Kekeuargaan (family first). This kind of traditional rural society evolved into a new regional cooperative society in the course of the modernization of agriculture which followed the Second World War. We will now look at this process to examine the characteristics of Indonesian society. This section examines changes in rural society through the history of agricultural cooperatives. It is based on a doctoral thesis, "Research on the Development Process of Agricultural Cooperatives Responding to Modernization in the Monsoon Asian Region", which was presented to the Natural Science Research Department of the University of Okayama by Mr. S. Iwatono.

a) Development of the cooperative society movement and the modernization of rural society

The cooperative society movement in Indonesia can be traced back to the end of the 19th century, when the country was ruled by Holland. Following the model of Dutch cooperative societies, the movement developed into farming credit banks serving the middle classes. Later, at the start of the 20th century, the cooperative society activities of the Islamic trade cooperatives and Dutch exchange students in the Indonesian Students' Association developed in parallel with the independence movement. The Indonesian Students' Association later grew into the Indonesian National Party, which became a nucleus of the independence movement. Under Japanese rule the cooperative societies were used by the military government to promote its occupation policies, becoming a strategic tool for sustaining the war economy. This damaged the people's trust of the cooperative societies.

After independence the cooperative societies were held to be an embodiment of the traditional Indonesian spirit of Gotong Royong and Semangat Kekeuargaan and began to develop in a new direction. The cooperative societies movement became particularly active after 1951, with dramatic increases in the number of societies and their members and in the size of their savings balances. At the end of the 1950s, government interference intensified and the cooperative societies were made into organizations for the distribution of basic foodstuffs. They received considerable benefits from this position and many new societies sprang up to compete for them. By 1965 the number of societies had risen to over 70,000. However, the cooperative societies at this time became lower branches of the government organization for the implementation of government

policy, becoming strongly influenced by communist ideology at the same time.

With the failure of the Communist Party coup d'etat in 1965 and the establishment of a new government, the cooperative societies were reorganized and returned to their original principles. The number of societies plummeted from over 70,000 in 1965 to under 9,000 in 1968, but the survivors grew from there as true, mature, cooperative societies.

In 1973 these cooperative societies reformed as Village Unit Executive Bodies (Bidden Usaha Unit Desa - BUUD) and Village Cooperative Units (Koporasi Unit Desa - KUD), which is the form they have retained until the present.

In this historical progress, Indonesia's cooperative societies movement, and the agricultural cooperatives in particular, have been used as political tools throughout their development, rather than responding to the demands of society. As a result, they were widely mistrusted among farmers. In 1967~1968 their numbers fell sharply and they began their work again in a new form. As a result, Village Unit Executive Bodies and Village Cooperative Units have replaced the old agricultural cooperatives. In particular they expanded their scale beyond administrative boundaries to achieve administrative rationalization, and organized as rural regional corporations to reduce costs. Since then they have held the central role in the cooperative societies movement in rural areas.

The fact that they are named "village" cooperative societies rather than "agricultural" cooperative societies indicates the change in the nature of Indonesia's cooperative societies movement in its new form.

b) Bimas Plan and the transformation of the cooperative societies

The Indonesian government devised the Bimas Plan (Mass guidance for self-sufficiency in foodstuffs) as an agricultural modernization policy and pushed it forward vigorously. The Bimas Plan was a set plan to propagate new technique systems, concentrating on paddy fields. It introduced high-yielding varieties of rice, provided the distribution routes for fertilizers and agricultural chemicals and provided credit. The plan began in 1963 with agricultural cooperatives at the nucleus, but at first it failed to achieve any significant results. This led to the Bimas Gotong Royong plan in 1968 and the Bimas Yang Disem Brunakan Plan in 1970, which improved and corrected the original Bimas Plan. The old agricultural cooperatives, which were initially the nucleus of the plan, were replaced by the newly organized Village Unit Executive Bodies and Village Cooperative Units. These new organizations were not simply cooperative societies for action within agricultural life, they acted to unify and promote all types of activity in rural areas. Action in agricultural life was still their central role, but their role had broadened to make them

comprehensive cooperative societies. The shift in the nature of the societies from agricultural cooperative societies to rural cooperative societies has been accompanied by development and progress in their work. Table 2 - 1 shows the changes in Indonesia's rice production in the period. Clearly, yield per unit area has been rising steeply since 1968.

Table 2 - 1 Rice Production Area, Yield per Hectare and Total Production in Indonesia

Year	Production area (1 million ha)			Total production (polished rice)			Yield per hectare (ton)		
	Java	Outside Java	Indonesia	Java	Outside Java	Indonesia	Java	Outside Java	Indonesia
1960	4.32	2.96	7.28			10.17			1.40
61	3.99	2.87	6.86			9.58			1.40
62	4.09	3.19	7.28			10.28			1.41
63	3.65	3.08	6.73			9.16			1.36
64	3.66	3.32	6.98			9.61			1.38
65	4.01	3.32	7.33			10.24			1.40
66	4.12	3.57	7.69			10.75			1.40
67	4.02	3.49	7.51			10.40			1.38
68	4.26	3.76	8.02	7.07	4.59	11.67	1.66	1.22	1.45
69	4.29	3.72	8.01	7.50	4.75	12.25	1.75	1.28	1.53
1970	4.30	3.83	8.14	7.89	5.25	13.14	1.83	1.37	1.62
71	4.41	3.91	8.32	8.44	5.29	13.72	1.91	1.35	1.65
72	4.34	3.65	7.98	8.11	5.08	13.18	1.87	1.42	1.67
73	4.56	3.82	8.38	8.87	5.74	14.61	1.94	1.49	1.74
74	4.73	3.78	8.51	9.44	5.84	15.28	2.00	1.54	1.80
75	4.65	3.84	8.50	9.33	5.86	15.18	2.01	1.52	1.79
76	4.47	3.90	8.37	9.56	6.28	15.34	2.14	1.61	1.89
77	4.38	3.98	8.36	9.33	6.54	15.88	2.13	1.64	1.90
78	4.75	4.18	8.93	10.61	6.92	17.52	2.23	1.66	1.96
79	4.63	4.16	8.80	10.68	7.19	17.87	2.31	1.72	2.03
1980	4.78	4.24	9.02	12.61	7.64	20.25	2.63	1.80	2.25
81	4.86	4.43	9.30	13.50	8.17	21.67	2.78	1.84	2.33

c) Changes in rural society and rural development due to the Bimas Plan

The success of the Bimas Plans and the development of the Village Unit Executive Bodies and Village Cooperative Units are two sides of the same coin. The Village Cooperative Units have had a decisive effect on the distribution system for fertilizers and varieties and they also have a monopolistic hold on the collection and shipping of harvested rice. The completion of this system has brought remarkable stability in the price of rice. On the other hand, government policies to support the price of rice and government support for the cooperative societies has spawned inefficiency in the management of the cooperatives and various other problems are gradually surfacing. The result, as can be seen from the example of the handling of polished rice seen in Table 2 - 2, is that the share of the market held by the Village Unit Executive Bodies has been declining gradually from the peak reached in 1984. In the earlier stages of economic development, the cooperative societies played an important role in promoting the central government's policies, but once a certain level of growth had been attained, that role changed. The direction of the cooperative societies' work is being examined and questioned again and the activities of the Village

Cooperative Units and Village Unit Executive Bodies are now entering that kind of phase of transition.

Table 2 - 2 Changes in the volume of polished rice handled by the Village Cooperative Units

Year	Polished rice (1,000 ton)			Share of KUD (%)
	KUD	Others	Total	
Pelita II				
1974/1975	352	181	533	66.0
1975/1976	372	167	539	69.0
1976/1977	225	186	411	54.7
1977/1978	212	205	417	50.8
1978/1979	292	589	881	33.1
Average	291	266	556	54.8
Pelita III				
1979/1980	320	111	431	74.2
1980/1981	1,516	119	1,635	92.7
1981/1982	1,969	45	2,014	97.8
1982/1983	1,834	211	2,045	89.7
1983/1984	2,036	173	1,209	85.7
Average	1,335	132	1,467	88.0
Pelita IV				
1984/1985	1,930	575	2,505	77.0
1985/1986	1,400	625	2,205	69.1
1986/1987	1,273	244	1,517	83.9
Average	1,534	481	2,016	76.7

Source) Research and Development Board, Department of Cooperative

The economic development and agricultural modernization which have been centered on rice have made a great contribution to Indonesia's overall development. However, now that some degree of agricultural modernization, and economic progress based on it, have been attained, a wide variety of conflicts and distortions brought on by modernization are coming to the surface. These conditions have led to a decline in the cooperative societies movement and a slowdown in their activities, as seen in their reduced share in the handling of polished rice. Something is going to change in rural Indonesia, which has attained economic development, and what we see now is a phase of searching for a new direction. In this time of transition, to examine the significance of the village development movement, which started out as a grassroots movement, is to take on the task of questioning what should be the form of the overseas village development cooperation which supports it.

In conclusion, the modernization of paddy field farming has achieved food self sufficiency and modernized agriculture has been immensely valuable as the core of Indonesia's economic development. At the same time, modernization has brought great development opportunities to the landowning upper-class farmers. On the other hand, the process has increased the gap between the upper-class farmers and the landless farm laborers who have been left behind in this progress. The result is much greater instability in rural areas. In the light of Japan's own

experience of development through rural development projects as described above, the village development movement, that is to say, the projects for rural development, should be seen as projects aimed to alleviate modernization-induced distortions and help to stabilize rural society as a whole.

Looking at the current situation in rural areas of Indonesia, the village development movement is reaching an extremely important stage and in this stage the hard support of rural development projects and cooperative projects for overseas village development is clearly very valuable.

(2) Traditional farming techniques and intensive land use in tropical rain forest areas (Agroforestry and Pekarangan)

a) Current situation and trends in land use in Indonesia

Table 2 - 3 shows the total area of farm land in Indonesia and the breakdown of its use. The table gives figures for 1983~85 and 1986~88 and the changes between these figures. As the table shows, the total area of farm land is approximately 28.6 million hectares, of which the largest share is for dry fields at 12.6 million hectares. This area includes former areas of shifting cultivation which are practically wasteland. Of the remaining 16 million hectares, half is paddy fields, five million hectares are Pekarangan and three million hectares are pasture. Paddy fields amount to 28% of all farm land and Pekarangan 17%. The large role played by the Pekarangan, which is peculiar to tropical rain forests and is rarely seen in other countries, should be noted.

Table 2 - 3 Changes in the Total Area of Farm Land in Indonesia and the Breakdown of its Use

Year	Pekarangan	Upland	Paddy field	Pasture	Grand total
1983~85 (ha)	4,836,058	12,154,654	7,504,075	3,629,324	28,124,114
(%)	17.19	43.21	26.88	12.90	100.00
1986~88 (ha)	4,960,094	12,598,302	7,970,555	3,052,492	28,581,443
(%)	17.35	44.07	27.88	10.67	100.00
1983~85 (%)	100.00	100.00	100.00	100.00	100.00
1986~1988 (%)	102.00	103.65	106.21	84.10	101.62

Source) Central Bureau of Statics, Republic of Indonesia

As for the changes in land use trends, the total area of farm land increased by nearly 2% over the three years. Paddy field area rose by over 6%, upland by nearly 4% and Pekarangan by 2%, while pasture area fell by 16%. The steep increase in the use of paddy fields, which make intensive use of the land, and the sharp drop in pasture area, a low-intensity form of land use, are the dominant trends. The increase in Pekarangan, albeit slight, is also worth noting. For

comparison of regional trends, Tables 2 - 4 and 2 - 5 show the results of similar studies of Java provinces, which is comparatively developed and Sulawesi provinces, which is lagging behind in development. In Java, the area of Pekarangan rose by approximately 5%, while the area of paddy fields was declining. Conversely, in Sulawesi, the area of Pekarangan fell by 7%, and the area of paddy fields rose by 6%. It is interesting to note that the trends in Pekarangan and paddy fields in the two provinces were exactly opposite.

In Java the development of paddy fields fell down a step, while in Sulawesi paddy field development appears to be at its peak now. At the peak of agricultural development, new paddy fields are made even at the cost of destroying Pekarangan. As development progresses, a reverse trend appears as the area of Pekarangan rises again. The type of farm land being developed changes with the level of agricultural development.

Table 2 - 4 Changes in the Total Area of Farm Land in Java Provinces and Breakdown of its Use

Year	Pekarangan	Upland	Paddy field	Pasture	Grand total
1983~85 (ha)	1,567,880	3,128,730	3,482,880	65,030	8,244,520
(%)	19.01	37.94	42.24	0.78	100.00
1986~88 (ha)	1,638,750	3,129,750	3,445,170	62,740	8,267,410
(%)	19.80	37.81	41.62	0.75	100.0
1983~85 (%)	100.00	100.00	100.00	100.00	100.00
1986~1988 (%)	104.52	100.03	98.91	96.47	100.38

Source) Central Bureau of Statics, Republic of Indonesia

Table 2 - 5 Changes in the Total Area of Farm Land in Sulawesi Provinces and Breakdown of its Use

Year	Pekarangan	Upland	Paddy field	Pasture	Grand total
1983~85 (ha)	431,595	1,764,010	747,314	790	3,733,123
(%)	11.56	47.25	20.01	21.16	100.00
1986~88 (ha)	400,890	1,819,366	789,739	591,915	3,601,910
(%)	11.12	50.51	21.92	16.43	100.00
1983~85 (%)	100.00	100.00	100.00	100.00	100.00
1986~1988 (%)	92.88	103.13	105.67	74.90	96.48

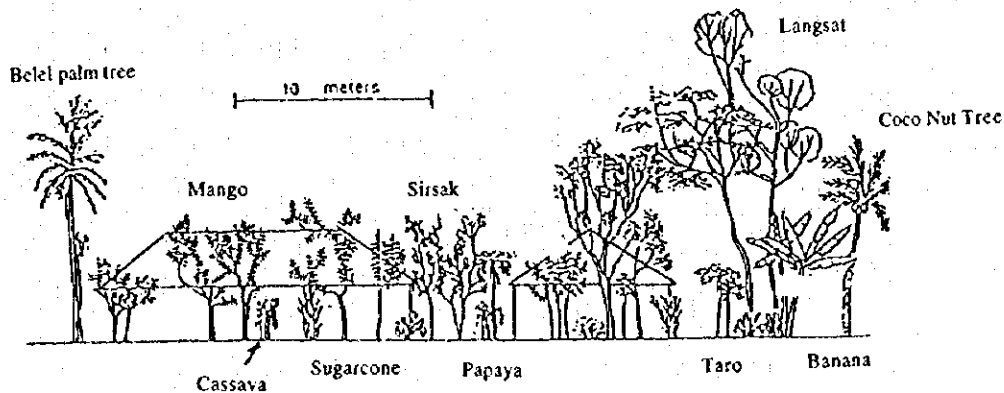
Source) Central Bureau of Statics, Republic of Indonesia

The above analysis demonstrates that the development of paddy fields plays an extremely important role in the stages of agricultural development for whole regions and for the country as a whole. When the development of paddy fields has stabilized in relation to large-scale development at the level of national policy, and the income resulting from this development has also stabilized, there appears to be an increasing urge among farmers to develop Pekarangan which will operate in close connection with their daily lives. When paddy field development in Sulawesi provinces

slows down a notch, the demand for Pekarangan can be expected to rise.

(b) Pekarangan

The Pekarangan is an extremely intensive form of land use which makes use of two characteristics of tropical rain forest, namely the extremely rich growth of vegetation and the formation of complex ecosystems. It is a traditional way of farming which has long been practiced in this region. By combining tall perennial with annual plants such as potato varieties, a stable agro-forestry ecology is created which brings together a wide variety of crops and is pest resistant. Another advantage is that the Pekarangan needs little fertilizer or agricultural chemicals for maintenance. In recent years this way of farming has come under close scrutiny as a means of environmental conservation because it is sustainable and requires little input. A land area of 10ha cultivated in this way can serve as year-round supplementary work for one household. In many cases it also serves as a windbreak and a source of shade. In many cases the Pekarangan provides the characteristic scenery of farm villages in the tropical regions. Figure 2 - 1 shows the typical breakdown of crops in a Pekarangan.



Original: Christel Linda et al. 'Traditional Agroforestry in West Java: The Pekarangan (Homogarden) and Kebun Tahan (Annual Perennial Rotation) Cropping Systems' in: Marko Gusli G. Traditional Agriculture in Southeast Asia, Worldview Press, 1984, PP. 132-136.

Fig. 2 - 1 Typical breakdown of crops in a Pekarangan

(3) Village development projects as supplements to agriculture modernization policies

a) Paddy field development projects within agriculture modernization policy

Indonesia's agricultural modernization policies, in the form of the Bimas Plan and its revised successors, have achieved considerable success. The Bimas Plans, which focused on the introduction of high-yielding varieties, particularly in paddy fields, have achieved self-sufficiency in staple food supply and laid the foundations for economic growth in the country as a whole. Rural areas have seen great progress as the way to cash income has opened.

Since the mid-1980s this policy of agricultural modernization centered on paddy fields reached a major transition point. We have already looked at the conditions of that time through the example of the cooperative societies movement.

Paddy field development has proceeded on pasture land or former areas of shifting cultivation which met the conditions for use as paddy. Under the Bimas Plans, paddy field agriculture became increasingly intensive, bringing remarkable rises in yield per unit area from the 1970s on, until the paddy fields were yielding a large production surplus. The development of the Village Unit Executive Bodies and Village Cooperative Units is inseparable from the Bimas plans and the combination brought large increases in income, mainly to the landowning upper-class farmers. In Indonesia when the development and improvement of the paddy fields came together with the cooperative societies movement, modern, intensive paddy field agriculture developed as a result. One important point which must be noted is that the people who derived great benefits from this modernization policy were the upper class farmers who own large areas of land.

b) Cooperative village development and support for the independent development and improvement of farm land

Java provinces, which was the first to attain this paddy field-based modernization of agriculture, has seen a sharp rise since the mid 1980s in the area of Pekarangan developed independently by farmers. The area under paddy fields has been on a downward trend. This trend is apparently because farmers who had managed to accumulate some wealth through the intensive farming of paddy fields began to want traditional Pekarangan to supply food for their own consumption. This indicates a very strong desire among farmers in general to own Pekarangan, which are an extremely intensive form of agriculture, primarily providing for home consumption. Therefore there is a strong tendency for all farmers to own a certain area of Pekarangan, rather than for some farmers to own a large area.

The increasing area of Pekarangan is largely due to independent development by farmers,

so it is a different character of development from the large-scale development of paddy fields. The development of farm land in Indonesia is polarized between the movement towards modern, intensification of farming through paddy fields and another movement towards traditional intensification through Pekarangan. The former, intensification of farming through paddy fields, is based on the principle of economic rationalism. The latter, traditional intensification through Pekarangan, has sociological significance in that it stabilizes rural society and perpetuates traditions. The former is based in large-scale land development and modern agricultural techniques, while the latter is based in rural development as a grassroots movement.

The comparatively advanced region of Java provinces has already reached the limit of paddy field development and the development of Pekarangan is proceeding, but Sulawesi provinces, which lags behind, is now in the paddy field development stage. This situation is clear from the land use trends mentioned above. In the future, the relative importance of Pekarangan in Sulawesi can be expected to rise. Therefore, in Sulawesi the ongoing large-scale development of paddy fields should be accompanied by another development pattern combining small-scale paddy field development with Pekarangan development in regions left out of the large-scale development. This pattern should be promoted as a grassroots movement for rural development projects which will produce a more effective form of rural development. Cooperative village development projects should not be paddy field development projects. Instead they should organize the farmers' own independent projects, to develop the small-scale development of paddy fields and Pekarangan in tandem, to complement the larger paddy field developments. Aid should be focused on supporting such efforts.

c) Intensive land use in tropical rain forest areas and the land improvement it requires

As the traditional farming of the Pekarangan is subjected to modern scientific research, "Modern Agro-forestry" is being established as a new system of agricultural techniques. Originally Agro-forestry is a form of farming well adapted to the combination of abundant plant growth, heat and high rainfall peculiar to the tropics. Particularly in areas of volcanic ash-based soil, plant colonies combining fruit trees with deep distributions of root groups and shallow-rooted annual plants achieve vigorous vertical movement of water in the soil. As a result, large amounts of the abundant rainwater are retained in the soil and put to effective use in growing crops. This approach is also seen in the "water harvesting" which is a traditional farming method of the Middle East. It can be regarded as the optimum system of agricultural techniques and method of land use for the natural environment of Southeast Asian archipelagos, which are covered by volcanic ash and have abundant rainfall.

The Pekarangan, which is well suited to the properties of the natural environment, makes maximum use of the resources present, resists pests and requires little fertilizer, places an

extraordinarily small burden on the environment while achieving intensive land use. It should be positioned as a third way of using land intensively, alongside paddy fields and irrigated dry fields. The Pekarangan must be re-evaluated from this perspective.

d) Overseas cooperative village development and environmental conservation

The village development movement is a grassroots movement and in most cases its development is based on traditional farming techniques which are well adapted to the region. Traditional farming methods are adapted to the environmental conditions of their surroundings and they place little burden on their environment. Their development can also be accomplished for a relatively small investment. Therefore, cooperation with this kind of movement for village development is, broadly speaking, making a considerable contribution to environmental conservation.

In many cases, Pekarangan are established on former areas of shifting cultivation. If the land ravaged by shifting cultivation can be rehabilitated swiftly and developed for intensive farming, the result will be a reduction in extensive agriculture. This in turn will bring a great reduction in the environmental burden of shifting cultivation.

Shifting agriculture is most often practiced by lower-class farmers, who do not own paddy fields, and landless farm laborers. By combining Pekarangan and paddy field development, they will be able to achieve stable, intensive farming, making an important contribution to the stability of rural society. Making modern arrangements for the kind of traditional intensive farming seen in the Pekarangan and bringing it back to prominence, will yield great benefits in the conservation of the natural environment of tropical areas.

1.2. Base survey into overseas village development by JALDA

The Indonesian government's Fifth National Five-year Development Plan (Repelita 5) set the following as its objectives, to be achieved through agricultural development:

- i) The maintenance of self sufficiency in food supply.
- ii) Increased production and improved quality of agricultural produce.
- iii) Increased income for people in rural areas.
- iv) Improved standard of living for farmers.
- v) Greater opportunities for employment.

- vi) Promotion of migration policies.
- vii) Balanced regional development.

These policies targeted areas outside Java, particularly those in the East.

The promotion of agricultural and rural areas is essential to the development of developing countries and various projects and policies must be implemented by the country's own efforts and through aid from developed countries.

Nevertheless, agriculture and rural areas in developing countries continue to suffer from problems such as low productivity, bad living conditions, extensive poverty and destruction of the surrounding environment. Aid in the future will have to be far more effective.

To that end, the Ministry of Foreign Affairs and the Ministry of Agriculture, Forestry and Fisheries are considering project-oriented technical cooperation with the characteristics listed below as a new direction for aid to agricultural and rural development plans in developing countries.

- 1) Policies for improving the hard side of infrastructure in rural areas will be implemented in tandem with policies aimed at the soft side of infrastructure in comprehensive development plans.
- 2) Plans are to be pushed forward by local participation in the form of the initiatives of local representatives and those concerned in local government-related agencies.
- 3) Infrastructure improvements will be made using the local workforce and local materials.
- 4) Farmers' organizations will also be strengthened.

The above methods will transfer relevant skills of all kinds to local officials, farmers' representatives and others involved in comprehensive agricultural and rural development (village development) and generate ripple effects to benefit the surrounding area.

Southeast Sulawesi Province, which is the subject of the plan, is situated in the Southeast of Sulawesi Island, which is in the East of Indonesia. It separated from South Sulawesi Province in 1964, making it the youngest of the four provinces of Sulawesi and the third youngest in Indonesia. That is why the development of this province lags behind that of other provinces. Some 91% of the population live in rural areas and agriculture is one of the province's most important industries. Despite the fact that approximately 30% of the land area of the province has strong potential for development into farm land (particularly for dry fields, livestock and estate crops) it is

left as "sleeping land" which deserves rapid, planned development.

Agriculture in Southeast Sulawesi long consisted of shifting cultivation, dry fields and fruit trees. The staple foods of the inhabitants are sago and cassava. Paddy field and irrigation development were begun in this area by settlers (migrants), but the scale of irrigation is small and the facilities were built by the farmers themselves along traditional lines.

While the climate of the area is well suited to the cultivation of a wide range of crops, the productivity of agriculture there is well below that of Indonesia as a whole. The yield of rice is particularly low at 2.4ton/ha.

This low productivity is due to the poor state of terminal facilities and post-harvest handling facilities. In particular, the level of basic farming infrastructure (water intakes, irrigation and drainage canals, farm roads etc.) is low, and the techniques used for rice cultivation (farming, cultivation, water management etc.) are not adequately developed into forms rooted in the natural and cultural conditions of the area. The training of key technicians and the construction of agricultural facilities are urgent tasks for the comprehensive development of agriculture in the region. Therefore, the Indonesian government has been working to build up terminal infrastructure, to train and improve the quality of government employees, expand the area of farm land and raise farm productivity. It also aims to expand employment opportunities, alleviate poverty and otherwise raise levels of income and living standards in the area by improving markets and distribution facilities.

Against this background, the Indonesian Ministry of Agriculture (MOA) and a survey team from the Japan Agricultural Land Development Agency (JALDA), dispatched with aid from the Japanese Ministry of Agriculture, Forestry and Fisheries, conducted a joint, basic survey. The survey aimed to provide basic information for a comprehensive agricultural and rural development plan for March 1990, and gathered documentary information on the construction techniques etc. needed for cooperative work rooted in the region. (The survey was conducted in August ~ October 1989 and December 1989 ~ March 1990).

Table 2 - 6 Basic Survey Team for Improvement of Overseas Rural District

(Aug. - Oct. 1989, Dec. 1989 - March 1990)

Assignment	Member's Name	Surveying Terms	Surveying Contents
Regional Development	Koji Hattori	1989/8/7 - 8/12	Basic survey for improvement of overseas rural district
Farming Planning	Yoshiya Takashima	1989/8/7 - 10/31	ditto
Irrigation and Drainage	Tatsuo Matsunaka	1990/1/10 - 2/9	Basic survey for integrated agricultural and rural development
Regional Development	Nobuyoshi Kayano	1989/12/23 - 90/3/25	ditto
Agriculture Economy	Shunsuke Akamatsu	1990/1/10 - 2/9	ditto
Livestock Development	Takashi Higashimaki	1990/1/10 - 2/9	ditto
Farming Planning	Yoshiya Takashima	1990/2/20 - 3/10	ditto

In developing countries in recent years, poverty and lagging development in rural areas has led to the migration of farming people to the cities, which has left farm land to fall into disuse and ruin and spawned further grave social and environmental problems in farming regions. The importance of greater efforts to comprehensively develop and revitalize rural areas, in order to root people to the land and protect the agricultural environment, is growing. However, there are enormous numbers of villages in developing countries where the infrastructure for production and the living environment is inadequate. The benefits of technological transfer must be spread much more widely through these villages. One way which is being tried to achieve this, is the establishment of a number of selected model zones in which basic infrastructure is improved while stimulating local agriculture. It is hoped that farmers will participate in the activities of these zones and so carry techniques from village to village.

1.3. Project formulation survey

The right course of development for the Eastern region of Indonesia, in which underdeveloped agriculture is dominant, is a major question. The comprehensive development approach, which has strong locally-led ripple effects, is under consideration.

The results of the above survey were the basis for the Integrated Agricultural and Rural Development in Southeast Sulawesi Province, which targeted five districts and eight villages in Kendari Division. A JICA Project Formation Survey Team were dispatched to the area to define the direction and guidelines for the project-oriented technological transfer (15th ~ 25th March 1990). The Project Formation Survey Team checked the nature of needs, held meetings, signed minutes of the meetings, and drew up detailed annual plans after the project began. The following four elements were central in this process:

- 1) The content and position of regional development plans and the linkage between

village development and regional development plans.

- 2) The potential for cooperation in village development and the position of cooperation in village development.
- 3) Study of the potential for Japanese cooperation and the nature of that cooperation.
- 4) The direction and guidelines for project formation.

Table 2 - 7 Project Formation Survey Team (15th~25th March 1990)

Assignment	Member's Name	Belonging Organization
General Supervision	Kenzo Takeuchi	Section of Design Division of Construction Bureau of Structure Improvement, Ministry
Cooperation Planning	Osamu Seino	International Cooperation Section, Economy
Technical Cooperation	Masao Takai	Section of First Region, Department of planning, JICA
Agriculture Development	Kotaro Fujiwara	Section of Farm Products Extension, Division of Products Marketing Bureau of Kanto Regional Agricultural Administration, MAFF
Coordination	Nobuharu Usuki	Section of Agriculture Development, Department of Agriculture Development Cooperation, JICA

The content of the project formation study can be summarized as follows:

(1) Formation of a consensus on cooperative village development

Cooperative village development projects are intended to reach out for the cooperation of the beneficiary farmers and aim to build up farmers' organizations to ensure sustainable development. They also work to establish comprehensive systems to dispense ongoing, appropriate local guidance which will run through from the planning and implementation to farming, cultivation and maintenance management. These elements combine into a new form of cooperation. We have explained that such a scheme can only be successfully completed through project-oriented technological cooperation and this position has been agreed.

(2) Objectives

This kind of cooperation seeks the participation of local farmers at every stage of infrastructure development, from planning through execution and on into operational management. The locally-developed techniques and practices must also be given full consideration in this process using local materials and methods involving primarily manual labor. In this process the experts and their counterparts should give the key farmers on-the-job training in practical techniques and give them guidance in all stages of the project, from planning to design and the construction of facilities and on to operational management, water management and farming, and the operation of farmers' organizations.

(3) Project content

The following work was carried out, with due consideration for participation.

- a) Planning of model rural development
- b) Improvement of agricultural infrastructure
- c) Demonstration and diffusion of agricultural techniques
- d) Organization of farmers
- e) Training of key farmers and engineers from local administrative agencies

(4) Content of cooperation from the Japanese side

- a) Dispatch of experts
- b) Acceptance of counterparts for training
- c) Provision of machinery and equipment
- d) Miscellaneous: Bearing the expenses of improving agricultural infrastructure

(5) Measures which should be taken by the Indonesian side

- a) Provision of offices
- b) Appointment of counterparts and other staff
- c) Provision of the necessary budget for project operation
- d) Necessary coordination for project implementation
- e) Selection of model regions

(6) Tasks in technical cooperation

- a) There has been little experience of participatory cooperation and there are no established methods for cooperation as a comprehensive package of hard and soft elements. Therefore, support and study in response to the developments in cooperation are required.
- b) Infrastructure development must be implemented with flexible and continuous support for the local cost of such projects.
- c) Experts with detailed knowledge of the project area must be found, and organized support arranged, in the partner country, to ensure smooth progress in the creation of farmers' organizations.
- d) This kind of cooperation will have major knock-on effects in the region, and there is

little experience of such projects in the past, so the state of implementation cooperation must be followed closely and appropriate measures devised.

The study group explained the Japanese side's basic approach to project-type technical cooperation under the plan and reached a consensus on basic concepts with the Indonesian Ministry of Agriculture (MOA), the National Development Planning Agency (BAPPENAS), related agencies in Southeast Sulawesi Province and other parties.

1.4. Request for project-type technical cooperation

The Indonesian Government submitted a formal request dated 22nd June 1990 for project-type technical cooperation under the above plan. In response, Japan announced at the Annual Consultation Meeting on Technical Cooperation and Grant Aid Program to Indonesia (Jakarta, 28th-29th June 1991) that "We have received and adopted the request and will dispatch a study team in due course, which is necessary for the implementation of the project".

1.5. Long-term survey

Following on from the commitment made at the above Annual Consultation Meeting, a nine-member group of long-term survey staff was dispatched from September 1990.

The results of past Japanese and Indonesian studies into the integrated agricultural and rural development of Southeast Sulawesi Province and the matters discussed in meetings were taken as the basis for further discussions with relevant Indonesian agencies, and a field study was also made. These elements formed a long-term survey which followed the schedule below. Its purpose was to broadly define the framework of the project-type technical cooperation under the above plan and draw up draft plans for such cooperation.

- (1) Project commencement period (6th - 16th September 1990)
 - a) Explanation of the framework of project-type technical cooperation

The framework of project-type technical cooperation under the integrated agricultural and rural development plan for Southeast Sulawesi Province (the nature of the cooperation, the planned costs for the Japanese and Indonesian sides, the schedule for implementation and other matters) was explained and discussed, together with Japanese proposals based on past discussions and progress made.

b) Preliminary survey for the long-term survey

The Japanese side explained the content, schedule and other aspects of the survey and made adjustments where necessary. It also asked the Indonesian side to provide the necessary facilities and appoint counterparts.

(2) Survey period (continuing and supplementary surveys) (16th September 1990 ~ 18th November 1990)

The long-term survey team, working together with its Indonesian counterparts, started work on the basis of discussions held at the start of the survey and using the results of previous surveys. To this, they added further detailed field surveys and exchanged views with related agencies to reach bilateral understandings on the following issues:

- a) An outline plan for integrated agricultural and rural development in the eight villages targeted by the plan.
- b) The portions of the agricultural and rural infrastructure development plan which are to be implemented through cooperation.
- c) The draft plan for the implementation of project-type technical cooperation.
- d) A grasp of the conditions pertaining to the implementation of cooperation.

(3) Project completion period (30th October 1990 ~ 8th November 1990)

A detailed exchange of views was made based on the findings of the long-term survey to reach agreements on basic points concerning the technical cooperation involved in project-type technical cooperation.

Table 2 - 8 Long-term Survey Members

Items	Assignment	Member's Name	Belonging Organization	Dispatching Term
The Project commencement period	General Supervision	Makoto Shimada	Bureau of Structure Improvement, MAFF	1990/9/6 - 9/16
(Explanation of the framework of the project)	Cooperation Planning	Yoshitaka Sumi	Department of Development Cooperation, JICA	-ditto-
Continuing Surveys	Rural Development	Nobuyoshi Kayano	Japan Agricultural Land Development Agency (JALDA)	1990/9/6 - 11/8
	Construction planning	Tatsuo Matsunaka	Japan Agricultural Land Development Agency (JALDA)	-ditto-
	Farming planning	Yoshiya Takashima	Japan Agricultural Land Development Agency (JALDA)	-ditto-
Supplementary surveys	Rural Society	Shin Kawanaka	Specialist, JICA	1990/10/4 - 10/20
The project completion period	Cooperation policy	Akira Kuribayashi	Bureau of Economy Cooperation, Ministry of Foreign Affairs	1990/10/30 - 11/8
	Agriculture Development	Nobuharu Usuki	Bureau of Structure Improvement, MAFF	-ditto-
	Cooperation planning	Yoshitaka Sumi	Department of Agriculture Development Cooperation, JICA	-ditto-

1.6. Implementation Discussion Survey

The Japanese Government and JICA dispatched a project formation survey team in March 1990 and the request was formally adopted at the Annual Consultation Meeting in Indonesia in June of that year. The long-term survey followed, beginning in September of the same year, and an implementation discussion survey team was dispatched in January 1991. This process led to the signing and exchange of the Record of Discussions (R/D) on the implementation of cooperation and the Tentative Scheme for Implementation (TSI).

Table 2 - 9 Implementation Discussion Survey Team (16th January 1991 ~ 27th January)

Assignment	Member's Name	Belonging Organization
Leader	Yasuto Kikuoka	Section of Development, Bureau of Structure Improvement, MAFF
Vice-Leader	Takeo Shimizu	Section of Agricultural Technical Cooperation Department of Agriculture Development Cooperation, JICA
Cooperation planning	Hiroshi Takazawa	Section of International Cooperation, MAFF
Rural Development	Nobuyoshi Kayano	Department of Overseas Activities, Japan Agricultural Land Development Agency (JALDA)
Coordination	Yoshitaka Sumi	Section of Agricultural Technical Cooperation, Department of Agriculture Development Cooperation, JICA

Therefore this project, classified as a Gersamata plan (Equitable Prosperity Rural Development), aimed to promote the comprehensive development of agricultural villages in Southeast Sulawesi by transferring appropriate technology to the region and working for balanced regional development and the alleviation of poverty. These last objectives are also the priority aims of the National Five-year Development Plan. Japan's technical cooperation was to assist in a trial process along these lines.

(1) Basic Concept

Five districts and eight villages in Kendari, each of differing agricultural production and social and economic conditions, were studied, and development plans were devised for individual hamlets in the area, which were tailored to the conditions in each hamlet. Based on these plans, the following measures were implemented as models of comprehensive agricultural and rural development.

- Improvements to the production base, the land and agricultural facilities.
- The introduction of appropriate agricultural machinery and machinery for land clearance and construction.
- Practical demonstration and training in farming and cultivation techniques.
- Reinforcement and nurturing of farmers' organizations.

These measures, building on regional and social conditions, aim to increase agricultural productivity, promote the compound diversification of agriculture, raise farming incomes, stabilize production, revitalize farming villages and raise the standard of living.

A further objective is to enhance the abilities of the Indonesian counterparts, local government staff and key farmers who are involved in the entire process from planning to implementation. This will promote the spread of ripple effects from this project to other neighboring areas which are underdeveloped and share similar conditions. The types of model development chosen for the eight villages in five districts are shown in Table 2 - 10 below.

Table 2 - 10 Types of Model Village Development

District name	Village name	Development type	Order of implementation
Ranometo	Ranometo	Integrated agricultural and rural development close to an urban area.	1
	Onewila	Development of grouped paddy fields through improved drainage.	7
Palangga	Palangga	Village development through compound management of upland, estate and wet rice crops.	2
	Kiaea		3
Lainea	Laeya	Development of unused land, primarily for uplands, estates and livestock.	6
Tinangga	Lalobao Lapulu	Integrated agricultural development of villages, concentrating on upland crops.	4
Landono	Sabulakoa	Development of grouped paddy fields through improved agricultural infrastructure.	8

(2) Contents of cooperation

a) Tasks of cooperation

i) Devising plans for integrated agricultural and rural development

- Cropping pattern, land use patterns, farming plans
- Agricultural infrastructure and land reclamation improvement plans

ii) Improvement of agricultural and rural development

- Agricultural infrastructure and land reclamation improvement (land reclamation for paddy field and upland field, irrigation facilities and farm roads etc.)
- Improvement of agricultural infrastructure (rice mills, seed storage, fattening yard, auction yard etc.)
- Display of appropriate agricultural techniques
- Paddy cultivation
- Upland crop cultivation
- Perennial crop cultivation

iii) Introduction and operation of appropriate machinery, maintenance and management techniques

iv) Farmers, women, strengthening and education of water management organizations etc.

v) Local government staff, training and education of key farmers

- b) Period of cooperation
March 1991 - February 1997(six months)
- c) Project site
Villages: Five districts and eight villages in Kendari Division of Southeast Sulawesi Province
Project office: Kendari Division, Kendari City
- d) Executing agency in Indonesia
Executing agency: Ministry of Agriculture
Cooperating agencies: Government of Province, Regional offices of each of the districts
- e) Contents of cooperation on the Japanese side
- i) Dispatch of experts
 - Long-term experts (7 persons):
Team leader and regional development concurrently, agricultural and rural development improvement, facility development, construction supervision, farming supervision, operation of machinery and its maintenance and management, strengthening of farmers' organizations, coordination of projects
 - Short-term experts(3 to 4 persons for a year)
Agricultural economy, post-harvesting treatment, stockbreeding, soil analysis, control of disease and insect damage etc.
 - others
Participation of Indonesian experts in perennial crops (particularly estate crops) at the expense of the Japanese side.
 - ii) Reception of trainees: Training in Japan for 3~4 trainees a year, mainly from among Indonesian counterparts.
 - iii) Provision of equipment: Machinery and tools for construction and farm operation and equipment for training and education.
 - iv) Costs borne locally
 - Cost of projects to improve project infrastructure.

The costs of implementing projects for land reclamation and infrastructure improvements in farm villages will be borne locally.

- The costs of measures to train key engineers.

(3) Plans for the concrete implementation of cooperation

The objective is to raise the technical level of farming and construction by one or two levels in the five districts and eight villages selected as project site. The projects described below will be implemented to attain those objectives.

a) Introduction of farming machinery

Hand tractors (to reduce the time required for tilling) and power sprayers will be introduced to promote the efficient use of farm land and increase yields, and power threshers will be introduced to speed post-harvest processing.

b) Practical proof and demonstration of cultivation techniques

Cultivation experiments will be conducted in the field, concentrating on locally-grown crops, to demonstrate the cultivation techniques and provide proof of their efficacy. The cultivation improvements for each crop will be proven in test fields and compared against customary cultivation methods.

c) Farming improvement plans

i) Improvement of the land use rate

Agricultural work will be mechanized, and this mechanization will be integrated into cultivation techniques in order to improve the land use rate of the region. Increasing the land use rate will bring a real increase in the area of farm land.

ii) Improvement of cultivation techniques

Soil improvement of farm land through deep plowing and the addition of organic material.

- Establishment of appropriate-time control and wide-area control of disease and insect damage.
- Appropriate-time harvesting and swift post-harvest processing.
- Promotion of anti-erosion measures for fields.
- Promotion of vegetable cultivation in paddy fields near to urban areas.

d) Improvement of agricultural infrastructure

To improve the state of infrastructure improvement, unused land resources will be used for the preparation of farm land and facilities appropriate to the region will be added, with consideration for the conservation of the region's environment. The level of these improvements will be such that the farmers themselves will be able to continue to make such improvements for themselves afterwards.

i) Intake facilities

The safety of intake facilities in the event of flooding will be secured by reinforcing basic elements such as dam foundations, revetments and up and down stream scour prevention.

ii) Irrigation canals

Block irrigation in the smallest possible units will be planned so that the irrigation canals have the necessary water-carrying cross section and distribute water appropriately in the dry season. Water management will be practiced within these units.

iii) Farm roads

The minimum road network required for the passage of farm machinery and the collection and shipping of produce will be built.

iv) Development of farm land

Unused land and thickets extending beyond land already under cultivation will be developed as farm land.

e) Technical transfer

The implementation of the above projects will be taken as an opportunity to transfer related skills and techniques to local government staff and key farmers. These skills include methods for devising agricultural and rural plans, design estimations, construction management, farming techniques, and the nurturing and reinforcement of farmers' organizations.

1.7. Characteristics of this project

(I) Rural development cooperation and rural infrastructure development

Rural development in the overseas cooperation projects can be corresponded to the village activation movement in Japan, or not to "Agricultural infrastructure development" but to "Rural infrastructure development" for the purpose of rural amenity environmental development in narrow

sense.

Referring to the development project in Japan, comparing with the agricultural and development project which was a core of conventional land improvement project, some essential differences can be pointed out as follows. The first point is that, the program of land improvement project was formulated to aim rather large scale project in view of investment efficiency; i.e. economy oriented rationalism, and the agricultural land development project is a duly typical one. The rural development project is, by contrary, that of centering rural amenity improvement as be seen in various projects so called as "Model Project", "Integrated Pilot Project" and "Mini Integrated Project" in abbreviation. Either the size of the project is too small to adopt under present project program, then new project program is created to pick up such small projects. In other words, the rural development project has been situated as a supplemental one to the agricultural land development project, but not has been situated itself as an independent development concept in terms of project institution.

The second point is that, while the rural development project is considered to be integrated project with amenity environment and production infrastructure development as an object of small scale project or amenity environment improvement, the rural development project will have a characteristic of the nature of so called "Grass root movement". On the contrary, rural development project is going to develop to be supporting program to the "Grass root movement" by means of land improvement technology. This trend seems to be interesting that the concept of rural development project at the time of institutional establishment as a supplement to agricultural land development is going to exceed. The contact of rural development project with village development movement is characterized as mentioned above two points.

(2) JALDA cooperation in overseas village development

It is hard to believe that the character of Japanese rural development projects of described above applicable to "village development cooperation". However, looking at village development cooperation from the view point agricultural civil engineering, the course taken by rural development projects in Japan can be of considerable reference.

From this point of view, we can divide projects between those which make large-scale improvements to the production base, which can be called "agricultural development cooperation", and those which cooperate in detailed, small scale improvements to farm villages. It is this latter type which can be called "cooperation in overseas village development".

Diversified agricultural and rural development projects in developing countries usually require a cooperation lead self-help effort of the developing countries, and grass root level

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cooperation which will contribute to careful and sincere human resources development and village development in developing countries shall be conducted.

The other sides, institutional and research type and technical center type cooperation in agricultural sector have increased, and the connections between the cooperation and real farmers are indirect. It will take a long time to extend the results of cooperation to the farmer's level and to reflect to the incremental agricultural production.

In this regard, integrated village development cooperation expanding from hard aspect to soft aspect which makes possible sustainable development after the cooperation and foster a sense of unity of rural community as well as a support of self-help effort in developing countries shall be conducted.

Village development cooperation initiated by JALDA induces dispatch of experts, provision of equipment and preparation of local cost financing to the agricultural infrastructure and rural amenity development cooperation under the participation of farmers who live in there. This cooperation will make possible to organize farmer's group, strengthen rural society, balanced and sustainable rural development and creation of self-help will of regional people.

The comparison of cooperation projects with conventional project type technical cooperation and JALDA initiated village development cooperation is as follows.

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Items	Conventional Project-type technical cooperation		Rural development cooperation by JALDA
	Regional Agriculture Development	Research-type and technical-center type	
1. Purpose	Promoting rural agriculture development through developing and extending the techniques of land consolidation, water management and farming	Research and technology development for the specific subject, such as breeding useful crops	Rural development and human resources development by the participatory approach in the rural infrastructure development Rural development both with the "hard" and "soft" technology
2. Counterpart	Senior specialist of cultivation, soil, extension, irrigation and so on, in the public agencies	Researcher in the public research center and senior engineer in the government	1) Local government engineers of irrigation, water management, farming, extension, etc., 2) Key farmers of various organizations, such as farmers, operating facilities, village development organization, and so on.
3. The way of project management	Technology transfer to counterparts through demonstration and extension works in model farm	Technology transfer to counterparts through joint research	1) The beneficiary farmers themselves participate in all stages from planning to implementation. (Developing the techniques suitable to local communities and technology transfer to the counterparts and farmers through on-the-job training, such as survey, design, construction in the project by JALDA) 2) Technology transfer to counterparts through demonstration and exhibition in model farms
4. Features	Training engineers and leaders in the government	Searching fruits of the research	1) Emphasizing "soft" technology such as strengthening of farmer's organizations 2) Achieve immediately result of cooperation through farmer's participatory 3) Extending the measurement of village development around the project area by developing the technologies suitable to local communities, strengthening farmer's organization, etc.,

Its objectives can be summarized as follows:

- a) Adjustment of distortions which arose in the course of state-promoted modernization of agriculture, and of problems which were missed out in that process.
- b) Support for the independent activity of farmers who are rooted in local traditions which do not fit in with economic rationalism.
- c) Stabilization of the livelihoods of landless farm laborers who became such in the course of agricultural modernization.

(3) Environmental conservation in cooperation for village development

It has to be said that it is hopeless to openly raise the issue of environmental conservation when attempting to make a grassroots movement out of rural development cooperation. Nevertheless, it often happens that the increasingly modern farming brought on by agricultural development becomes a cause of environmental destruction, as do indirect causes springing from areas left behind by that kind of modernization. Also, as will be described later, the rapid rehabilitation of former areas of shifting cultivation and their return to agricultural use, thereby creating a new natural environment, makes a great contribution to environmental conservation. Therefore, even if direct environmental conservation is not the objective, the result can be a major contribution to that cause. In that way, cooperation for village development should be recognized as an effective form of environmental conservation. Cooperation for village development is a phrase often bandied about in the context of global environmental conservation and it does seem to be a good example of the concept of "Think Globally, Act Locally".

Indonesia has implemented strong policies for agricultural modernization, with emphasis on paddy fields, and these have achieved considerable success. The country now enjoys almost complete self-sufficiency in staple foods and is moving towards a new period of progress. The central role in this modernization effort in Indonesia has been borne by landed, upper-class farmers who are able to make large profits from surplus production. The landless, lower-class farmers benefited to some extent from increased employment opportunities and increased wages, but another result of this modernization has been a marked widening of the gap between upper-class and lower-class farmers. The social problems caused by this widening disparity are typically manifested in movement towards cooperative farming unions.

The traditional techniques for intensive farming in this region is agro-forestry using Pekarangan (home gardens). This is an advanced technology system for intensive farming which makes use of the complex plant and animal ecology peculiar to the tropics. This approach is not necessarily suited to the production of commercial crops, but it is an excellent way of providing a self-sufficient supply of food for daily needs. This is a traditional system of agricultural techniques which has been assembled in the context of the natural environment of the region. It is a stable form of land use well suited to the local environment. The Pekarangan is a labor-intensive system using a small-scale plot around a residence and as such, it is well within reach of landless farmers. People do not necessarily take to modern farming methods, and this form of farming could make a great contribution to the stability of rural society as a method which both upper-class and lower-class farmers could make equal use of to provide themselves with a minimum, self-sufficient supply of food.

Overall, the Pekarangan system is likely to produce the greatest results for lower-class

farmers. Normally, the ravaged land left behind after shifting cultivation can be bought very cheaply and could be made into Pekarangans in many cases. If Pekarangans are emphasized as a means of reclaiming former areas of shifting cultivation and providing lower-class farmers with their daily food needs, they will rebuild the natural environment after shifting cultivation and help to stabilize rural society. This approach can play a central role in taking land which has been worn out and discarded in the name of economic efficacy and agricultural modernization and reviving it. This can be a valuable project to supplement the modernization of agriculture which concentrates on paddy fields. Moreover, it can make a great contribution to environmental conservation on the global scale.

(4) Characteristics of the project

This is a comprehensive project for participatory agricultural and rural development with the following key characteristics.

- 1) This project aims to achieve integrated development by directing its cooperation to infrastructure in rural areas, that is to say, the "hard side", and also to related measures on the "soft side".
- 2) The beneficiary farmers themselves participate in all stages from planning to implementation. The initiative in moving the development plan forward is taken by key farmers and the relevant staff of agencies associated by local government.
- 3) Infrastructure is developed using the local workforce and locally-available materials/
- 4) Farmers' organizations, women's organizations and other groups are strengthened and nurtured to make regional development sustainable/
- 5) The kinds of work described above promote the self-help efforts of farmers and transfer knowledge and techniques of agricultural and rural development (village development) to key farmers and the relevant staff of agencies associated by local government. The ripple effects of this project will also be propagated to other regions with similar social, economic and environmental conditions.

2. Framework and activities of the project

2.1. Investment plan and the results

To achieve the objectives of the project, the project-type technical cooperation projects implemented by Japan will be built around the following four action plans.

- 1) Dispatch of JICA experts
- 2) Training in Japan
- 3) Equipment and material provision
- 4) Local cost budgeting plan

(1) Dispatch of JICA experts

Team leaders for regional development will be dispatched on a long-term basis, together with experts in the development of agricultural and rural infrastructure, instruction in farming techniques, construction management and the development of farm land, operation and maintenance management of machinery, strengthening farmers' organizations, administrative coordination and other fields. In addition, experts in agricultural economy, animal husbandry development, design of facilities, soil analysis, hydrological analysis and other fields will be dispatched as required during the progress of the project. Their technical cooperation, including guidance, advice, examinations, diffusion of skills and education will help in a comprehensive and effective way to move the project forward.

The content of the technical cooperation, which is recorded in the Tentative Scheme for Implementation (TSI), falls into the five categories listed below.

- 1) Devising plans for integrated agricultural and rural development
 - Land use plans, cropping pattern and farming plans.
 - Plans for the development of agricultural and production infrastructure.
- 2) Improving agricultural and rural infrastructure
 - Improvement of agricultural infrastructure and production infrastructure (land reclamation for paddy field and upland field, building irrigation facilities and farm roads etc.).
 - Improving agricultural facilities (training facilities, rice mills, seed storage, cattle fattening facilities etc.).

- 3) Demonstration of appropriate agricultural techniques
 - Paddy cultivation
 - Upland crop cultivation
 - Perennial crop cultivation (estate crops)
 - 4) Strengthening and nurturing organizations for farmers, women, water users and other groups.
 - 5) Education and training of local government staff, educators and key farmers.
- a) Fields of experts on long-term dispatch
- Leader (regional development planning)
 - Agricultural and rural infrastructure development
 - Construction supervision
 - Agricultural extension
 - Operation and maintenance of equipment
 - Strengthening of farmers' organizations
 - Coordination

b) Assignment of short-term experts

Experts are assigned for various fields, including post-harvest treatment, agricultural extension service, vermin, soil analysis, agricultural economics, livestock development, rural society, rural woman issues, and other requested fields as needed.

c) Input target achievement status

A total of 12 long-term experts in the following fields, Rural development, Coordination, Agricultural and rural infrastructure development, Construction management, Machinery operation maintenance management, Farming guidance, Strengthening farmer's organization have been assigned for the duration of this six-year cooperation project. Moreover, based on the R/D, a total of 26 short-term assignment experts have been sent over 6 years.

Since this project commenced on March 1, 1995, a little more than one month after the R/D signatures, the dispatch of long-term experts started from June, causing a delay in the start of activities.

Table 2 - 11 Status of long-term experts dispatch

Member's Name	Field	Period			
		1991.	6.5	~	97. 2.28
Kanno Nobuyoshi	Team Leader / Rural Development	1991.	6.5	~	97. 2.28
Soichi Ogasawara	Business Coordination	1991.	6.5	~	97. 2.28
Tatsuo Matsunaka	Agricultural and Rural Infrastructure Development	1991.	6.5	~	93. 8.8
Yoshiya Takashima	Farming Guidance	1991.	6.5	~	94. 6.4
Ryoji Tamakuma	Machinery Operation Maintenance Management	1991.	8.26	~	94. 8.25
Yoshihiko Nishimura	Strengthening Farmer's Group	1991.	8.26	~	94. 8.25
Fujiyoshi Hatanaka	Construction Management	1991.	10.14	~	93. 10.13
Shuji Takaoka	Agricultural and Rural Infrastructure Development	1993.	7.8	~	97. 2.28
Tokutaro Saita	Construction Management	1993.	9.29	~	97. 2.28
Teruhisa Namba	Farming Guidance	1994.	5.16	~	97. 2.28
Takao Kamo	Machinery Operation Maintenance Management	1994.	8.26	~	97. 2.28
Hajime Kikuchi	Strengthening Farmer's Group	1994.	8.16	~	97. 2.28

(2) Training

a) Training and education in Japan

JICA receives Indonesia counterpart trainees to Japan in order to train and educate in conformity with the required skills and techniques such as rural development, paddy cultivation, agricultural machinery, strengthening of farmer's organization etc necessary to the project implementation.

The training of counterpart were conducted as planned, with a total of 19 counterparts trained in Japan.

b) Technical transfer and training in the project site

This project places emphasis on guidance on agricultural techniques centered on experiment and demonstration farms in model villages.

- 1) An experiment and demonstration farm of 2 ha to 5 ha has been established in Ranometo Village, where intensive agricultural guidance is conducted by experts (and where necessary for estate crops, by Indonesian technical officers) for mid-level technical officers, extension workers, and key farmers living in the vicinity.
- 2) In Palangga Village and Kiaea Village, mid-level technical officers and extension workers play the main roles, providing guidance to key farmers and related farmers while receiving themselves the advice and guidance of specialists.
- 3) In the other villages, key farmers who have received training represent the core group to whom guidance is provided. Specialists and extension workers provide the guidance.
- 4) In parallel to the local training described above, farming dissemination courses are

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given on a periodic basis at the province's Agricultural Information Centers and other places, and observation tours of developed regions in Indonesia are also organized as part of course training during the cooperation period.

- 5) The similar training course on the operation and maintenance of the agricultural and construction machinery is carried out with participation of the counterparts from PU and graduates of technical or agricultural high schools.

Main Domestic Developed Observation Tour Courses

1)	Irrigation facilities, water management methods	West Java, Bali
2)	Rice cropping techniques	East Java
3)	Upland cropping techniques	Central Java
4)	Estate crop cultivation techniques	North Sumatra
5)	Stockbreeding techniques	Central Java
6)	Farming activities	Bali
7)	Farmers' organizations and their activities	West Java
8)	Lifestyle of rural women	West Java, West Sumatra
9)	Mechanized agriculture	East Java, West Java

(3) Equipment and material provision

a) Provision plan

The equipments and materials required for the project are granted from Japan. They include construction equipment required for land development, farming machine for guidance of farm management, cultivation equipment, tools for training and survey, livestock equipment, information diffusion equipment, meteorological instruments, vehicles, etc.

The equipment, tool, and materials required for the project are provided as specified in the attachment, and the total cost is estimated at ¥ 205,105,000.

Except for some of the testing and surveying equipment, other equipment is possible to procure in Indonesia. Among this equipment, farming equipment is possible to procure in the city of Kendari. However, construction equipment could be procured in Ujung Pandang, it is judged that procurement in Jakarta is more appropriate considering delivery times and the number of eligible providers.

b) Provision of equipment

Between 1991 and 1996, the locally procured equipment listed in Table 2 - 12 was provided.

Table 2 - 12 Provided Equipment (Produced Locally)

FY	Main Equipment Provided	Provided Amount (1,000 yen)
1991	Construction equipment (bulldozers, back hoes, trucks, etc.)	97,216
1992	Farming equipment (tractors, threshers, soil preparation equipment, etc.)	70,401
1993	Livestock equipment (cattle weight bridges, trucks, refrigerated vehicles, etc.)	27,888
1994	Information diffusion equipment (TVs, OHPs, video cameras, etc.)	21,599
1995	Meteorological instruments Maintenance equipment Vehicles (Jeeps, motorcycles, etc.) Others	26,421
1996		6,580
Total		250,105

(4) Local cost funding plan

The budget required for the agricultural and rural infrastructure development, including farm land development, soil improvement, irrigation facilities construction, road construction, agricultural facilities construction, etc was provided. The budget required for the guidance and training, on agricultural extension and training on agricultural technology in demonstration farm of paddy and upland crops, to mid-level technical officers, extension workers and key farmers were provided. The budget for the training on the establishment of water user's association and strengthening farmer's organization, to mid-level technical officers were also provided. The budget for the equipment of farming required for cooperating smoothly in each technical field, the fees for instructor and travel expense were taken necessary steps additionally.

a) Budget plan

The estimates of construction work costs required for the development of the agricultural infrastructure are conducted, collecting materials unit costs, labor unit costs, and construction work costs, by the province's Public Works Office.

The labor requirement per unit work for the construction of intake weirs canals and roads and the excavation of ancillary structures etc., and the unit cost of execution for concrete, wet masonry, wood form, and so on, were established using the build-up method based on the requirement per unit work estimate standards for Indonesia. The estimated unit cost for farm land reclamation was established according to the land improvement estimate standards of Japan. With regard to equipment costs, equipment hire was not factored in for construction projects that used construction equipment provided by JICA within the framework of the project, and only operation costs (fuel and lubrication, and operator costs) were factored in.

The estimated construction costs (separate document) are shown in Figure 2 - 13. The following exchange rates were used: US\$1.00=Rp1850=¥148, ¥1.00=Rp12.5.

Table 2 - 13 Rough Construction Costs

Item	Amount	Remarks
Farm land	¥6,150,000	Farm land reclamation
Agriculture infrastructure	¥113,850,000	Canals, roads
Agricultural facilities	¥29,320,000	Buildings
Total	¥149,320,000	

b) Results of Japanese local cost funding (JICA)

Part of the project operation costs, which originally were to be borne by the Indonesian side, were taken over by the Japanese side, which contributed to the successful operation of the project. The figures for 1995 listed below are planned amounts.

Local research costs

1993: ¥923,000

Impoverished country support costs

1991: ¥900,000

1992: ¥1,154,000

Technological extension and PR costs

1992: ¥320,000

1993: ¥650,000

Emergency costs

Construction of storage facilities for provided equipment

1991: ¥457,000

1992: ¥1,065,000

Wood bridge repair (Palanga Village)

1993: ¥1,951,000

Regional demonstration and extension costs (local seminar costs)

1992: ¥660,000

1992: ¥1,101,000

1994: ¥1,246,000

1995: ¥1,457,000

Mid-level officer training costs

Various training was implemented using the listed cost items as major activity categories. Trainees numbered a total of 4,600 persons until 1994, and the training was recognized as a major contribution to the education of human resources in the project district. As costs on the Indonesian side rose, measures to reduce costs on the Japanese side were employed. Upon completion of the project, the Indonesian side is expected to autonomously develop its own training programs.

1991: ¥1,700,000

1992: ¥6,415,000

1993: ¥5,088,000

1994: ¥2,821,000

1995: ¥1,443,000

Development of project infrastructure (model infrastructure development) costs

Based on the awareness that infrastructure development, such as irrigation facilities and roads, could not be done without for integrated rural development, this project funded such costs every year for five years. Moreover, the scale of the funding was set so as not to exceed standard funding provided by Indonesia's MOA for irrigation works, with the aim of enabling autonomous development by Indonesia on the same scale. The implementation process for these works fulfilled at the same time technological transfer function, with the training of people in agricultural infrastructure development, construction supervision, equipment operation, and so on.

1991: ¥18,265,000

1992: ¥23,504,000

1993: ¥61,228,000

1994: ¥38,165,000

1995: ¥22,398,000

General local costs

In addition to the above, daily operating costs were also funded as follows.

1991: ¥5,306,000

1992: ¥6,562,000

1993: ¥6,030,000

1994: ¥8,853,000

1995: ¥9,498,000

c) Results of Indonesian local cost funding

Land, buildings, and facilities

Land, buildings, and facilities were provided as planned, but assistance for storage facilities for equipment was requested from Japan.

Operating costs

Appropriate funding of operating costs was performed, but funding for the travel expenses of counterparts was considered to be insufficient.

Assignment of counterparts

The assignment of counterparts for the project was done as detailed in the related documents. Some of the assignments were late and in some instances, the counterparts assigned had insufficient knowledge and/or experience in their assigned fields, which contributed to hinder the project in the beginning. Moreover, there were many changes in full-time counterparts. From the standpoint of fully establishing technology and enabling autonomous development, a somewhat more stable personnel structure for training is desirable.

(5) Model Infrastructure Development Project

Based on the awareness that developing an infrastructure including irrigation and roads is indispensable for the integrated development of farming villages, this project funded various expenses such as for construction every year for a period of five years. Furthermore, referring to the scale of irrigation installations development undertaken by the Ministry of Public Works of Indonesia, it was decided to limit the size of this project so as not to exceed the level of investments of Indonesia, with the aim of promoting self-reliant development capability on the same scale as the Indonesian government. The process of developing the project infrastructure became in itself an opportunity to transfer technology, contributing to the training of persons, mainly in the agricultural infrastructure development, construction supervision, and the operation of machinery.

While establishing a development model for farming villages, this integrated agricultural and rural development project aimed to alleviate the poverty of the local inhabitants of the development area. To achieve these two aims, the project engaged in land development (creation of farm land, irrigation and drainage systems, and roads) as well as the construction of agricultural facilities (seed storage facilities, training facilities, and community well facilities).

With regard to the development of the infrastructure, it was decided that local farmers

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would actively engage in cooperation activities for this project. To enable this, this project was designed as a participatory-approach project wherein young farmers and farmer groups would themselves implement the creation of farm lands and the construction of irrigation and drainage systems.

Therefore, this participatory-approach project was accomplished by dividing construction tasks into several parts, with some done through conventional contract work by construction companies, others done by young farmers and farmer groups under the guidance of the Project Office, and still others done under the direct management of the Project Office using supplied equipment. The works implementation divisions were as follows.

The situation of model infrastructure development

Village	1991	1992	1993	1994	1995	1996
Ranomeeto	○	○			.	.
Palangga		○			.	.
Kiaca			○		.	.
Lalobao			○		.	.
Lapulu			○	○	.	.
Laeya			○	○	.	.
Onewila				○	.	○
Sabulakoa				○	.	.
Annual Cost (unit: thousand yen)	18,265	23,504	61,288	38,165	22,398	(the budget carried over from preceding F/Y)

(6) JALDA technical support work

Audio-visual teaching materials and technical transfer guidelines are prepared under JALDA technical support system and supplied to project site. The contents are outlined as follows, details are shown in Attachment.

a) Preparation of audio-visual teaching materials

Videos, slides and wall charts in Indonesian and /or English have been prepared for teaching materials since 1991. The contents are cultivation methods of paddy, soybean and maize, and the management of soil, soil texture and farm land. They are totally 36 items.

b) Preparation of Technical Transfer Guidelines

- 1) FY1991 "Calculation of Stability of Fixed Weir and Basic Drop Design" (Indonesian and English)
- 2) FY1992 "Techniques of Equipment Creation" (Indonesian)

- 3) FY1993 "Standard Design of Wooden Bridges and Abutments" (Indonesian)
- 4) FY1994 Manual on "Farm Land Creation Techniques (Planning)" (Indonesian)
- 5) FY1995 Technical manual on "Farm Land Preservation Techniques (Disaster Prevention)" (Indonesian)

2.2. *Methods for the execution of construction*

The two methods now under consideration for implementing construction are conventional contracting system and directly managed construction by young farmers and farming groups under the supervision of the project office. The construction work will be divided between these two methods. The directly-managed side can be further divided into that which will require the provision of machinery and equipment and that which will rely mainly on physical labor.

(1) Contracted construction

Intake weirs, bridges and other similar construction work and the construction of seed storage, training and other facilities require expert knowledge and special techniques far beyond the experience of farmers' groups. Therefore, this kind of work will be contracted out to local building contractors. In this case, the administrative procedures for tendering and other aspects will be the same as those usually employed for public works. The project office will carry out the design, estimation, construction management, testing and payment of construction expenses. In the process the project office will impart the whole series of skills to its counterparts.

(2) Directly-managed construction 1: Works requiring the use of machinery (Direct hiring by the project office)

The target region for this project is completely lacking in construction technicians able to use bulldozers, backhoes and other heavy equipment for clearing fields and paddies or for tractor work to plough and break soil.

Therefore, some young farmers in the areas selected for the project will be trained as key technicians and given practical experience in fields to give them the basic skills needed for the operation, inspection, maintenance and management of the machines and equipment necessary for the preparation of farm land. They will also be given training in the methods of development of farm land through mechanized construction. Local farmers will be employed for the physical labor of clearing the debris from mechanized preparation of fields. This approach will be used for the preparation of farm land and the construction of irrigation canals.

The wages for the machine operators required for the construction and the laborers

employed for manual labor to follow the mechanized work will be paid according to time sheets. Costs for fuel and lubrication for the machinery and the materials needed for surveying will be paid directly from the project office using payment slips.

(3) Directly-managed construction 2: Works using mainly manual labor (using farmers' groups)

There have been examples in the project target area of the farmers themselves building simple dams and earth canals by simply piling earth up in and around rivers. These are group efforts by Swadaya, which is the donation of work for group projects. The work is based only on the farmers' own experience with no financial assistance or technical advice. In the light of this experience, we will employ farmers' organizations in the construction of a number of irrigation canals, diversion facilities and other simple structures. Mandors (supervisors) with abundant experience from Swadaya will be selected and Swakelola (wage-sharing working parties) will be formed around the Mandors. Farmers' groups will be encouraged to participate in these organizations.

The construction work to be carried out is largely man-power earth works, but there will also be some small water-use structures which will require concrete mixing and control of completed works. These works will be conducted with the guidance and supervision of the project office. They can be classified as irrigation canals and their appurtenance works and community well facilities.

Before construction work begins, the Mandors who are responsible for the groups and the project office will discuss the number of workers required per meter of canal excavation and for each location of diversion or other facilities, and the amount of materials which will be required. The project office will then inspect the completion of each month's work and pay the appropriate amount of wages and material costs for the work completed in that month. This way of working will encourage the farmers to participate enthusiastically in the project and have ripple effects in stimulating farmers' organizations.

This will be the first attempt in the field of technical cooperation to draw on the participation of the farmers in construction work. Even if the proposals now under consideration run according to plan, there are sure to be a number of problems to overcome. Particularly in the case of the directly-managed construction, there are questions which require close consideration, such as how well the farmers' organizations can be employed, how the considerable costs of construction should be paid to those organizations, how to deal with accidents or disasters in the course of the construction, and what degree of sustainable development can be expected with the work in each village finished within one year.

3. *Bilateral cooperation system (administrative organization)*

3.1. *Indonesian ministry of agriculture and the government of southeast sulawesi province*

- (1) Official with overall responsibility for the project (R/D signatory)
Vice-Minister, MOA
- (2) Officials with responsibility for project implementation
Bureau of Planning, MOA (central side)(Project director)
Regional Office in Southeast Sulawesi Province, MOA (project site) (Project sub-director)
- (3) Cooperative agencies
The Government of Southeast Sulawesi Province and its regional offices.
- (4) Committees (Joint meeting/ Coordination meeting)
 - a) Joint Meeting (held at a central venue)

Joint Meeting is held with the cooperation of BAPPENAS under the coordination of the director of the Planning Office of the Ministry of Agriculture.

Functions: Adoption of annual implementation plans based on the TSI.
Review of annual plans and the overall progress of cooperation.
Examination and exchange of views concerning problems in the technical cooperation plans.
Monitoring and evaluation of project activity.

Frequency: At least one meeting per year.

Members: (Indonesian side)

Representative of Bureau of Planning, MOA

Representative of Bureau of Agriculture and Irrigation, BAPPENAS

Representative of International Technology Cooperation, SECAB

Others appointed persons by the Head of Bureau of Planning, MOA

(Japanese side)

Team leaders

Coordinators

Representative, Indonesian Office, JICA

JICA study team member

Note) Japanese Embassy staff are observers.

b) Coordination Meeting (project site)

Coordination Meeting is held by the director of the Southeast Sulawesi Regional Office of the Ministry of Agriculture, with the cooperation of the Southeast Sulawesi Development Planning Office.

Functions: Adoption of detailed implementation plans based on the annual implementation plans.
Review of annual plans and the detailed progress of cooperative projects.
Examination and exchange of views concerning all problems in technical cooperation activities.
Reporting on the above matters to the joint meetings.

Frequency: As necessary, at least two meetings per year.

Members: (Indonesian side)

Representative of Development and Planning Office, Southeast Sulawesi Province
Others appointed by Head of Regional Office in Southeast Sulawesi Province, MOA

(Japanese side)

Coordinators

Experts

(5) Project implementation organization chart and tentative scheme for implementation

The organization of agencies cooperating in the above project is as shown in Figure 2 - 2 below.

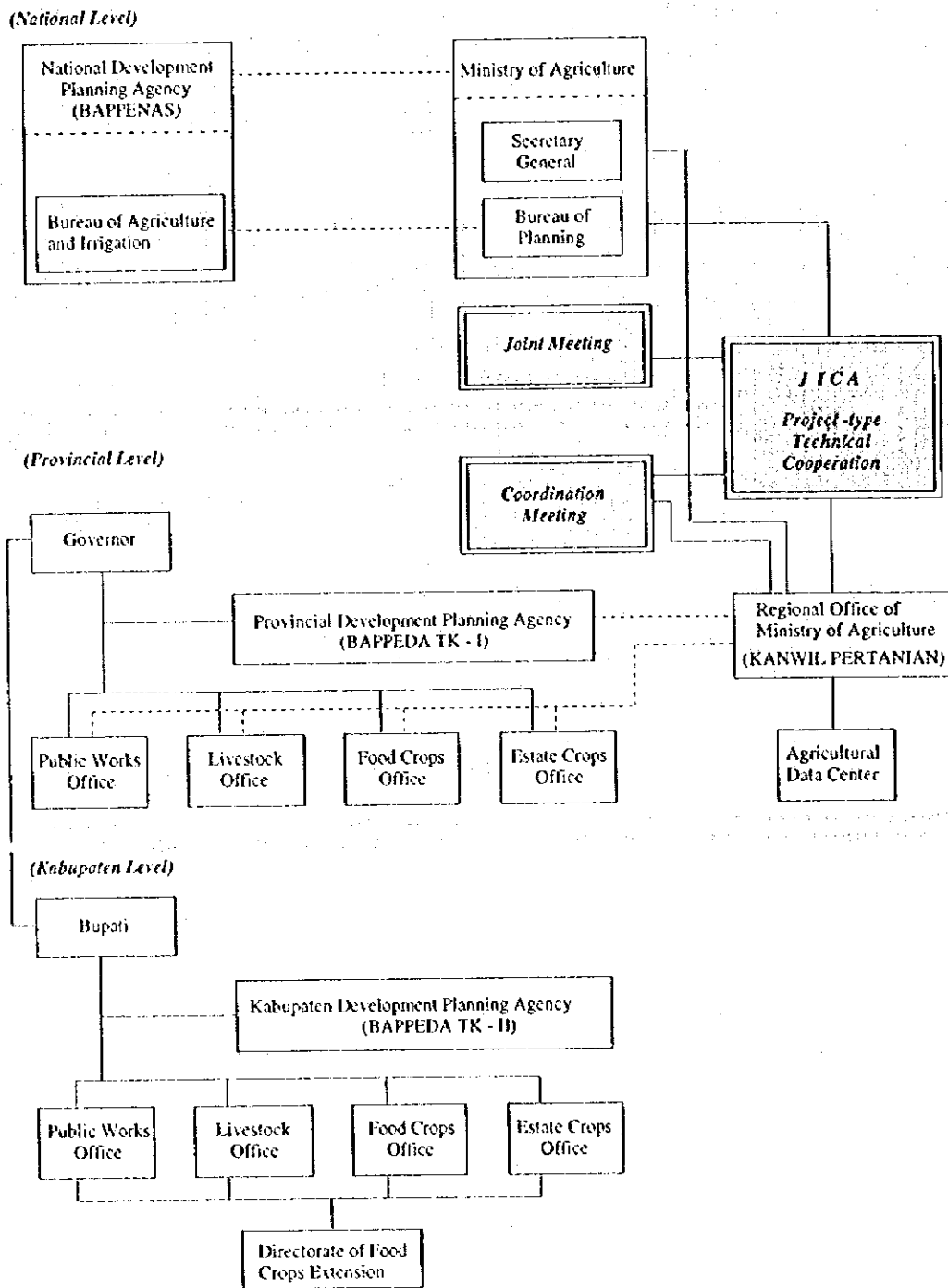


Fig. 2 - 2 Organization chart of agencies cooperating in the project

3.2. System on the Japanese side

The JICA has commissioned the Japan Agricultural Land Development Agency (JALDA) to carry out Japan-based support operations for this project, mainly to provide support in technical

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aspects. The technical support work included the dispatch of experts, technical advice to project sites, the collation and delivery of relevant technical data and the preparation of audio-visual teaching materials. One element of this support system is the Project Support Committee comprising learned people of insight and experience in the field of technical cooperation. This system will support the project through close cooperation and the provision of information. Its structure is illustrated by Figure 2 - 3 below.

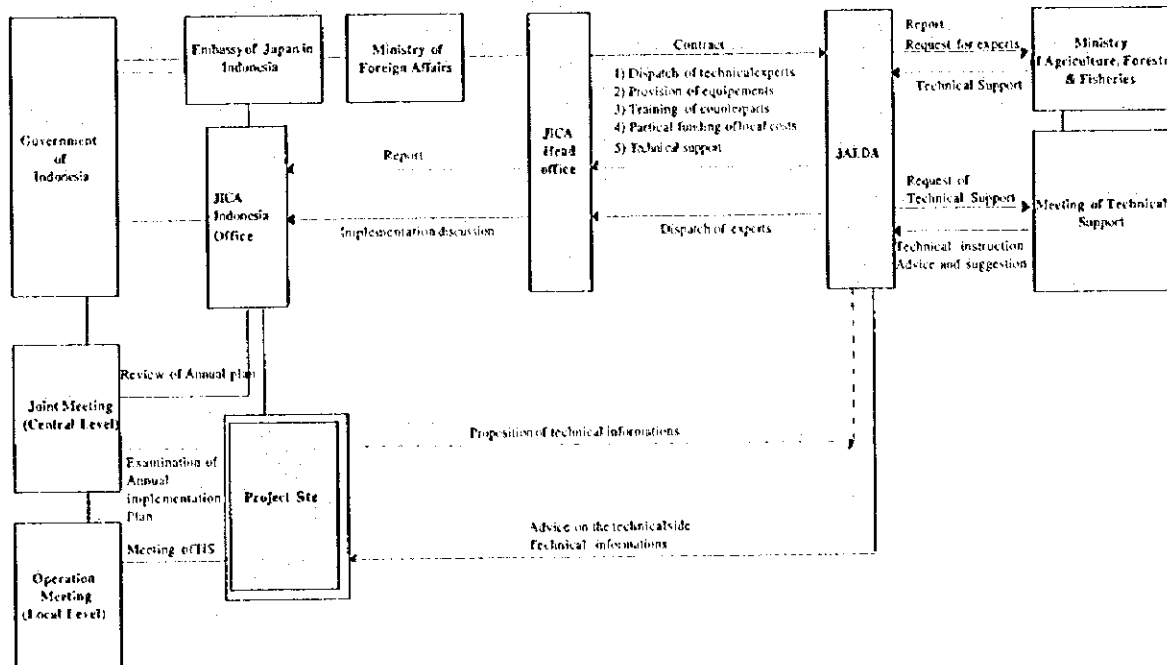


Fig. 2 - 3 System on the Japanese Side