

(Cont'd)

33. Mimeographing rotary press machine	475E (A4)	2	275	550	54.3	Ujung Pandang
	975 (A3)	1	600	600	"	"
34. Mimeographer, Gestetner ES1544		2	541	1,082	"	"
35. Air conditioner, Sanyo SA-102B		7	124	868	"	"
36. Transportation cost Cif U/P				1,666		

(AUDIO-VISUAL MACHINE EQUIPMENTS)

1. Projector Elmo 16-CL, 16mm		1	505	504	52.10	Ujung Pandang
2. Projector Elmo ST-1200D 8mm		1	219	219	"	"
3. Slide projector Elmo AS-3000A Standard attachments		1	297	297	"	"
4. Overhead projector, Elmo HP-702 Standard attachments, screen HW-4 attached		1	287	287	"	"
5. Transformer, Matsunaga MR-1055		3	395	1,185	"	"
6. 16mm film (Water and Agriculture) Slide film, etc.		4	1 set	586	"	"
7. Overhead projector, Elmo HP-702 TP producer, roll film, etc.	Special attachment	1 set	93	353	52.12	Jakarta
8. 8mm camera, Elmo, super 8 sound 600SD		2	122	244	"	Ujung Pandang
9. 8mm projector, Elmo ST-1200HD		2	265	530	"	"
10. Overhead projector, Elmo HP-702 TP producer, roll film, etc.	Special attachment	2	93	665	"	"
11. Slide projector, Elmo, model A-33 Screen, model King-C7 attached	Special attachment	3	59	216	"	"
12. Fuji camera 35mm, dating, film attached	Special attachment	2	30	100	"	"
13. Cassette tape recorder, Sony TC-1365		3	34	102	"	"
14. South equipment set (amplifier, microphone, speaker) National WA-564, WX-410 RS, SB-92		1 set		198	53.2	Jakarta
15. National refrigerator NR-454 SA	Special attachment	1	210	279	"	"
16. Audio equipment set (amplifier, microphone, speaker) National WA-564, WX-410 SR, SB-92		1 set		198	"	Ujung Pandang
17. National refrigerator NR-454 SA		1	230	460	"	"
18. National megaphone, etc. 1 item		1 set		48	"	"
19. Transportation cost Cif				1,600		

(Cont'd)

(MATERIALS AND EQUIPMENT FOR EXPERIMENT AND SURVEY)

1. Soil specimen, Kiya 310	3	20	60	52.10	Ujung Pandang
2. Soil borer, Kiya 300	5	15	75	"	"
3. Soil boring instrument, Kiya 306	5	7	35	"	"
4. Soil specimen box, Fujihira SF49	50	0.5	25	"	"
5. Measuring cylinder, Kiya 3022 GYL-25	10	1	10	"	"
Kiya 3022 GYL-100	10	1.5	15	"	"
6. Simple soil verifier, Kiya 368	4	16	64	"	"
7. Soil electric induction gauge, Kiya 377 DM-35	4	26	104	"	"
8. Redoxi-potential difference finder, Kiya 378	2	39	68	"	"
9. Tension meter 20cm Kiya 345 S-1	5	13	65	"	"
40cm       "       S-2	5	14	70	"	"
80cm       "       M	5	17	85	"	"
10. Soil hardness gauge, Kiya 351	2	42	84	"	"
11. Compenetrometer, Kiya 734	2	92	184	"	"
12. Height finder, Kiya 1519	3	7	21	"	"
13. Clinometer, Kiya 1515-B	5	5	25	"	"
14. Bar thermometer, Tamaya 3625	13	4	52	"	"
15. Minimum-maximum thermometer, Tamaya 3674	3	10	30	"	"
16. Bent stem underground thermometer					
10cm Tamaya 3648	3	5	15	"	"
20cm       "       3649	3	5	15	"	"
30cm       "       3650	3	7	21	"	"
17. Humidity meter, Tamaya 3738	13	10	130	"	"
18. Anemometer, Tamaya 3767, 3773	1 set	125	125	"	"
19. Heliograph, Tamaya 3826	1	57	57	"	"
20. Sound detective current gauge, Tamaya 451	2	125	150	"	"
21. Water volume indicator 1m Tamaya	30	5	150	"	"
22. Automatic recording hydrograph, Tamaya 3811	3	63	189	"	"
23. Partial flume 6 inches Tamaya 703	2	156	212	"	"
3       "       "       701	2	135	270	"	"

(Cont'd)

24. Stop watch, Seiko TYA-010	4	13	52	52.10	Ujung Pandang
25. Fathometer 3kg 20cm, scale 20cm Tamaya	3	4	12	"	"
26. Schmit hammer, Tamaya Type N	2	99	198	"	"
27. Penetrometer, Shibata 8053-051	2	5	10	"	"
28. Hand level, Tamaya 354 B	3	10	30	"	"
29. Pocket compass, Tamaya 3998, 405	3 sets	47	141	"	"
30. Flat board measuring instrument, Tamaya 461	1	16	16	"	"
31. Level measuring instrument, Sokkisha B-2	1	142	142	"	"
32. Tape measure 50cm Tamaya 2627	3	5	15	"	"
33. Staff 5m Tamaya 2528	2	6	12	"	"
34. Pole, Tamaya 2507	6	1	6	"	"
35. Balance 500g Tamaya 3366	2	16	32	"	"
1kg " 3365	2	21	42	"	"
36. Filter paper, Toyo No. 6	80	0.5	40	"	"
37. pH testing paper, Toyo 300 sheets per pack	40	0.6	24	"	"
38. Plonimeter, Tamaya 663	5	23	115	"	"
39. Counting instrument, Tamaya 4444	10	1	10	"	"
40. Kilbimeter, Tamaya 711	5	3	15	"	"
41. Full-size mirror, Topcon No. 3	1	125	125	"	"
42. Rain gauge, Tamaya 3751, 3653	10	42	420	"	"
43. Evaporimeter, Tamaya 3759, 3753	3	34	102	"	"
44. Automatic recording evaporimeter, Tamaya 3760	1	60	60	"	"
45. Anemoscope, Tamaya 3796, 3798	1	156	156	"	"
46. Instrument screen, Tamaya 3738	3	73	219	"	"
47. Water leakage speed finder DIK-550	2	47	94	"	"
48. Hook gauge, measuring depth 300m, DIK511	20	17	340	"	"
49. Standard soil color book, Fujihira SF-462	5	9	45	"	"
50. Soil survey chart, Fujihira, SF-50	5	0.6	3	"	"
51. Soil color finding plate, Fujihira SF-47	5	1	5	"	"
52. Standard combination color book, Fujihira SF-200	5	13	65	"	"

(Cont'd)

53. Soil auger, screw 1m, Fujihira SF-42	2	15	30	52,10	Ujung Pandang
54. Soil collection bag, Fujihira SF-62	10	3	30	"	"
55. Simple soil verifier, Fujihira SF-3	4	24	96	"	"
56. Irrigated water quality tester, Fujihira SF-32	4	22	88	"	"
57. Full volume measuring equipment 100cc, DIK-100 1 set		494	494	"	"
58. Local volume weight measuring instrument, DIK-162	3 sets	36	108	"	"
59. Cylinder infiltrometer, DIK-500	2	131	262	"	"
60. Marine auto tank, DIK-520	2	64	128	"	"
61. Vacuum pump, DIK-310	1	75	75	"	"
62. Hand auger, Maruto S-15-18	2	67	134	"	"
" S-15-4A	2	94	188	"	"
63. Loupe, Shimazu Type-C 20 power	4	0.5	2	"	"
64. Mine hammer, 40cm, 500g	4	4	16	"	"
65. Decicator, Ikemoto 8871-30	4	27	108	"	"
66. Scaling bottle 50cc	40	2	80	"	"
30cc	40	1	40	"	"
67. Scaling bottle holder	4	4	16	"	"
68. Scaling plate	40	0.5	20	"	"
69. Beaker 500cc	20		3	"	"
70. Funnel 90φ	10		1	"	"
71. Cleaning bottle	10	0.5	5	"	"
72. bottle with its opening at lower position	4	2	8	"	"
73. Schale, Ikemoto 8551 105φ	40	0.5	20	"	"
74. Test tube 150 little, 15φ Ikemoto 8592	40		8	"	"
75. Test tube 20 tubes, 15φ, Ikemoto 7076	2	1	2	"	"
76. Mortar 150φ, Ikemoto 4502	4	1	4	"	"
77. Beaker with handle 0.5 little	10		3	"	"
78. Soil sieve, Maruto S-23-2	2	68	136	"	"
79. pH meter, Toa HM-1F	4	65	260	"	"
80. Magnetic staler Yamato MH-11	2	40	80	"	"
81. Hydrometer, Maruto S21-1	2	7	14	"	"

(Cont'd)

82. Indoor soil water permeability tester, Maruto S-12-A	1	101	101	52.10	Ujung Pandang
83. Binocular, Shimazu GB-50 7 pwoer	3	28	84	"	"
84. Transportation cost (Cif U/P)			738	"	"
85. Moisure meter (for rice and wheat), Kiya SP-1AC	4	80	320	52.12	"
86. Summer bed	6	36	216	"	"
87. Distilled water maker, Ikemoto 5001-60	2	117	234	"	"
88. Cylinder intake measuring apparatus, DIK62	2	125	250	"	"
89. Soil resistance finder, Kiya SR-2	2	150	300	"	"
90. Range finder, Sökkisha SD-3D	3	60	180	"	"
91. Dynamo, Den'yo GR-SS, gasoline engine	6	622	3,732	53. 2	"
92. Auto recording rain gauge, Tamaya 3758	3	151	453	"	"
93. Electrosonic type current meter, Tamaya 451	2	117	234	"	"
94. Electric current meter, Tamaya 437	2	290	580	"	"
95. Supersonic depth-sounding apparatus, Tamaya TDI-605	1	227	227	"	"
96. Constant temperature dryer, Tamaya DS-42	2	115	230	"	"
97. Transportaion cost (Cif)			1,400		

Total ¥3,497,000 was granted to experts to take equipments with them. This amount is included in the necessary expenses for dispatching experts.

Table II-8: List of granted equipment (Cif point of destination) (¥1,000)

No.	Item and specification	Q'ty	Unit Price	Amount	Fiscal Year	Point of destination
1.	Yoshihisa MIKI, Setsuzo KIKKAWA, Kiyooki KUBO, Koji TABANA (4 persons)					
	Copies of South Sulawesi State map	60 sheets	7	420	51.12	Jakarta
	Typewriter, books, stationery	1 set		2,219	"	"
2.	Kunihiro OZAKI					
	Overhead projector HF260	1	97	97	52. 7	Ujung Pandang
	Slide projector Super Cabin III, etc. 6 items	1 set		233	"	"
3.	Tetsuo MIYASATO					
	Mini computer Canon SX-350 attachments	1 set	198	198	53. 9	Ujung Pandang
	Typewriter, stationery, etc.	1 set		330	"	"

3-5. Total Cost

The expense required for the total cooperation is shown on the Table II-9 below. Its total amount is ¥315,507,000, of which details are: (1) ¥33,188,000 required for dispatching survey teams (11%), (2) ¥194,258,000 required for dispatching experts (61%), (3) ¥78,481,000 required for granting machine equipments (25%), and (4) ¥9,580,000 required for receiving participants (3%).

The expenses required for dispatching experts includes approximately 4.5% of expenses which partially share the cost responsible on the side of locality.

A remarkable feature here is that over 50% of necessary expenses was spent for dispatching experts, but it is considered as the natural outcome of this project which has a great theme, "Transfer of Project Planning Techniques".

Table II-9 Necessary expenses (¥1,000)

Item	Year				1979 (expected expenditure as of June 24, Fiscal 1979)	Total
	1975, 1976	1977	1978			
Cost of Survey Teams	8,294	4,918	9,122	10,854	33,188 (11%)	
Cost of Experts	45,222	55,862	76,503	16,671	194,258 (61%)	
Cost of Machines & Equipment	8,828	59,467	10,186	-	78,481 (25%)	
Cost of Participants Receipt	440	2,553	6,587	-	9,580 (3%)	
Total	62,784	122,800	102,398	27,525	315,507 (100%)	

## Chapter 4. Evaluation of the Formulation of the Master Plan - N.MURAOKA -

### 4-1. Main Contents of the Formulation of the Master Plan

#### 4-1-1. Collection and analysis of data

##### (1) Survey activities

The number of various survey activities carried out during the Phase 1 was 62 times, amounting to 184 days with 490 persons, to collect and analysis data, in order to ascertain the regional agricultural conditions. These activities may be outlined as below.

##### 1) Basic survey

The marketing of agricultural equipment, materials and products, and the situation of employment were ascertained by collecting relevant data and also by interviewing farmers and officials at the site.

##### 2) Sample survey

In order to examine the results of the basic survey further, sample surveys were carried out by the short-term experts and the counterparts in specified Kabupaten(s) in respect of production cost and agricultural practices.

##### 3) Supplementary survey

Further surveys were conducted by the short-term experts and the counterparts to supplement the basic survey.

##### 4) Field inspection

In order to ascertain the actual condition of provincial agriculture, various inspections were conducted by the short-term experts, the survey teams, the Seminar lecturers, etc.

##### (2) Collection of data

##### 1) Method of data collection

Two methods of data collection were employed as below.

Firstly, data were obtained as a result of the various survey activities described above and secondly they were collected from the 28 related institutions in Ujung Pandang by visit of the counterparts.

The data collected were classified, analysed and used to analyse the present condition of agriculture in South Sulawesi and also for the formulation of the master plan. Since it was suggested at the Second Seminar that these data can be used not only for the project but also for other public purposes, it was decided to separately compile a volume of data and similarly one for maps. The results are: Final Report on Phase I, Vol. III, "Data of the Agriculture in South Sulawesi" and Vol. V, "Basic Maps for Planning on Regional Agricultural Development in South Sulawesi".

## 2) Analysis of data

The main contents of the volume on Agricultural data of South Sulawesi may be outlined as below.

- i. General agricultural condition of South Sulawesi. Population by Kabupaten, sex and ages (latest figures: 1976). Land use by Kabupaten (1978). Position of agricultural production (in the national level (1973 and 1978). Farm holdings by size (1973). Farm holdings by ownership (1977).
- ii. Agricultural, forestry and fishery production. Agricultural production by Kabupaten and crop (1974-1976). Fishery catches by Kabupaten and kind (1976). Agricultural production by month and crop (1974-1976). Exports of agricultural products (1973-1976). Forestry production (1975).
- iii. Transport and communications. Road condition (1976). Vehicles by type. Condition of sea transport (port and harbor facilities, volume of transport by type). Condition of air transport (airport facilities).
- iv. Various conditions in 5 blocks of South Sulawesi. South Sulawesi is divided into five blocks of East, West, North, South and Mandare, and various indicators are given for each block including production of major crops, population, labor force, farm holdings, paddy field development areas (1968-76). Increase in major crop production (1969-76), etc.
- v. Conditions of production. Planted areas by kabupaten and crop. Crop areas, damaged areas and production (1969-76). Rice production by the form of production. Labor required for rice production in hours. Agricultural prices (1969-76). Agricultural income (1969-76). Number of tractors adopted by Kabupaten. Precipitation by region. Cultivation forms of major crops. Rice cultivation period by Kabupaten.



Dry and wet seasons by Kabupaten. Transition of the acreage of ranches (1968-76). Slaughter houses and capacities (1976). Cattle population (1969-76). Cattle population and estimated supply of meat (1976-81). Production, consumption and prices of meat and eggs. Domestic and overseas exports of cattle. Planted area of estate crops (coconuts, coffee, kapok, pepper, etc.: 1969-76).

- vi. Others.  
These are mainly the results of sample surveys. Production by crop. Agricultural practices (scale of production, use of labor force, problems in agricultural operation, etc.).

(3) Contents of maps and others collected.

The maps (or their lists) collected from the related institutions, those prepared by the Team and the analytical data obtained from the maps are contained in Volume V: "Basic maps for the planning on Regional Agricultural Development in South Sulawesi Province" are outlined as below.

1) Collected maps for general condition

Road networks, precipitation by month, distribution of population by province, distribution of land use, distribution of land suitability by crop, distribution of paddy and upland rice, distribution of various crops, distribution of cattle, distribution of forestry, distribution of fishery catches, distribution of cultured shrimps.

2) Collected and arranged maps for the basic formulation of planning

These maps amount to an extremely large number.

Places, scales and organs which prepared the original are listed and may be classified as below.

- i. Mesh maps prepared by the Team.
- ii. Topographical maps and topographical conditions.
- iii. Meteorological, hydrological and irrigation maps.
- iv. Land use maps.
- v. Maps of soil condition.
- vi. Maps related to forests, grassland and fisheries.
- vii. Administrative maps.

3) Analytical data obtained from maps

Soil conditions, land classifications, etc. were obtained from the mesh method, resulting in the data to be used for the formulation of planning. The contents include: land classifications of forests and grassland suitable for development, land classifications of area suitable for various crop, classification of forests by control method, classification of forests by soil erosion, etc.

4) Index map

Statistical figures relating to topography and land use are given on the map.

4-1-2. Analysis of present situation and review of existing plans and projects

The Final Report Vol. II: "The Present Situation and Problems of Agriculture in South Sulawesi" contains a study of REPERITA II which is the comprehensive master plan currently in progress in South Sulawesi, analysing the data collected to ascertain the present condition of agriculture, forestry and fisheries in the province. An outline of the volume is given below.

Further, data and information were also collected on those programs either in progress or in planning such as the BIMAS/INMAS Program, the World Bank Cattle Project, the Luwu Settlement and the Irrigation Project (U.S., A.I.D./ILACO Consultants), the Central Sulawesi Irrigation Project (Japan), etc.

(1) Position, area and nature of South Sulawesi

Sulawesi Island is located approximately at the center of Indonesia which extend 5,000km from east to west and is divided into four provinces. According to the 1971 census, South Sulawesi occupies an area of 83,000km<sup>2</sup>, accounting for 36% of the island. The province borders Central Sulawesi at the Velbeak Range in the north and faces the Makassar Strait, Flores Sea and Bone Bay in other directions. The island is situated between 0.85° and 7°S and the longitude of 120°E runs through the central part of the island.

South Sulawesi is situated in the tropics of high temperatures and heavy precipitation. Though temperatures and precipitation vary from area to area, the dry season lasts from June to October in the western half of the province and the wet season from November to March, receiving over 70% of the total precipitation. Temperatures are high all the year round and the mean temperature in Ujung Pandang is 26.4°C, reaching 31.8° from August through October. Humidity is also high; it exceeds 90% in Ujung Pandang from December to February, though it comes down to approx. 50% from August to October.

In Ujung Pandang and the western part of the province, the east monsoon lasts six months followed by the west monsoon in the next six months, corresponding to the dry and wet seasons respectively. During the dry season easterly or southeasterly winds blow from Australia while westerly or northwesterly winds blow from continental Asia during the wet season.

As a result, the dry and wet seasons are reversed between the eastern and western parts of the province, resulting in different rice planting and crop seasons which facilitate seasonal migration of agricultural labor.

South Sulawesi suffers little from natural disasters such as earthquakes, tidal waves and typhoons. However, some areas suffer damages because of concentrated heavy rainfall during the wet season.

## (2) Population

The population of South Sulawesi as of 1976 is estimated to be 5,400,000 which accounts for one-third of the total population of D-Zone of Indonesia (East Indonesia including Sulawesi, West Irian and Maluku). However, it accounts for only 4% of the total population of Indonesia. The population increase in the province is features by the following points:

### 1) Low rate of increase

During the period from 1961 to 1971, the national rate of population increase was in excess of 2% per annum while the rate of increase for South Sulawesi was 1.4%. According to the data for 1971-76, the rate of increase was 2.4% for the whole country and 1.6% for the province.

### 2) High dependency rate

The dependency rate, which is the ratio of non-working population to the working population (the working population of Indonesia is 10 to 64 years old), is 52.9% for the whole country and 55.7% for South Sulawesi. This implies that if per capita income is to be raised in the province, it has to bear 2.8% more than the national average to support the dependents.

### 3) Greater female population

In Indonesia, the male population is 4.9% less than the female population. This gap is wider in South Sulawesi at 6.5% and even wider at 16.5% in the 15-44 age group.

### 4) Rapid efflux of the population

The above three facts are due to the efflux of the population which had taken place between 1961 and 1971. Generally, changes in population are determined by natural and social increases, and there is no reason to assume that the natural increase in South Sulawesi is particularly low compared with other provinces.

(3) Labor force and employment structure

According to the census of 1971, the population of over 10 years old in South Sulawesi was 3,460,000 , accounting for two-thirds of the population of the province. The economically active population is 1,140,000 , accounting for 27% of the total and 41% of the working population.

Those engaged in agriculture, forestry and fisheries account for two-thirds of the working population, those in government and other services 10% and those in commerce and industry 7-8%. (See the Table II-10 Economically active population of South Sulawesi by industry.)

(4) Economy and industry

The gross production of South Sulawesi accounts for about 3% of the national total (excluding petroleum). Though the South Sulawesi figure is lower than the mean figure among provinces of 3.9%, it is the highest in East Indonesia.

In 1972, per capita annual income was 25,000 Rp.; this was considerably low at 73% of the national average 34,400 Rp.

With regard to industrial differentials, the agricultural sector was estimated to be 68% of the non-agricultural sector.

Inter-island trade has always brought profits to South Sulawesi with major shipments being agricultural products such as rice and sugar for West and East Java.

The system of distribution is generally undeveloped, particularly in rural areas, resulting in extremely low producers' prices of rice, copra and sugar cane.

Table II-10 Economically active population by industry  
(South Sulawesi)

	Urban areas		Rural areas		Total	
	Numbers	Distribution ratio	Numbers	Distribution ratio	Numbers	Distribution ratio
Agriculture, forestry and fisheries	49,172	20.7%	886,945	75.5%	936,117	66.3%
Mining	466	0.2	524	0.1	990	0.1
Industry	18,167	7.7	86,142	7.3	104,309	7.3
Power, gas and water	523	0.2	515	0.1	1,038	0.1
Construction	7,463	3.2	6,308	0.5	13,771	1.0
Commerce and hotel	52,165	22.0	58,721	5.0	110,886	7.9
Transport and communications	20,900	8.8	22,205	1.9	43,105	3.1
Banking and insurance	1,680	0.7	669	0.1	2,349	0.2
Services	67,109	28.3	69,799	5.9	136,908	9.7
Others	19,414	8.2	42,440	3.6	61,854	4.3
Totals	237,059	100.0%	1,174,268	100.0%	1,411,327	100.0%

Source: 1971 Census

(5) Supply and demand of major foodstuffs

South Sulawesi is one of the major agricultural and especially rice producing areas of Indonesia. About 80% of the population is in rural villages with 60% of the working population engaged in the primary industry.

The total area of paddy-fields is approximately 500,000ha and fields occupy 900,000ha. Rice is the top-ranking crop in terms of value among food crops, followed by corns, cassava, peanuts, sweet potatoes, peas, fruits and vegetables.

The rice production reached about 950,000 tons in 1976, accounting for about 70% of the total food production (on a dried basis). The production of major foodstuffs (rice, corns and cassava) in 1974-76 was 1,230,000 tons (weight of rice) which was 131% of the

required amount of 937,000 tons. Accordingly, the province was able to ship 294,000 tons of major foodstuffs, which was 31% of the provincial requirement, to other provinces.

However, while the population of South Sulawesi is increasing at the rate of 1.6%, agricultural production is increasing at only 0.5% annually. If this situation continues into the future, it will be difficult to supply foodstuffs to other provinces.

During REPELITA I and II, the agricultural policy was geared only to rise with very little interest shown in other crops. In fact the rate of increase in the production of other crops fell from 1967-71 to 1974-76. That is, while rice production increased by 1.0%, corns decreased by 11.7% and cassava by 2.6%; the decline was also noticed with fruits and vegetables.

(6) Estimate of demand for major foodstuffs in 1981

Future demand for foodstuffs may be estimated on the basis of the estimate of future population and average food requirements. The population of South Sulawesi is expected to reach about 6 million in 1981 and the average food consumption per person has been ascertained by the Provincial Office of the Ministry of Health.

As for the demand for each item in 1981, as shown by the Table II-11 Estimation of food demand in South Sulawesi, in order to ensure the food supply corresponding to the increase in population at the current level of food consumption, it will be necessary either to increase the yield per unit area or to expand the area for farming: In the case of rice, it will be just able to supply the requirement of South Sulawesi.

Since the shipment to those areas where there is a shortage of foodstuffs will not be possible as it is now, increase in production capacity and the expansion of farming area will be important for national economy. Especially for South Sulawesi which serves as the supplying base of rice for the D-Zone, development of regional agriculture will have to be planned if the province is to discharge its responsibilities.

Further, since there will be a shortage of cassava, green grams and soy beans, not even being able to maintain the self-sufficient level, it is necessary to study development to increase the production. Meat demand is also expected to exceed the present level of supply. Especially goat's meat is likely to be in short of supply, though it may be supplemented by chicken. Under the circumstances, it is necessary to study the development of cattle production and grassland.

Fishery production will also not be able to maintain the self-sufficient level in 1981. Accordingly, further expansion of fishery facilities and infrastructure will have to be studied at the stage of development planning.

(7) Evaluation of the rice production program under REPELITA II

During REPELITA I and II, covering the period from 1969 to 1976, the rice production program resulted in the increase in the production of Gadu rice in the irrigated area. (See the Table II-12 Results of the rice production program.) Though BIMAS/INMAS also contributed to the increased rice production, the problem of accumulated liabilities was left unsolved.

Further, while cultivated acreage has decreased, agricultural population has increased. As a result, the acreage per farm holding is decreasing, being divided up among fathers and sons, brothers and others. There are also a large number of farmers without sufficient arable land, who seek employment as seasonal workers in cities, Jawa and other areas.

Table II-11 Estimation of food demand in South Sulawesi (1981)

	Per capita daily consumption (g)	Per capita annual consumption (kg)	Total consumption (t)	Converted production coefficient		Production per ha (t/ha)	Area required ha	Average area in 8 years	Increase/decrease	
				Total demand (t)	(%)					
Rice	318.33	116.2	718,819	790,701	52	1,520,579	2,709	561,506	563,940	2,634
Corn	56.38	20.6	127,433	140,176	93	150,727	0.690	218,445	245,430	26,985
Cassava	121.47	44.3	274,042	301,446	80	376,808	6.234	54,342	39,582	-14,760
Sugar cane	4.32	1.6	9,898	10,888	80	13,610	4.349	3,129	11,854	8,725
Peanut	12.63	4.6	28,456	31,302	60	52,170	0.560	29,215	30,441	1,226
Green gram	4.84	1.8	11,135	12,249	67	18,282	0.395	16,519	33,909	-12,610
Soy bean	3.80	1.4	8,660	9,526	34	28,018	0.527	53,165	8,011	-45,154
Fresh fish	61.72	22.5	139,106	153,105	61	250,992	-	250,992	192,188	-58,804
Beef	4.24	1.5	9,279	10,207	51	20,014	250 kg	80,056	37,030	-43,026
Buffalo's meat	9.72	3.5	21,651	23,816	45	52,924	350 kg	151,211	35,430	-115,701
Goat's meat	1.39	0.7	4,330	4,763	50	9,526	17 kg	560,353	25,030	-535,525
Chicken eggs	8.05	2.9	17,940	19,734	100	19,734	20 eggs/kg	394,680,000	-	-
Total	607.39	221.6	1,370,829	1,507,913		75 eggs/kg	5,262,400	7,380,862	+2,118,462	

Notes: 1. Estimated population in 1981: 6,186,054

2. Daily average consumption of calories: 1,720.61; protein: 49.32g



Table II-12 Results of the rice production project

Results	Annual Average
1) Increase in the production of Gadu rice due to the expansion of area	174,400 t
2) Increased yield of Gadu rice due to improved techniques	65,400
3) Decrease in production due to reduction in area	-122,400
4) Increased yield of Rendengan rice due to improved techniques	109,300
5) Reduction in upland rice	-39,300
Total	187,400 t

(8) Changes in demand structure and regional production structure and the declining trend in secondary crops

As the public taste shifts from corns and cassava to rice which is raising its position, the production of corns and cassava is showing a downward trend, though their prices are increasing. The price increase of corns, for instance, is exceeding that of rice.

The problem under such circumstances is that the land productivity of corns and cassava has been declining. When the shortage of food supply is anticipated with the increasing population in future, it will be important to take firm measures for these secondary crops.

(9) Livestock and fisheries

Animal proteins are mostly taken from fish. Per capita annual supply in 1976 was 26.6kg with fish and 3.7kg with meat.

During REPELITA I and II, catches of fish somewhat increased. The rapid increase in prices from the beginning of the 1970's was due to the poorer catch of fish in the Lake Tempe where the water depth decreased because of the afflux of sand.

Today the cultivation of shrimps in semi-salt lakes is increasing, occupying the largest share in exports on a value basis.

Breeding of beef cattle forms the backbone of the livestock industry in South Sulawesi. The production in 1976, including beef cattle, buffalo and others, reached 16.5 billion Rp. Two ranch development projects are in progress, financed by the World Bank.

On the other hand, small scale livestock farming is stagnant and small-scale grazings and grasslands hardly exist. This is true not only with large livestock but also with small types. Small farmers keep livestock only in their back yards and have no stable system of production. Beef cattles are kept in paddy-fields and fields during the dry season for grazing and in the mountains during the wet season. Accordingly, livestock production is in a poor state. It is, therefore, an urgent task to introduce a suitable production system into South Sulawesi and to formulate a livestock development plan for small farmers.

(10) Estate crops and forestry

With regard to the production of estate crops, copra accounts for about 60% of the total; in terms of value, it is followed by coffee, tobacco and candle nuts, though cloves are showing rapid growth recently.

These estate crops are mostly (86% of the area) managed by small farmers. Though the Estate Crop Service is making attempts to organize farmers, they are so far unsuccessful because of the reasons given below.

- 1) Poor quality due to the low level of production techniques,
- 2) Complicated system of the collection route from numerous farmers, and
- 3) Delays in resuscitation of old trees due to social and economic reasons such as the shortage of funds and conventions between the landlord and the tenant.

The timber production stands at 4,500,000m<sup>3</sup>, or 8,300 million Rp. The provincial government is making efforts to foster rattan work, milling and processing. At the same time, a large budget has been allocated to afforestation, though it has been hampered because of the reasons given below.

- 1) Shortage of afforestation specialists and workers,
- 2) Lack of the transport system to serve afforestation areas,
- 3) Inadequate study on trees suitable for each area, and
- 4) Inadequate system to control afforestation areas and forest fires.

4-1-3. Formulation of master plan

The development leading to the formulation of the master plan and its substance are contained in Volume I "A Master Plan on South Sulawesi Regional Agricultural Development" of the final report on Phase I. Therefore Volume I constitutes the core of the five-volume project reports. Moreover, this volume shows the important character of a general report in respect to this project as indicated below:

Chapter 1 "Introduction" outlines the background, purpose, organization, members and other factors of the project and also introduces the schedule for the implementation of this project and the outline of each activity.

Chapter 2 touches on the report of this project and summary of the master plan.

Chapter 3 incorporates the findings of a review on REPELITA II, which is the existing main regional development program for South Sulawesi Province.

Chapter 4 attempts to analyze the present social and economic conditions of South Sulawesi Region and its agriculture, forestry and fisheries.

Chapter 5 outlines basic strategy for the development of agriculture, forestry and fisheries in South Sulawesi Region.

Chapter 6 clarifies the planning techniques and the project period. It also incorporates the plan of land-use which has been formulated on the basis of a study on the population, estimated food supply and demand and land development potentiality.

Chapter 7 represents the master plan. Plans for the food production toward demand and the increase of employment opportunities are formulated. Programs also include detail planning of production of each crop as classified by sector, and reference is made to distribution and the organization of agricultural associations.

Chapter 8 carries a general recommendation from the Japanese experts to the Indonesian side.

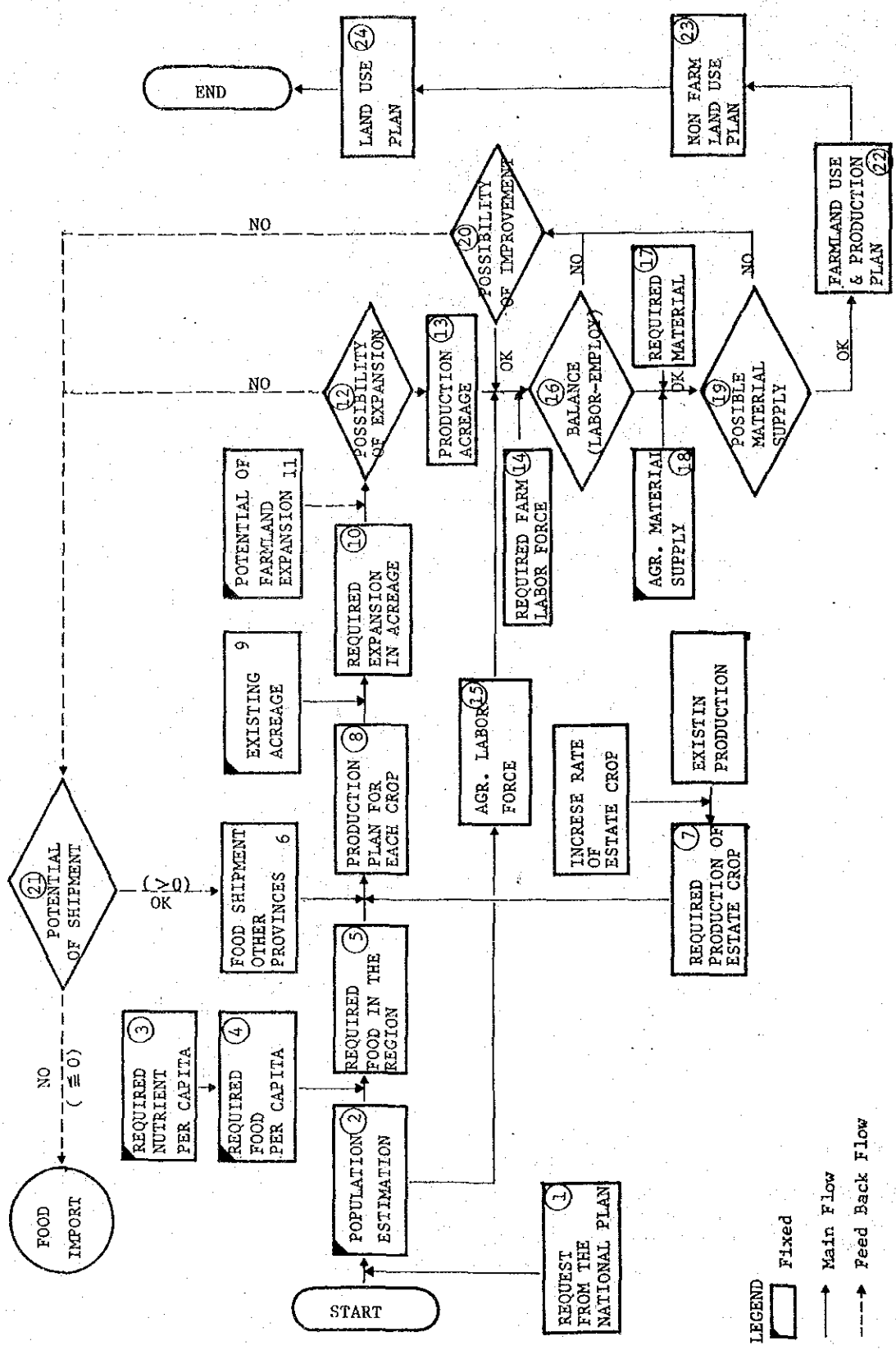
(1) Method for formulation

1) It has been decided to set the project term at 15 years ending in 1990, because two major projects for the development of water resources in South Sulawesi Province - the North Luwu project and the water resources development project in central part of South Sulawesi - will be completed by 1990 and because increases in population may be estimated in the cohort trend method on the basis of data available at present.

2) The method for the formulation of the program and the work procedure in respect to the program for the supply and the demand of food are indicated in Fig. II-3. Food Supply and Demand Plan.

		Sequence number in Fig. II-3
i.	Request from the National Plan	1
ii.	Estimation of population and labor force	2 , 15
iii.	Estimation of food requirement	
	a. Required calory and protein per capita	3
	b. required food in South Sulawesi province	4 , 5
	c. food shipment to other province	6 ,
iv.	Estimation of required industrial crops	7
v.	Production plan for each crop for food	8
vi.	Plan for farmland expansion	9 , 10
vii.	Study on the potential of farmland expansion	11
viii.	Summary of the studied alternative plans	6 - 24
ix.	Food demand and supply plan	22
x.	Checking on availability of input and labor force	14 - 19
xi.	Plan of farmland use	22
xii.	Land use Plan	23 , 24

Fig. II-3. FOOD DEMAND & SUPPLY PLAN.



(2) Major contents in the master plan

1) The Major socio-economic problems in the South Sulawesi Province are:

- i. Insufficient employment opportunities, increasing unemployment and continuing population outflow;
- ii. Declining labour force participation rate and growing dependency ratio;
- iii. Lagging industrialization;
- iv. Limited market size; and
- v. Insufficiently developed infrastructure.

2) The rate of population growth in the province was 1.6% during the past five years until 1976, but according to a calculation by the Cohort Trend Method it is forecast to be 1.9% for the next fifteen years, and there will be an increase of 7.5 million persons in the Province after 15 years. However, in the population plan the Team subtracted 0.1% from 1.9% of the population growth rate, such as the following:

Table II-13 Estimated Population Increase

(in thousand persons)

Item	1971	1976	1981	1991 Difference
Forecast data following tendency	3,180	5,650	6,210	7,500
	1.6%		1.9%	200
Family Plan considered	5,180	5,650	6,150	7,300
			1.8%	

3) Present production volume of staple food such as rice, corn and cassava is 1,231,000 tons (equivalent volume to rice and average volume during 3 years from 1974 through 1976); but the tendency of Productivity per capita in 1991 will only be 178kg, compared with 217kg in 1976; therefore the surplus will decline to 88,000 tons in 1991, from 294,000 tons in 1976.

Table II-14: Estimation of Food Shipment Volume and Production per Capita

	Unit	1974 - 76	1981	1986	1991
Output (in terms of rice)	tons	1,231	1,268	1,300	1,333
Demand	"	932	1,031	1,132	1,245
Shipment	"	294	237	168	88
Output per person	kg	217	204	191	178
Shipment ratio	%	31	23	15	7

4) On the basis of the analysis of the present situation of agriculture in South Sulawesi Region (Chapter 7), the following points are important for the strategy of agricultural development.

- i. Formulation of a supply-demand program for staple foods: In respect to family planning, consideration will be given to the effects of family planning and supply and demand.
- ii. Increase of job opportunities and prevention of manpower outflows: Efforts will be concentrated particularly on the processing, distribution and transport of farm products.
- iii. Attempts will be made to increase farm income with intensive agriculture for a stabilization of agricultural work in rural areas.
- iv. Attempts will be made to eradicate poverty from the low-income bracket with an improved income distribution.

5) Among priorities given in the planning, the upgrading of the low income bracket's income is of most importance. To solve this problem, there is a need to adjust legal matter, which is out of scope of the project. For this reason, the team studied the remaining points in i. through iii. and recommended a strategy. (Chapter VIII)

6) As it was quite difficult to formulate plans for all sectors of regional agricultural development with insufficient data over a short span of 18 months, the team was compelled to focus their attention on the supply and demand of food for the population expected for 1991. In respect to other sectors, it is conceivable that the analytical method and the method for plan formulation, as used for the present project, may also be put to full use by each organization concerned, when full data will be available in the future.

7) What the team hopes to emphasize is some points which were brought to its attention during the period of a study on Repelita II. In this respect, Dr. Hendra Esmara gave the following general remarks:

"Practically every regional development program at a regional level is a faithful copy of the second five-year national development program in terms of scope and substance. The basic development strategy is also practically the same, and each expression used in the regional programs is the same as in the national program. But the problems posed for each region cannot be the same, nor can the strategy be the same as that of the second five-year national program ! The basic human need (BHN) is used neither in the national plan nor in the regional program in Indoensia. The necessity of using this concept - particularly, that of the calory and protein needs - has been clarified in the last two or three years, but there has been a total lack of research in this sector. The use of maps as a means to formulate regional development programs is ignored in all regions other than West Java."

8) The team, as it had to come to know of the aforementioned conditions, adopted its own approach and clarify the development strategy. The basic human need (BHN) is analyzed on the basis of the populations which were classified by age, sex and future population estimated by the cohort trend method. In respect to the supply and demand of food, the distribution of necessary calory and protein was computed item-wise.

9) In addition to the prototype plan, three alternative plans with the following conditions were prepared.

Incidentally, the results of the computation are elaborated in Chapter 6. Table II-15 is a comparison of the features.

- i. The prototype plan represents the case in which the supply corresponds to the demand which includes the shipment necessary for the D-Zone.
- ii. Alternative Plan 1 represents the case in which the production of upland rice is increased with the utilization of surplus farm plots in contrast to the prototype plan.
- iii. Alternative Plan 2 represents the case in which surplus manpower and reclaimed areas are used to increase the production of upland rice.
- iv. Alternative Plan 3 represents the case in which all resources are utilized.



Table II-15 "Comparison of Prototype Plan and Alternative Plans" is prepared according to the work sequence of the program for the supply and demand of food. First, the consumption and shipment quantities were computed and then the acreage of necessary farmland, manpower, acreage of reclaimed land were estimated for each plan. Under the prototype and alternative plans, there will be surpluses of manpower and farmland in 1990.

(For further details, refer to 6.4, Chapter 6)

Table II-15: Comparison of Prototype and Alternative Plans

	Prototytype plan	Alternative plan		
		1	2	3
<b>(1) Available resources</b>				
	*Note 1			
Farmland used	2,872	2,807	2,872	2,872
1,000 ha	(2,074)			
Labour force	1,410	1,023	1,056	1,410
1,000 persons	*Note 2			
Reclamation	770	-	-	664
1,000 ha	(550)			(474)
				770
				(550)
<b>(2) Surplus</b>				
Farmland 1,000ha	65	→ 0	-	-
Manpower 1,000 persons	387	354	0	0
Land developed 1,000ha	550	550	76	0
<b>(3) Annual rate of income increase %</b>				
	6.4	6.5	7.7	7.7
<b>Net income in regional agriculture 1,000 million Rp.</b>				
	362.6	365.8	440.5	441.0
<b>(4) Production volume (1,000 ton)</b>				
Rice	1,309.6 P	P +47.3	P +1,141.3	P +1,061.9
Corn	251.9 Q	= Q	= Q	= Q +139.1
Other food crops	1,733.7 R			
Meat	64.6 S			
Fish	296.8 T			
Industrial	238.3 U			
		Same as above		
<b>(5) Export volume (1,000 tons)</b>				
Rice	302.2 V	349.5	1,443.5	1,364.1
Corn	60.5 W	= W	= W	199.6
Other food crops	233.2 X	= X	= X	= X
Industrial	85.9 Y	= Y	= Y	= Y
Note 1 2,872,000ha = paddy fields (507,000 x 1.75) + upland fields (462,000 x 1.75) + orchards (440,000 x 1.16) + grassland (655,000)				
Note 2 770,000ha = 550,000 x 1.40 (because 2,872+2,074=1.40)				

10) A check of the results of a review on necessary farmland indicates that if it is assumed that the future cultivation ratio would be 135%, sufficient farmland would be available for the supply and demand for food in South Sulawesi Region. Therefore, there would be no need to import food from other regions.

Table II-16: Supply and Demand of Food in 1990

Unit: 1,000 ton

	Demand		Supply	
	Intra-region consumption	Shipment to other regions and export	Intra-region consumption	Shipment to other regions and export
Rice	1,007.4	302.2	1,309.6	-
Secondary crop	938.1	247.7	1,185.8	-
Vegetable	251.3	5.5	256.8	-
Fruit	547.5	5.5	553.0	-
Meat	63.2	1.4	64.6	-
Fish	263.6	34.2	296.8	-
Estate crops	152.4	85.9	292.5	12.4
Total	3,222.5	682.4	3,892.5	12.4

11) If it is assumed that the composition of manpower by industry remains the same in percentage as at present, the population working on farms will be 1,410,000 in 1990. Now that the number of persons required for work in agriculture is 1,023,000, there will be a surplus of 387,000 under the prototype program.

For the alternative plans, therefore, a study is made as to how employment in the agricultural sector may be increased.

Table II-17: Manpower Required for Agriculture

Unit: 1,000 persons

	Prototype plan		Alternative plan		
			1	2	3
Rice	348	a	a +33	a +387	a +361
Maize	49	b	= b	= b	b +26
Other food crops	138	c	Same as above		
Livestock	46	d			
Pond culture	23	e			
Estate crops	189	f			
Others	204	g			
Total	1,023		1,056	1,410	1,410

12) The steps necessary for the accomplishment of the project are as follows:

- i. For an increase in production, it is generally necessary to study the following measures. For this, there is a need to develop extension, research and other administrative services and to work out effective policies suited for each area.
  - a. Improvement of agricultural technologies e.g. fertilizer application of the right crop in the right field.
  - b. Breeding: excellent varieties, high-yield varieties, resistance to diseases, adaptability to high yield, drought resistance
  - c. Intensive agriculture e.g. multi-season cropping, mixed cropping, crop rotation
  - d. Land improvement e.g. irrigation, drainage, farm roads, land adjustment, soil improvement
  - e. Expansion of farmland e.g. development, reclamation, and
  - f. Soil and water conservation
- ii. To increase employment in agriculture, it is generally necessary to study the following measures and take steps suited to each district.
  - a. Shift of crops e.g. traditional extensive agriculture will be switched to intensive agriculture. The system of crops for cultivation will be changed from those in extensive labor work to those in intensive labor work.
  - b. Multiplication of crops e.g. a variety of crops will be introduced in the year with land rental and contract systems. The crops will be rotated with rice.
  - c. Expansion of farmland e.g. development and reclamation
  - d. Specialization e.g. the various agricultural activities will be specialized, such as the livestock sector, fishery sector, sales sector and transport sector, and
  - e. Cottage industries e.g. handicraft, sericulture, processing of farm products

- iii. For an increase in agricultural income, it is generally necessary to study the following measures and take steps suited to each district.
  - a. Increase of land productivity, such as the diversification of crops and rotation cropping with rice.
  - b. Cost reduction with an increase in labor productivity, such as the introduction of labor-saving agriculture and machinery
  - c. Expansion of farmland with land development
  - d. Specialization of marketing for each agricultural sector and of the transport sector
  - e. Raising of prices with processing of farm products and quality improvement, and
  - f. Cottage industries.

#### 4-2. Evaluation of Activities for Management of Master Plan

##### 4-2-1. Evaluation by experts and counterparts

###### (1) Methods of internal-assessment

The survey was done on March 8 involving four Japanese experts and 11 Indonesian counterparts (including one associated both with Phase I and II, one only with Phase I and one only with Phase II, or in terms of full or part time, 7 persons on a full-time basis and 4 persons on a part-time basis) assembled in the conference hall of Kanwil Deptan in Ujung Pandang, and an English-language questionnaire, as shown on Fig.II-18, was distributed to all participants. Each question contained in the questionnaire was explained in English (and simultaneously translated into Indonesian by an interpreter and the participants were asked to answer the questions). After this session, all the questionnaires were collected and tabulated.

Before the survey, incidentally, the respondents were repeatedly told that the replies would not be individually assessed but tabulated for an overall assessment, and that they would never be used for a personnel assessment, in an attempt to have access to frank assessments and opinions.

###### (2) Outline of survey findings

###### 1) Activities in related sector of Phase I

To the question 1-3 asking if any difficulty was felt in communicating with both experts and counterparts, 60 percent said yes. Particularly, most of the experts unexceptionally said yes, but most of the counterparts said no.

Asked about the necessity of advance training and others i.e. necessity of basic training, such as on the processing of statistical data (Question 1-3-b), necessity of improving on-the-job training (Question 1-3-c) and necessity of textbooks or handbooks (Question 1-3-d), practically every respondent showed the necessity.

In respect to the technical level and practical use, or the technical level of the project method (Question 1-4-a), all the experts and three-fourths of the counterparts considered the present level adequate but some of the counterparts were in hopes of having access to a higher level. Asked about the practical usability of reports on the basis of their engagement in their preparation (Question 1-4-b), nearly 80 percent of both experts and counterparts considered that the reports should have been usable, whereas the remaining 20 percent replied that the reports should have been of a higher level.

## 2) Overall aspect of Phase I

Insofar as understanding about the project is concerned there was a full understanding about the all aspects of the project and their respective roles.

In respect to the overall planning methodologies, 70 percent (100 percent for experts and nearly 60 percent for counterparts) consider the present methodologies adequate. However, 20 percent said the methodologies should have been of a level easier to understand, in spite of the fact that they were different from those employed in their specialized sectors. With the possibility of putting the reports to practical use, 80 percent considered them adequate, insofar as their respective specialized sectors are concerned. As far as the practical usability of all aspects of the reports were concerned, about 60 percent considered them adequate, insofar as their respective specialized sectors are concerned. As far as the practical usability of all aspects of the reports were concerned, about 60 percent considered them practicable, whereas 30 percent thought they should have been of a higher level. In the case of the experts, half of them considered they should have been of a higher level. Asked about whether the scope of work taken up in the reports was appropriate (Question 2-3-c), all the experts considered the present scope appropriate, so did nearly 60 percent of the counterparts, but 30 percent thought the scope should have been made broader. Then there were some who argue for a smaller scope.

## 3) Activities in specialized sectors of Phase II

In Phase II, communication between the experts and the counterparts is considerably better. In Phase I, difficulty was felt by all the specialists, but their number halved for Phase II. The counterparts who felt difficulty stood at 30 percent in Phase II.

The necessity of advance training, etc. - i.e. the necessity of prior training on basic techniques for the processing of data (Question 1-3-b), necessity of improving the training method (Question 1-3-c) and necessity of a handbook for the formulation of plans (Question 1-3-d) - were felt by all the respondents.

4) Whole of Phase II project

With respect to understanding about the project - the whole picture of the Phase II and their respective roles, 90 percent of the counterparts said they understood, whereas a half of the experts said they did not understand.

Table II-18 List of Questionnaire and the result of the examination

1) Phase I Concerning the field which you are in charge:

		Question I-1 How do you feel about the actual result of technology transfer in comparison with expected one? Please select one among the followings and mark.				Question I-2 How do you evaluate actual result of technology transfer?				
		a. Satisfactory.	b. Not completely satisfactory.	c. Disappointed.	d. Others (Please describe your opinion)	a. Well mastered the planning technique well so as to be able to design and conduct planning programs)	b. Skilled (Counterpart has become skilled in planning technique so as to teach it to others but design or conduct planning programs by himself)	c. Understood. (Counterpart has understood planning technique but he can not use it by himself)	d. Not understood.	e. Others (Please describe your opinion)
Expert		25%	75%	-%	-%	-%	50%	25%	-%	25%
Counterpart		33	67	-	-	11	22	67	-	-
Total		31	19	-	-	8	31	54	-	8

\* Please make some comments on the following items.

	Question 1-3-a a. Did you feel any difficulties in communication with your partner?		Question 1-3-b b. Did you feel any necessity of pre-training such basic techniques as statistical data processing?		Question 1-3-c c. In this project technology transfer has been done mainly through on the job training. Did you feel any necessity of improvement in it?		Question 1-3-d d. Did you feel any necessity of having handbook for planning technique?	
	a. Yes.	b. No.	a. Yes.	b. No.	a. Yes.	b. No.	a. Yes.	b. No.
Expert	100%	-%	100%	-%	75%	25%	100%	-%
Counterparts	44	56	100	-	100	-	100	-
Total	62	38	100	-	92	8	100	-



\* How do you feel about the parts which you took charge in preparing of the report of phase-1 activities? Please select one among the following and mark.

Question 1-4-a Regarding the level of planning techniques		Question 1-4-b Regarding the practicability of the report of phase-1 activities:					
	a. More advanced level of techniques should have been transferred.	b. Present level is adequate.	c. More understandable level of techniques should have been transferred.	d. Others (Please describe your opinion)	a. If necessary, it can be adopted for practical use.	b. More advanced level of techniques have been adopted for practical use.	c. Others (Please describe your opinion)
Expert	- %	100%	- %	- %	75%	25%	- %
Counterparts	25	75	-	-	78	22	-
Total	17	83	-	-	77	23	-

2) Phase-I Concerning the whole project:

Question 2-1 Have you been able to understand the whole project and your roll within it?		Question 2-2 How do you feel about actual result of technology transfer in comparison with expected one? Please select one among the followings and mark.				Question 2-3 How do you feel about the report of phase-1 activities: Question 2-3-a Regarding the level of planning techniques.			
a. Understood	b. Not understood	a. Satisfactory	b. Not completely satisfactory	c. Disappointed	d. Others (Please describe your opinion)	a. More advanced level of techniques should have been transferred	b. Present level is adequate	c. More understandable level of techniques should have been transferred	d. Others (Please describe your Opinion)
Expert	100%	50%	50%	- %	- %	- %	100%	- %	- %
Counterparts	100	33	67	-	-	22	56	22	-
Total	100	38	62	-	-	15	69	15	-

	Question 2-3-b Regarding the practicability of the report of phase-1 activities:				Question 2-3-c Regarding the planning aspects of the report of phase-1 activities:			
	a. If necessary, it can be adopted for practical use.	b. More advanced level of plan- ning techniques should have been adopted for practical use.	c. Others (Please describe your opinion)	a. Wider aspects should have been applied.	b. Present aspects adequate.	c. More limited aspects should have been appli- ed.	d. Others (Please describe your opinion)	
Expert	50%	50%	- %	- %	100%	- %	- %	
Counterpart	67	22	11	33	56	11	-	
Total	62	31	8	23	69	8	-	

3) Phase-I Concerning the personal disposition (the whole project):

\* How do you feel about the management and operation of whole project?

Please select one among the followings and mark to each items 1 to 4 mark means the following:

Question 3-1-a Number of long term experts.		Question 3-1-b Number and duration of short term experts.						
	a. Satisfactory.	b. Not necessarily satisfactory, but practically acceptable.	c. Un satisfactory.	d. Others (Please describe your opinion)	a. Satisfactory.	b. Not necessarily satisfactory, but practically acceptable.	c. Un satisfactory.	d. Others (Please describe your opinion)
Expert	25%	25%	50%	- %	75%	25%	- %	- %
Counterparts	33	67	-	-	22	78	-	-
Total	31	54	15	-	38	62	-	-

4) Phase-II Concerning the field which you are in charge:

		Question I-1 How do you feel about the actual result of technology transfer in comparison with expected one? Please select one among the followings and mark.				Question I-2 How do you evaluate actual result of technology transfer?				
		a. Satisfied factory.	b. Not completely satisfied factory.	c. Disappointed.	d. Others (Please describe your opinion)	a. Well mastered. (Counterpart has mastered the planning technique well so as to be able to design and conduct planning programs)	b. Skilled. (Counterpart has become skilled in planning technique so as to teach it to others but cannot design or conduct planning programs by himself)	c. Understood. (Counterpart has understood planning technique but he can not use it by himself)	d. Not understood.	e. Others (Please describe your opinion)
Expert	25%	25%	25%	25%	25%	25%	0%	25%	25%	25%
Counterparts	30	70	-	-	10	50	40	-	-	-
Total	29	57	7	7	14	36	36	7	7	7

\* Please make some comments on the following items.

	Question 1-3-a Did you feel any difficulties in communication with your partner?		Question 1-3-b Did you feel any necessity of pre-training such basic techniques as statistical data processing?		Question 1-3-c In this project technology transfer has been done mainly through on the job training. Did you feel any necessity of improvement in it?		Question 1-3-d Did you feel any necessity of having handbook for planning technique?	
	a. Yes.	b. No.	a. Yes.	b. No.	a. Yes.	b. No.	a. Yes.	b. No.
Expert	50%	50%	100%	-%	100%	-%	100%	-%
Counterparts	30	70	100	-	100	-	100	-
Total	36	64	100	-	100	-	100	-

\* Materials and equipments

Question 3-1-c Number of counterparts.		Question 3-2-a Equipments for survey.						
	a. Satisfac- tory.	b. Not neces- sarily satisfac- tory, but practically acceptable.	c. Un satisfac- tory.	d. Others (Please describe your opinion)	a. Satisfac- tory.	b. Not neces- sarily satisfac- tory, but practically acceptable.	c. Un satis- factory.	d. Others (Please describe your opinion.
Expert	25%	25%	25%	25%	75%	25%	-%	-%
Counterparts	33	67	-	-	18	45	9	27
Total	31	54	8	8	33	40	7	20

		Question 3-2-b Vehicles and drivers.				Question 3-2-c Office materials & equipments.			
		a. Satisfac- tory.	b. Not Necessarily satisfac- tory, but practically acceptable.	c. Un satis- factory.	d. Others (Please describe your opinion)	a. Satisfac- tory.	b. Not neces- sarily satisfac- tory, but practically acceptable.	c. Un satis- factory.	d. Others (Please describe your opinion.
Expert		50%	-%	-%	50%	75%	25%	-%	-%
Counterparts		45	55	-	-	36	55	-	9
Total		47	40	-	13	47	47	-	7



\* Length of phases:

		Question 3-3-a				Question 3-3-b			
		a. Satisfac- tory.	b. Not nece- sarily satisfac- tory, but practically acceptable.	c. Un satis- factory.	d. Others (Please describe your opinion)	a. Satisfac- tory.	b. Not nece- sarily satisfac- tory, but acceptable.	c. Un satis- factory.	d. Others (Please describe your opinion)
Expert		75%	25%	-%	-%	50%	25%	25%	-%
Counterparts		11	67	22	-	36	55	9	-
Total		31	54	15	-	40	47	13	-

5) Phase II Concerning the whole project:

	Question 2-1 Have you been able to understand the whole project and your roll within it?		Question 2-2 How do you feel about actual result of technology transfer in comparison with expected one? Please select one among the followings and mark.			
	a. Understood.	b. Not understood.	a. Satisfactory.	b. Not completely satisfactory.	c. Disappointed.	d. Others (Please describe your opinion)
Expert	50%	50%	25%	25%	25%	25%
Counterparts	100	-	40	50	10	-
Total	86	14	36	43	14	7

6) Regarding personnel disposition:

	Question 3-1-a Number of long term experts.				Question 3-1-b Number and duration of short term experts.			
	a. Satisfac- tory.	b. Not nec- ssarily satisfac- tory, but practically acceptable.	c. Un satis- factory.	d. Others (Please describe your opinion)	a. Satisfac- tory.	b. Not nec- ssarily satisfac- tory, but practically acceptable.	c. Un satis- factory.	d. Others (Please describe your opinion)
Expert	25%	25%	50%	-%	50%	50%	-%	-%
Counterparts	50	30	10	10	40	60	-	-
Total	43	29	21	7	43	57	-	-

Question 3-1-c Number of counterparts.				
	a. Satisfac- tory.	b. Not nec- ssarily satisfac- tory, but practically acceptable.	c. Un satis- factory.	d. Others (Please describe your opinion)
Expert	25%	50%	25%	-%
Counterparts	50	40	-	10
Total	43	43	7	7

4-2-2. Evaluation by the Japanese Evaluation Team

(1) Collection of data and analysis

1) Collection and sorting of data

As the collection of data was essential for a project, it is only natural that a considerable number of days and a considerable amount of work should be required for a survey. A check of the data collected in the survey revealed that practically every datum available in the district was encompassed, and the way in which such an enormous amount of data was collected is quite impressive despite the fact that there was an obvious lack of statistical data.

With respect to the data collected in the survey, as was elucidated in Vol. III "Data of the Agriculture in South Sulawesi Province" of the final report, most of them concerned production. Concerning principal indices, such as the number of farm families, manpower, acreage and production by crop, the number of cattles, fish catches and forestry output, considerably elaborate data as classified by block and by Kabupaten are available.

2) For a full promotion of this project, it must be born in mind that full data on the availability of resources, structure for the management of production, social and economic factors of agriculture, marketing and distribution and other systems should be fully available. In practice, these data are extremely wanting or hard to obtain, and it would not be an easy task to analyze from the data collected. Under these circumstances, it is of most importance that surveys on farming traditions and economics of farm products were carried out as supplemental surveys.

3) The collected data, maps and other documents, including the findings of the analysis, have been highly appreciated by the authorities concerned in South Sulawesi Province as usable for a data bank.

4) Vol. III "Data of the Agriculture in South Sulawesi Province" - although these data were originally intended for a situation analysis, they were nothing but basic data for the preparation of the master plan, or the sorting of these data was accelerated - are such that there seems to be more room for improvement in respect to the sorting of data and their delineation, when consideration is given to the fact that they are put to general use as a sort of handbook on agricultural statistics.

(2) Situation analysis, existing program and review of project

1) Volume II "The Present Situation and Problems of Agriculture in South Sulawesi" of the final report, which attempted to sort out and analyze the collected data, study Repelita II, clarify the agriculture and forestry of South Sulawesi Province and cast light on the existing and future problems, is a master piece. The book is over 300 pages in volume.

2) As the basic data primarily concern production, efforts are being made to supplement the data with various information on the structure for the management of agriculture, physical distribution and various systems.

3) Repelita II was elaborately studied in respect to agriculture, forestry and fisheries, and the findings are reflected in each chapter of Volume II.

Further, the sectors other than agriculture, forestry and fisheries - particularly, that of finances, investments and loans - could not be studied with regret due to a limited length of time and difficulties in translation. Moreover, it was an important task to clarify the planning method of Repelita II, but it seemed to be difficult under various circumstances.

4) A number of concrete points were enumerated as a result of the situation analysis, and most of them were presented from a viewpoint of food. The problems of agriculture in South Sulawesi Province may be eventually boiled down to the problem of food supply and demand. Presumably, this is tied in with the facts that the availability of data was limited and the master plan was designed primarily to forecast the future supply and demand of food. As it is conceivable that various structures and systems are closely tied in with the supply and demand of food, and there is a strong interest in the analysis of farmers' income, lives and others, it is desirable that an analysis be conducted on these factors, problems presented and countermeasures examined in the future.

4-3. Recommendations

A few recommendations are being made in order here that they may be considered when similar projects are carried out in future.

(1) In a project such as the development plan formulation, availability of data are crucial factor. It is true that planning cannot be carried out without data. However, existing material cannot normally provide necessary data. Accordingly, it will be necessary to conduct surveys to obtain those data which are absolutely necessary. In such a case, it will be useful to prepare a simple standard survey plan in advance, which may be adjusted to the actual situation in the project area so that necessary data may be promptly obtained.

In implementing of this type of project, it will be important to have some specialists in data collecting stationed for a considerable period of time so that identification of the project conditions including the collection of data may be clearly conducted in advance.

(2) As for the purpose of this type of project, weight should be given to either one of the formulation of a master plan or to the transfer of planning techniques rather than equally to both of them. If the project is carried out with the understanding that equal weight is being given to both objectives, it may cause a confusion among those concerned. In addition, since the two objectives may restrict each other, the results may also be incomplete for both of them. Therefore, it is important to arrange those priorities clearly.

In the case of this project, if it had been decided clearly that the transfer of planning techniques was the main objective, the formulation of the master plan might have been regarded as by-product of the process. Accordingly, it might not have been necessary to compile such a colossal report which apparently required a vast amount of time and labor (as it was compiled in haste, the report contains a considerable amount of duplication and redundant passages); that time and labor might have been concentrated on those operations more directly connected with technology transfer.

## Chapter 5. Evaluation and Opinions on the Results of Technology Transfer

- N.SASANO -

### 5-1. General Study

#### 5-1-1 Selection of ways of approach concerning the contents and method of technology transfer

The project of this time was performed by the so-called on-the-job training method, in which the required planning techniques were transferred to counterparts, while experts and counterparts drew-up the agricultural development plans of the province in cooperation. In such a case, several ways of approach can be selected. Below are described such alternative ways, and what policies were selected from them in the project.

##### (1) Relation between the level of technology to be transferred and the ability of counterparts

One approach is to draw-up plans using highly advanced techniques and transfer the portion of the techniques which can be understood by the counterparts.

The other approach is to draw-up plans using practical techniques which can be understood by the counterparts and transfer all the techniques used for the planning. In this project, the latter was employed in principle.\* This selection was made expecting that they would be able to improve their own planning abilities by themselves after they master the transferred techniques. And in this project whether the techniques suit the actual conditions of Indonesia was more seriously considered than whether the techniques are advanced. And concerning this selection the importance of collecting adequate data which suit the actual technology level of South Sulawesi was taken into consideration.

##### (2) Reliability of survey data and supplementary survey

One approach is to compile all the data required for planning by thorough supplementary survey. The other approach is to compile only the data available now and to make limited supplementary survey only for the portions with very low reliability and for the portions with no data. In this project, the latter was employed in principle, though considerable supplementary survey was made. In this case, the planning techniques themselves are restricted by the accuracy and contents of available data. In this selection the restriction in time and labor was taken into consideration. And, they also considered that some very specially improved technique of data compiling a beyond the existing level of Indonesia might only result to make a special sample which cannot be used in actual planning.

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\* Note: The feasibility study of the Fishpond Redevelopment Project of Phase 2 is exceptional.



(3) Number of counterparts

One approach is to educate many planners by classroom-training in parallel with the drawing-up of plans, and another approach is to cover only a small number of counterparts, and to transfer techniques while drawing-up plans with their cooperation. A third alternative is to use both the approaches together. In this project, the second approach was selected. In this selection the restriction in time and labor was taken into consideration. And in this project, the both government wanted to select this second approach.

(4) Techniques for individual specializing fields and techniques for comprehensive plans

One can classify the techniques into those for individual specializing fields and those for comprehensive plans. One approach is to transfer the techniques of each specializing field, and the other approach is to transfer techniques mainly for comprehensive planning. In this project, the latter was selected. For example, with regard to the technique of land classification, the methodology as to how (method and procedure) land should be classified was intended to be transferred, but the detailed methods of soil survey and analysis and how to set criteria for classification were not considered to be transferred. In this selection they considered that there are many other experts for soil and geology who can prepare required soil maps and criteria for classification. In this project, many short-term experts of various fields were dispatched from Japan and executed survey of their own fields, obtaining the cooperation of Indonesian counterparts in charge of the same fields, and the results of these surveys were utilized in drawing-up plans. However, in these cooperations counterparts have helped experts in each specializing field, but the techniques of each specializing field were not transferred to the counterparts. This was because they considered restriction in time, labor, language ability etc.

(5) Technology and philosophy

One approach is to limit to the items of technology, and another approach is to cover both items of technology and philosophy. A third alternative is to limit to the items of philosophy only. In this project, the first approach was selected in principle. This selection was made considering the restriction in time and labor. The transfer of technology was limited to the extent required by individual planners, and did not contain the technology of project management required by a team leader. This was because the (Japanese) team leader was too busy to transfer his own technology. In any way, the main purpose of this project was the transfer of knowledge, as described in "Record of Discussions".

5-1-2. Major part of technology transfer

The most important part of technology transfer in this project was the "integrated-plan" of Phase 1. This is the comprehensive review and plan on the demand and supply of foods in the province, and through it, it was intended to transfer 1) the technique to integrate the plans of many divisions into one comprehensive plan through feedback among the respective divisions, and 2) the technique to draw-up a local plan based on the demand from a national plan (for example, to make a production plan which enables to ship 20% of food products outside the island) and then to feed back the results of local plan making to the national plan (for example, though the shipment of 20% cannot be attained, 15% can be attained) and the technique to transmit the demand from the provincial plan to smaller regional units (for example, prefectures). This technique is intended to make a plan, considering the adjustment between upper plan and lower plan.

5-1-3. Target as to the level of achievement in the technology transfer

A problem in technology transfer is whether trained technicians have vitality to improve their own technology for themselves greatly after the training. For example, it is one approach to transfer a highly sophisticated planning technique system prepared by the technicians of a developed country to the technicians of a developing country. But such kinds of special technique might not contribute to usual planning activities in a developing country. It is absolutely necessary to fabricate planning techniques suitable for the actual situations and local cases of the developing country. The ability of a planner includes knowledge and wisdom as an application ability of the knowledge (ability to freely fabricate planning techniques suitable for situations) in combination. If it is expected that the transferred techniques will be spread from the trained planners to many other planners, and that the trained planner will study enthusiastically by himself to grow-up, it may be desirable to transfer the techniques within the ability of the planner, rather than to transfer the techniques beyond the ability of the trained planner.

The target of this project was to let as many counterparts as possible reach the level of "well mastered"\* for the above reasons. This "well mastered" means "the state of being skilled enough to freely fabricate a technique system similar to the techniques transferred according to the situations of the region covered by a plan, to make the plan by himself using the technique system, to teach it to others, and to plan and supervise the drawing-up of plans using the techniques". It is the most important part of this project that the mastery in this sense should be attained in the integrated plan of Phase 1 described before and in all the techniques required for it.

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\* Note: See the questionnaire form (Table II-18, 4-2-1) Four evaluation levels of well mastered, skilled, understood and not understood were set.

## 5-2. Contents and Method of Technology Transfer

### 5-2-1. Contents of techniques intended to be transferred and transfer results.

The major counterparts to whom substantial technology was transferred were four full-time counterparts, among those in the list shown in Fig. III-5, 6-1-2. It was mainly transferred by one long-term expert and was helped by one long-term and two short-term experts. As mentioned above, many short-term experts were dispatched, and many counterparts (mainly part-time) provided cooperation to them. But the technology transfer through these short-term experts was not made systematically.

The planning techniques intended to be transferred are enumerated below.

#### (1) Confirmation of basic planning techniques

Required were the confirmation of ability of planning and supplementary lessons concerning simple mathematical techniques especially calculation including significant figures, calculation of growth rate etc., supplementary lessons for making and reading maps, supplementary lessons concerning the idea of using proper maps and data according to the extent covered by the plan and the stage of planning (stage of conception, stage of implementation plan, etc.), and so on. These requirements of supplementary lessons were caused by the differences in national education system, education contents, way of thinking, etc., and it was clearly shown that there were strong and weak points among peoples and individuals. Such a problem must be faced calmly, and proper measures must be taken at the start of project. In case of this project, it seems to have taken much time until experts and counterparts perfectly understood their mutual features in ability.

#### (2) Collection arrangement and utilization of regional data and maps (Phase I)

Various statistical data and maps were collected and arranged systematically, and such problems as difference in data among government offices were settled. The respective local agencies of the government were visited, to complement missing data by collection and calculation using various methods. Maps of various scales were reduced or expanded systematically. Thus, a file necessary for drawing-up plans was completed. Much effort was spent for it, and it was completed with cooperation of counterparts. This file may function as a library capable of meeting any external inquiries immediately (see Phase I Report, Volume III). The portion of the file relating to regional data is scheduled to be printed as a pocket book for the convenience of use in Indonesia. Though the idea and the seemed method of making such a systematical file seemed to be rather unfamiliar with the counterparts, this file making technique was transferred through this project smoothly.

(3) Survey data analyzing technique (Phase I)

Technology transfer was made on the general data processing including the calculation of various indicating values and methods of interpreting them. The results of the work are shown in Phase I Report, Volume II.

(4) Agricultural land classifying technique by mesh diagram of 1/500,000 map

This is very significant in the technology transfer in Phase I. Survey maps of soil and topographical features were overlaid on 1cm x 1cm meshes (2,500ha/mesh) on a 1/500,000 map, for classification under certain judgement conditions, and the results in each mesh were totaled to make a land classification map. The results of the work are shown in Phase I Report, Volume V, and the technique is shown in Volume IV. The counterparts are now skillful in the classification work based on such mesh diagram and can perform similar work for themselves. If the accuracy of survey data such as soil and topographical maps were improved (topographical maps with scale of 1/500,000 or less are now available only partially), more accurate classification will be possible.

(5) Technique of forecasting (Phase I)

In addition to the general method using estimated annual growth rates, the estimation of population by Cohort method was made, and the counterparts mastered the work. This technique was lectured in the first seminar. The results of the work are shown in Phase I Report, Volume II and the technique is shown in Volume III (p. 13 and after).

(6) Comprehensive planning techniques (Phase I)

As mentioned before, this was the most important part in Phase I. The entire view of the techniques is shown in Phase I Report, Volume I (p. 80). These techniques were arranged, by selecting as easy techniques as possible, by limiting the number of relating factors, considering that the counterparts might understand perfectly and deepen their mastery by repeated exercises, and that the techniques could be easily applied for actual planning in Indonesia, as described particularly in p. 23 of Volume I. The integrated plan was drawn-up under alternative plans, and the results are shown in Phase I Report, Volume I (p. 76 and after). The results of training were published in the third seminar (March, 1979)\*. The integrated planning techniques were intended to transfer the way of conception to fabricate a plan with attention on a coordination between the plans of respective divisions and on a coordination between upper and lower plans and also to transfer the techniques to embody the way of conception. The purpose is surmised to have been attained to a considerable extent.

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\* Note: (1) How to make an alternative plan: Drs. D. Noor  
(2) How to decide the countermeasures: A. Makkasau  
(3) How to make an integrated plan: Z. Dahlan, et al

(7) Drawing-up of development programs of respective divisions (Phase I)

To attain the targets of the respective alternative plans for the above integrated plan, various programs must be prepared, for example, such as the expansion of agricultural land area by executing a farmland reclamation project. To prepare such programs, alternative plans can be made, regarding 1) place of execution, 2) year of execution, 3) executing principal (nation, province or farmers themselves) and sharing of expenses. For example, if it is necessary to select 10,000ha land for paddy field cultivation, out of the proposed site of 500,000ha in the province, they should establish a method of site selecting, and then make the selection of 10,000ha. Furthermore, it must be decided beforehand what integrated plan should be selected out of prepared alternative-integrated plans.

The techniques necessary for this selection were not transferred in the project of this time. The main reason is surmised to be the restriction in time and labor. The "Necessary programs to achieve the objectives" on and after p. 119 of Phase I Report, Volume I describes general approaches of promotion in future by crop item group, and not the results of consideration on the above development programs.

The above are the contents of technology transfer of Phase I.

(8) Agricultural land classifying technique by 1/50,000 maps (Phase II)

Since 1/50,000 topographic maps and survey data such as soil maps were available for Jeneponto Prefecture, agricultural land classification by non-mesh overlay, using 1/50,000 maps was made by experts and counterparts, and the counterparts mastered it. The similar classification in future for other Kabupatens, too, will be able to be made by Indonesian people.

If the accuracy of surveys concerning soil, rainfall, etc. is improved in future, the accuracy of agricultural land classification made by them can be considered to be improved by that.

(The drawing-up of integrated plan in the stage of prefecture was not planned in the project of this time, but it is scheduled to be tried by counterparts as part of the exercises made for the above mentioned (6) integrated plan (Phase I) ).

(9) Road arrangement planning technique (Phase II)

This is being made for Enrekang Prefecture, but was not yet completed when the evaluation was executed. This technique is to review the amounts of production, amounts of consumption and required transport volume of agricultural, forestry and fishery industries, and the present development conditions, transport capacity, driving time, cost, etc. of roads, and to decide ranking in the urgency of development among routes (including new construction). The technique and the results will be reported in Phase II Report.

(10) Feasibility survey technique for a fishpond improving project (Phase II)

With regard to a model project for modernization of shrimp pond in a region in Kabupaten Jenepont, a consistent feasibility survey covering the Surveying of the site, design of facilities and machines, review of production technique, and approximate examination of management balance was executed by two short-term experts with the cooperation of several counterparts. The results are shown in Phase II Report (completed in February, 1979). The technique extensively covers mainly marine cultivation techniques and agricultural civil engineering, but transfer of technique was not made. The main reason is that the specializing field of counterparts in charge was different from such inland water culture, and there was difficulty in the transfer of the technique used for the feasibility survey. Furthermore, as for agricultural civil engineering division, there was no full-time counterpart to whom the technique was to be transferred. However, since the report is completed, the promotion of technology transfer can be expected if counterparts read it carefully. The feasibility survey was made, disregarding the limit of the ability of counterparts and the management ability of farmers. Therefore, at present, it might not suit the present situations of Indoensia. But it is surmised to be very valuable as a suggestion for the future direction.

(11) Feasibility survey techniques for other projects

The reviews on the improvement of citrus fruits cultivation, improvement of grassland, improvement of forest, etc. were not yet completed when the evaluation was made. The Survey Team proposed that it was desirable to prolong the project period for promotion of the feasibility surveys (as pilot tests) upto certain level.

5-2-2. Method of technology transfer

As mentioned before, technology transfer was made mainly through on-the-job training. Mostly in this training, classroom training was made about 1 hour per day, on the technique and conception used for the work of that day, and then, the planning work was executed in the form of exercises.

The language used was English in principle, but as experts became accustomed to Indonesian, some Indonesian words were used additionally. At first, unfamiliarity and insufficient language ability of both experts and counterparts made them feel the existence of language barrier, but with the progress of the project, this problem was gradually solved as mentioned before.

5-3. Evaluation and Opinions on the Results of Technology Transfer

5-3-1. Viewpoints of evaluation

As shown in 3-4, PART I, evaluation can be made from the following three major viewpoints.

1) Were the contents of techniques to be transferred appropriate (were they suitable for the actual situations in Indoensia and technically proper)?

2) Was the method of transfer appropriate?

3) Were the results of transfer significant?

In this report, at first, the results of internal evaluation by experts and counterparts in charge of this project will be described for reference, and then the results of evaluation by the members of Evaluation Team will be shown.

In general, the real evaluation of the results of technology transfer can be made only after several years. For example, the real value of tree planting can be judged only after planted seedlings take root in the land, grow, and bear blossoms and fruits. At this time which corresponds to the time immediately after planting, judgement can be made only as to the matters concerning the nature of seedlings and the way of planting. The evaluation of this time is made on such a limited point of view.

5-3-2. Methods of evaluation

As shown in 3-3, PART I methods used were 1) explanation on the project activities by the persons in charge of the project, 2) questions and answers, and discussions between the members of Evaluation Team and the persons in charge of the project, 3) questionnaire for the persons in charge of the project, 4) internal discussion by the members of Evaluation Team, etc., in addition to the reading and review of the reports. Actions 1) and 2) were made on March 8, 3) on March 9 and 4) on March 10. The official opinions of the Joint Evaluation Team are shown in the "Note of Understanding" which was made based on the discussion by the members of Evaluation Team of March 10 (signed by both the team leaders at the third seminar on March 12).

We regret that opinions could not be exchanged sufficiently between the persons in charge of the project and the members of Evaluation Team due to tight schedule. Attention should be paid to this point in the evaluation surveys to be made in future.

The survey of this time did not cover such special investigation such as, for example, "what motivation was given to the local farmers, personnel of local governments and personnel of the local agencies of Agriculture Ministry and what desirable improvement was brought about". The reason is that such evaluation was surmised technically difficult. To examine the results of the project only from the parties directly concerned with the project was the policy of the evaluation of this time.

5-3-3. Internal evaluation by the persons in charge of the project

(1) Survey method and survey results

By the questionnaire mentioned before, opinions of the experts and counterparts were investigated. The whole form of the questionnaire and the totalized results of the answers are as shown in Table II-18 in 4-2-2

This survey was divided into (1) activities of Phase I, (1)-(a) activities in each field in charge (1)-(b) entire activities of Phase I, (2) activities of Phase 2, and (2)-(a) activities in each field in and (2)-(b) entire activities of Phase 2. For example, the answer for (1)-(a) by expert A shows the average evaluation on all the techniques and all the counterparts, for which Mr. A was in charge of technology transfer. Therefore, the distribution of differences, for example, that technique could be transferred highly to counterpart A but only partially to counterpart B cannot be estimated accurately from the results of this survey. Such details as to evaluation by individual by item could be investigated to some extent by hearing. But since it was thought such evaluation data by individual should not be shown in this report, the average expression as described above was used.

The numbers of answerers are different among items, because the answerers answered to only the items with which they were concerned. The four experts are all the long-term experts including the team leader. Short-term experts were not covered by this survey.

(2) Consideration on the results

With regard to the satisfactoriness with the results of the technology transfer as a whole, the evaluation of "Satisfactory" and "not completely satisfactory" account for the most both with Phase I and Phase II. Also with regard to the level of techniques in the technology transfer, the extent of planned contents, the practicality of planning, they considered those were almost adequate. With regard to the difficulty in communication (language), about two thirds felt difficulty in Phase I, but only about one third felt difficulty in Phase II. With regard to the supplementary lectures on the basic planning techniques and the preparation of a manual on planning techniques before start of the regular training, almost all answered those were necessary. Almost all answered that the technology transfer mainly by on-the-job training should be improved. To summarize the above, it can be said that the activities of the entire project were almost admitted though some improvement should be made, and that the results of the project were generally satisfactory.



A problem is the level of achievement in the technology transfer. For Phase I, experts evaluated "Well mastered" = 0/4, "Skilled" = 2/4, "Understood" = 1/4 and "Others" = 1/4 (concerning the fields they were in charge), but counterparts evaluated "Well mastered" = 1/13, "Skilled" = 4/13, "Understood" = 7/13 and "Others" = 1/13. The Difference in evaluation between experts and counterparts is conspicuous. As mentioned above, experts answered average levels, among many counterparts they guided and among many techniques transferred. Counterparts answered average levels, while some studied many techniques and others not so many. Since this question did not allow to obtain accurate answers, supplementary survey was made by hearing from experts. According to it, 4 to 5 counterparts (one of them was absent on the day when the questionnaire was made) concerned with the details of the integrated plan as the nucleus of Phase I. For other counterparts, planning techniques were transferred only partially. This was caused by the restriction due to the other jobs the counterparts were in charge and the restriction due to the specializing fields they were in charge. The answers to I-1-2 can be interpreted to reflect these situations. Since Phase II is not yet completed, the results of answers are not quite suggestive. The works of Phase II include the techniques which have been transferred completely such as the agricultural land classification by 1/50,000 maps, and the techniques which could be little transferred though experts have completed their works such as the feasibility survey on the improvement of fishpond. This question, too, seems to have been difficult to obtain correct answers. According to the supplementary hearing from experts, it can be understood that the agricultural land classification of each Kabupaten by 1/50,000 maps was the sole technique in Phase II which could be transferred at a high level of achievement.

In short, "they felt that the operation of the entire project was made properly without large errors under given conditions, but that the results of technology transfer were not very high in level and not very large in scale".

#### 5-3-4. Evaluation and opinions of the Evaluation Team

##### (1) Evaluation in the "Note of understanding"

The Joint Evaluation Team evaluated as follows:

1) On-the-job training for the counterparts by means of transfer of knowledge had a good success. The counterparts will be ready to do the same job for regional planning in the future as expected by both governments.(5.7)

2) Thirteen counterparts had opportunities of training in Japan, through the RADP/ATA-140 project in South Sulawesi. The result of the training in Japan were very useful, however the Indonesian government has requested to get more chances to the counterparts to have the opportunities to study in Japan and/or in other third countries.(5.8)

3) The communication between the Japanese experts and the Indonesian counterparts was good, and they had better understanding to each other.(5.9)

4) The comparative study tour to other provinces for the experts, the counterparts, the officials of the province of South Sulawesi and of central level, had a good effect on better understanding and better preparation of the Master Plan in South Sulawesi.(5.10)

The evaluated as "good" for "transfer of knowledge" of 5.7, "good" for "communication" of 5.9, and "very useful" for the training in Japan in 5.8. The "good" was selected from 1) very good, 2) good, 3) fairly good and 4) not good.

(2) Evaluation and opinions of Japanese Evaluation Team

Under the given condition that "techniques are to be transferred by on-the-job training, through planning work", the persons in charge of the project can be recognized to have made their best, including the measures of dispatching experts and supplying materials from Tokyo. Their efforts and ingenuity as pioneers can be highly evaluated.

However, the results were not very magnificent as "the essence of modern planning was transferred to so many persons in charge of planning". The results can be expressed as "basic techniques required for actual jobs were transferred to limited persons in charge of planning". From the viewpoint of the efficiency, if all the personnel, material and expenses invested are directly compared with the results of transfer, the project cannot be said to have been efficient. However, the Evaluation Team highly evaluates the results of this project as "a milestone for the project of agricultural technical cooperation through personnel development". It is not surmised desirable to evaluate such projects on the standpoint of short period and efficiency as mentioned above. And yet, the results of this time should not be simply considered satisfactory. What is important is to utilize the results of this time as far as possible for future.

The first significance of the results of this project is that "a milestone of transfer of technology concerning agricultural development planning has been established. This milestone is valuable because it was established through experience as a result of serious trial and error made by the persons in charge. We believe the knowledge obtained in this project will be a valuable guide for those in charge of such projects in future, with regard to what difficulties arise and how they can be overcome. The second significance (this is the primary result) is that excellent planners who will grow-up for themselves were obtained as a result of the technology transfer. They can be said to be several "seeds". The technology standard is expected to be improved by these planners. The third significance is that precious teaching materials were prepared for transfer of planning techniques, through this project. These materials are not so spectacular as to show the essence of modern planning techniques, but are very highly

practical results obtained out of the troubles and contrivances of the persons in charge, describing how to let counterparts understand definitely and how to provide a plan with the technology standard suitable for a provincial practical plan.

As described in the evaluation and opinions of the Joint Evaluation Team before, the results of technology transfer in this project are evaluated as "good" as a whole.

The results of efforts and ingenuity of many people will demonstrate their real value only when they are utilized effectively in future. Especially when a similar project is planned in future, the experience of this time should be used in the effort not to repeat the same trial and error.

Respective problems will be described below in order, including some proposals.

1) Problems concerned with the contents of techniques

As described in 5-1-1 planning techniques which could be transferred through this project were rather elementary. Also as described in Phase I Report Vol. I-VIII 8.1, planning techniques which could be transferred this time require only part of it. However, it is not that all the ability of planning technicians can be developed through the technology transfer as made this time. Part of such ability should be incessantly developed through daily planning work and voluntary learning of planning technicians.

The project of this time is significant in it that the ability to continue growth enthusiastically was developed and confirmed through the technology transfer of this time. A small seedling is satisfactory, if it grows-up large. However, in order that it may grow smoothly, and produce other seedlings, the environmental conditions necessary for the growth (viz. conditions for the counterparts trained in the techniques to grow while utilizing the ability effectively) must be secured. Whether these conditions can be secured is a problem in Indonesia. Eager activities by the counterparts are expected in future.

2) Problems concerning the method of transfer

For systematical and efficient technology transfer, sufficient preparation and contrivance for it are required. It cannot be said that the implementation for this project was well prepared. The main reason was that Japan did not have much experience in this kind of project.

In general, to start technology transfer, any measures must be taken, such as 1) programming of curriculum, 2) preparation of teaching materials, 3) selection of experts and counterparts suitable for the contents of techniques to be transferred, 4) confirmation of the ability of those people and preliminary training if necessary, and so on. This project was started, with no such measures taken sufficiently, and the daily trial and error and ingenuity of the persons in charge paved the way for the results. There were unavoidable circumstances, but there is some possibility of improvement.

As for the preparation of teaching materials, it seems to have regrettably difficult to prepare handbooks in English or Indonesian at the time of starting the project, based on the level of prepared data and maps of South Sulawesi, the technical level of counterparts, the legal system concerned with planning. General guidebooks for planning techniques in Japan are written in Japanese considering Japanese situations, and it must have been difficult to recompile and translate the Japanese guidebooks, since the information concerning Indonesian situations was not sufficiently available. For example, it may have been effective if Indonesian experts who have advanced ability through studying abroad had prepared such teaching materials. But actually this seems to have been impossible. If such teaching materials are to be prepared on the principle that teaching materials for technology transfer through technical cooperation from a foreign country should be prepared by the assisting country, it is necessary after all to experience the various trial and error by executing such a project. This has been recognized in the evaluation of this time.

With regard to the selection of experts and counterparts, if the basic ability of all of them particularly concerning English and mathematical statistics had been checked and raised to more than certain level before starting the regular training, the project would have progressed more smoothly. As regards to the counterparts, some particular consideration should be taken to select them from suitable specializing fields. It must be avoided that a technique cannot be transferred satisfactorily because of difference in the specializing field of counterparts. The lesson obtained this time that there was some room for improvement in these problems is hoped to be used effectively at the next opportunity.

### 3) Review of existing plans

The "Record of Discussions" made it obligation to review especially Repelita-II (the second Five-Year Plan), to recommend any improvement, and to transfer techniques accordingly. Such review and recommendations were made mainly by experts, and the results of the review were explained. But the systematical technique for review was not transferred. The recommendations as results of the review are shown in Phase I Report, Vol. I. They are not expressed in a style of "so-and-so portions are unpreferable", but in a style of "we consider it proper to make plans by such a method". Therefore, answers were given by way of making improved new plan. Indonesian Government may have wished to have a little more detailed suggestions, but the experts do not seem to have found more appropriate way than it. It is understandable that Indonesian Government was very interested to know what technique was required to decide the priority order among many development programs. The order of conception of Indonesian for a long-term plan tends to be generally, 1) to make possible development programs for the respective fields, 2) to select those with high urgency from them, making an implementation plan, and 3) to clarify planned targets (population,

supply and demand situations of foods, industries, economy, land use, etc.) in the target year as the result. On the contrary, the conception of Japanese tends to be reversely, 1) to assume planned targets (for example, population and food nutritive level) at the target year, 2) to examine what measures (for example, rice field development of 10,000ha) are required to attain them, 3) to examine the feasibility of individual development programs (for example, rice field development of 6,000ha in district A and 4,000ha in district b), 4) to feed back the results to 1). This can be clearly found when Repelita-II is compared with Phase I Report, Vol. I. This is based on the difference of nationality, and it may not be sound to decide which is better. Anyway, Indonesian government wanted to know how to decide the priority order of concrete development programs probably in this situation.

In the integrated plan of Phase I, several alternative plans were prepared.

But to our regret, the list of development programs necessary to realize the targets of respective plans (for example, target output of rice) and the table of their priority order were not presented. And therefore, revision of the planned targets by omitting the programs was not made.

So in this project, the planning work did not reach the final stage of Japanese style planning.

Similarly with regard to Indonesian Repelita-II, it was felt that the contents were not so boiled down as to enable readers to understand "what will be the status in the region at the planned target year (population, industries, economy, etc. and this is the final stage of Indonesian style planning) and what reasons were there in the selection?". This is a kind of discrepancy.

In very macroscopic observation, due to the situation as mentioned above, the problem of "review of plans" seems to leave an interesting problem to be examined in future.

#### 4) Sense of value in selecting planned targets

As described in the project of this time mainly aimed at the transfer of technology, and the matters of philosophy was not considered. And the transfer of philosophy seems to be substantially impossible. This project is concerned with the transfer of knowhow of how to do. It is the task of Indonesian people to decide what sense of value and conception should underlie in the setting of future targets and how individual regional inhabitants should participate in this situation. But we suppose it is very important duty of planners to cultivate deep philosophy in parallel with advanced technology, by discussing and studying incessantly problems. Modern technology is, as it were, "a double-edge sword". The person who wields the sword must have thought and philosophy suitable for the technology.

This situation also can be applied to the development process of Japan. Japanese people learned techniques of advanced countries from the beginning of the modern era, fabricated them as a system suitable for the national features of Japan, made the most of the techniques extensively to educate many other people, and grew-up for themselves. And in this process, Japanese people can be said to have showed high ability. However, there seems to have been a problem as to the judgement what targets should be set for the growth.

We are apt to chase after successful predecessors (or those who look like successful predecessors) without profound consideration. Poor countries chase after rich countries and agricultural countries chase after industrialized countries. Villages chase after cities, and farmers chase after the income and productivity of those engaged in manufacturing industries and commerce. This appears natural, but there lies large danger in it. For example, agricultural modernization forgetting the substance of agriculture may devastate the soil of arable land, and may make village depopulated and cities densely populated. It appears a reasonable target of effort to improve the productivity of agriculture, or to improve the living of inhabitants, but if an erroneous policy is taken, the technological renovation as a double-edged sword gives an unexpected side effect.

In the technology transfer of this time, efforts were occupied with the transfer of basic planning techniques, and do not seem to have been able to cover discussions on philosophy. This is surmised to be inevitable, considering the restriction in time and language ability, difference in conception, etc.

If a similar project is executed in future, efforts are desired to be made on the following, though it is known that difficulty will be involved.

- i. To improve and confirm the ability of freely fabricating techniques suitable for the actual conditions of the country and national features and of always improving the techniques for themselves, beyond the simple study of individual techniques.
- ii. To improve and confirm the ability to consider the judge, required to make technology assessment concerned with the techniques for themselves (execution of daily discussion and study to improve the ability).
- iii. To transfer techniques including the improvement of planning and managing ability, in addition to individual techniques.

These efforts are desirable to be made not through unilateral lectures by experts of assisting country, but through discussions made to review and cultivate the sense of value and the conception of the country or the region concerned.

5) Integrated plan and comparative examination of alternative plans

The drawing-up of integrated plan and the transfer of techniques required for it are a major part of this project, as mentioned before.

The results can be evaluated from the publication by several counterparts in the third seminar, from the results of trial to draw-up a similar plan as a prefectural plan for themselves, and so on. However, how they will grow-up in future is still unknown. It can be said that about 4 counterparts have reached the achievement levels of "well mastered" and "skilled".

The techniques of integrated plan are elementary as shown in Phase I Report, Vol.-I, p. 80, and do not involve a large-scale regional economy model, for example, as requiring large capacity electronic computer. This project was intended to let the counterparts repeat exercises by such simple techniques, until they were sufficiently skilled in the techniques and to let them master the ability to fabricate by themselves planning techniques suitable for cases as required. This intention is considered appropriate. It can be recognized that the target was attained to some extent, though not for all the counterparts.

The level of the techniques was set, considering the extent to which the counterparts could understand them definitely. The members of Evaluation Team were not present in the actual scene of transferring techniques and are not in a position to make correct judgement, but consider the level of techniques judged from the explanation of experts and the publication of results by counterparts must have been appropriate in light of common sense.

A problem lies in the process of preparation, comparative examination and selection of alternative plans rather than the techniques themselves. In the preparation of alternative plans, the opinions of executive officials in charge of selecting such plans and the intentions of inhabitants should be reflected. If the plan drawn-up in this project was for a practical administrative use, like Repelita-II, such measures are surmised to have been taken of course. However, the plan was drawn-up only as "exercise". Probably because of it, when the number and extent of alternative plans were considered, sincere exchange of opinions and discussions with executive officials in charge of administrative decision making were not made. While there must be unavoidable circumstances, it is surmised significant to practice such important process even as a part of the exercise to draw-up the plan.

The same should be applied also to the comparative examination required for selection from the alternative plans. Phase I Report, vol. I shows only a list of alternative plans. The process that an executive official in charge of decision making for drawing-up a plan out of these plans selects with important responsibility was not executed. In fact, such alternative plan method was not employed in the drawing-up of plans such as Repelita-II, and therefore it is too much to ask for such unfamiliar task of selection from alternative plans. However, since the way of comparatively examining alternative plans was used, it must have been significant if the exercise on selection was executed more thoroughly. Through this project, the counterparts have mastered the technique to freely prepare various alternative plans, but do not seem to have experienced the important "process" to repeat careful investigation and discussion on the range and number of alternative plans, viz. the desirable future direction and selection range of the region, to reduce the range of selection gradually, and to select one plan finally with spirit. Since such a way does not still take root even in Japan, we are asking a difficult task, but if the alternative plan method is used, we hope this will be considered in the projects of next time and after.

6) Consideration of development programs necessary for attaining targets

The Phase I Report, Vol. I does not show the list of development programs and administrative measures (for example, specifically intensified extension of production increasing techniques) necessary for attaining targets, and considerations and opinions on the feasibility and urgency. It shows considerations and opinions as to how to promote production by crop item group. As described in the "C. Review of existing plans", it was a great concern of Indonesian Government to compare and examine the urgency of these development programs, and to establish production plans by crop item group ("sector plans" in the "Record of Discussions") based on the results. In the comparative examination, development programs with low feasibility are cut away, and the results are fed back to the contents of alternative plans. For example, it is necessary to take such a measure that "the rice yield increasing plan as the second alternative plan is considered difficult to be attained for so-and-so reason. Therefore, so-and-so correction will be made in the production plan of rice." However, to examine in this way with each alternative plan requires enormous volume of work. If a program of "developing a large-scale livestock base in region A of Prefecture B" had been assumed and a field survey had been started on the feasibility, it can be understood that misunderstanding and confusion must have been caused among the local people. As far as the drawing-up of an integrated plan was an "exercise", there was a situation that the examination as to development programs by crop item group could not be made so realistically.



If the direct objective of the project had been "not an exercise, but to draw-up a plan provided for practical administration (for example to draw-up Repelita-III)", the operation of the project must have been considerably different.

Anyway, after all, a list of development programs for respective alternative plans and considerations and opinions as to the priority order, execution order, etc. were not shown when the evaluation was executed. The "sector plans" in the "Record of Discussions" were drawn-up as the master plan, viz. integrated plan, in the project. With regard to the transfer of technique to compare development programs in priority order, either, no special result was obtained.

If the Japanese style conception in the order to 1) to draw-up an integrated plan and 2) to examine the development programs necessary for attaining its targets as described in 3) is taken, a list of development programs will contain those, by way of enumeration, considered necessary to attain the targets in the integrated plan. Which of program A or program B is to be executed first can be examined, but which of A or B is to be employed cannot be comparatively examined. However, the feasibility of each plan can be examined. Programs with low feasibility must be cut away, to correct the planned targets by that. This is a judgement of yes or no concerning each of A and B, and not a judgement as to selection by comparative examination of A and B.

On the contrary, when the conception in the order of 1) to examine the priority order of listed development programs demanded from respective crop item groups, and 2) to clarify the planned targets (output, etc.) as their results is taken, what conception and technique are used to judge the priority order is a problem. To judge which of development program A or B should be given priority, the sense of value to judge what future direction should be selected for the region must be clarified. For example, the judgement as to the relative importance of development programs greatly depends upon what relative importance should be attached to the three targets of improving the income level, expanding employment opportunity and improving the self-supply rate of foods. In order to clarify the sense of value in this meaning, the comprehensive examination as made for drawing-up the integrated plan is surmised to be required after all. The technique to compare and examine development programs cannot be simple. If the expansion of employment opportunity is seriously considered, the magnitudes of employment opportunity expanded by programs and the expanded volumes of employment per unit amount of investment, viz. indicating values of the target seriously considered should be comparatively examined.

Anyway, in Phase I of this project, it is sure that a problem to be examined was left, with regard to how to meet "the examination of development programs and the drawing-up of sector plans". In similar projects in future, examination should be made carefully on the difference in conception between both the countries and the difference in the interpretation of clauses of "Record of Discussions".

#### 7) Feasibility survey (Phase II)

The "Record of Discussions" specifies to make "preparation of implementation plans, including feasibility survey".

For example, let's consider in reference to an example of grassland development, and let's assume that a policy of developing grassland of 10,000ha in Prefecture A, 10,000ha in Prefecture B and 5,000ha in Prefecture C was established in the sector plan of Phase I. It requires enormous labor, time and cost to perform a series of such operations as to select the places and areas, to prepare topographic maps of at least 1/5,000, to make detailed field survey as to soil and vegetation, to make a concrete management plan, to determine the kinds of grass and livestock and the farming technology system, to design all the civil engineering works, to calculate the construction cost and to evaluate the environmental impact, for the three districts. If several such projects are considered for each crop item group, still more enormous time, labor and cost will be required. The series of operations as mentioned above must be difficult to be executed as "an exercise", unless it is scheduled to be implemented actually with high certainty.

Furthermore, if fundamental knowledge is insufficient as to the kinds of grass, cultivation method, plant pest preventing and exterminating method, etc. suitable for the land, further time, labor and cost will be required to confirm them.

In this project, it was impossible in view of the character of the project, to draw-up the implementation plan for a development program which is sure to be executed using a large area. It was only possible to draw-up as implementation plan for a development program as experimental "point" and to make its feasibility survey only for the sake of technology transfer, and never for a development program as "wide plane".

Judging from this situation, the results of the consistent examination concerning the fishpond improving program can be evaluated highly as a model case to be referred to in future. The present low technical level of culture fishermen should be improved step by step, spending much time. That the technology transfer to counterparts could not be made smoothly this time is considered to have been caused by it that the special field of the counterparts was apart from culture fishery. However, if any appropriate person in charge reads the report of this time deliberately in future, the results of this time will be utilized effectively.

With regard to grassland, forestry and citrus fruits, it is considered proper to examine the kinds of grass or trees to be selected, culture and management techniques, etc. by pilot plans, and to transfer techniques in the process of the examination. The efforts of short-term experts in Phase II were understood to be used for the confirmation of local situations, preliminary field surveys, and preliminary measures such as suggestion concerned with the research activities required in future. In this stage, to our regret, significant results were not obtained in the transfer of techniques.

#### 5-4. Recommendations

As described in 5-3-4, in this chapter, this project were valuable, but there are several matters which can be improved. Some of them are difficult to execute, but for future reference, some proposals are made below.

##### 5-4-1. Ability check and training of the persons in charge, before the start of the regular project

It seems useful to execute ability check and training particularly concerning language (English) and basic techniques such as mathematical statistics, even by reducing the execution period of project partially. Also with regard to short-term experts and counterparts, especially linguistic ability check and training are also important.

The technology transfer from experts to counterparts is surmised to be possible only through English. The correct transfer of delicate meaning of techniques and detailed technical knowhow from the start of the project can be made only when both experts and counterparts have more advanced linguistic ability than required in projects of ordinary technical cooperation. This must be a demand easy to make but difficult to realize, but is required to be attended particularly in future projects.

In case of classroom training for a larger number of planners, the use of Indonesian language seems to be more effective than English. The lecturers for this purpose can be the counterparts to which techniques were transferred in detail by on-the-job training. The techniques transferred to a few counterparts by on-the-job training demonstrate the real value, when they are utilized to improve the ability of many planners, by way of executing such classroom training, preparing guidebooks, etc. The first step for it is, though seemingly natural, to prepare the personnel who have advanced planning techniques and advanced linguistic ability\*.

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\* Note: The training of technician in the Meiji era in Japan can be said to have been promoted by the capable men trained in countries, who then reorganized the acquired results into systems suitable for the national features of Japan, to make various textbooks and educated many capable men systematically, using them. In this case, linguistic ability was required to be high when techniques were transferred from foreigners, but it was not always required later.

As necessary as linguistic ability are basic techniques such as mathematical statistics and map using method, and in some cases, using methods of electronic computer and aerial photos. As for such abilities, of course, people are strong in some abilities but are weak in others. Lack in some abilities is not always a fault to be blamed. This problem should be faced calmly, and it is surmised necessary to train counterparts until all acquire the required abilities upto certain level. This will enable to obtain good results, in order to transfer certain level of techniques reliably to all counterparts. It is very useful, if textbooks for such check and training are prepared beforehand.

#### 5-4-2. Preparation of planning techniques textbook

This, too, is a demand easy to make but difficult to realize. It can be said that only after executing this project, the materials to allow the compilation of such textbook were prepared. In this project, a planning technique manual is being compiled by experts in Japan, in addition to Phase I Report. We are confident that these teaching materials will effectively contribute to the projects of planning technology transfer in Indonesia in future.

Such a planning technique textbook is required to be suitable particularly for the actual situations of the region at that moment. The "actual situations" include the conditions of prepared regional data and maps, number and trained level of the planners, various laws and systems concerned with the execution of planning, etc. A textbook which is based on all the actual situations and has the contents of techniques with the level a little above the actual situations is highly desired.

It would be necessary in technical cooperation to prepare several kinds of textbooks and curriculums corresponding to them, together with curriculums for training lecturers for them, and to provide them as demanded by developing countries.

We would like to particularly insist that technology transfer should not be executed as a kind of attachment in the drawing-up of plans, but should be executed more systematically.

#### 5-4-3. Systematic classroom training by a technology transfer center

To execute the systematical classroom training as mentioned above, it must be very useful if there is a permanent training center. We refrain from describing the detailed conception of its establishment in this report, but if the results of this project are desired to be used more positively, it can be one method to sincerely consider to establish such a center.

5-4-4. Assistance from research sector

It would be useful to execute the basic researches concerning the natural and social structures of Indoensian villages by the researchers of the assisting country, in advance and in parallel with the project. In general, it takes much time for an expert in charge of a project to understand the actual situations of the country after his arrival. If there is a Japanese researcher beside him, who is expected to give useful advices, it must be very encouraging for the expert. The communication and exchange of information with universities and research institutions in the developing country will be able to be made more smoothly if there is such a researcher. Such a researcher cannot always be dispatched unless he so desires earnestly. However, it will be very useful, if a researcher can be stationed in the training center mentioned above, to make researches without being directly involved in any specific projects and serves as a lecturer of training and an adviser for compiling textbooks, when necessary.

For regular participation in and contribution to the education of capable planners in a developing country, it seems necessary to steadily to be at grips with it by establishing any permanent base and stationing a capable man who will play a key role there for a long period of time.

In the project as executed this time, experts in charge are required to have the abilities of 1) planning technician, 2) teacher and 3) researcher in some cases. Their abilities are different in character, and particularly to satisfy 1) and 2) simultaneously, considerable ability and effort are required. Same applies also to 1) and 3). Particularly important in planning is to elevate the ability to judge as accurately as possible as to "what impact is given to the social, economic and cultural structures of the country by the execution of a specific development project (for example, irrigation project)". This ability is very important for a planning technician, and to make precise judgement in a foreign country requires to collect, analyse and learn enormous data. These efforts are rather those of a researcher. If a researcher as mentioned above is stationed to continue researches, much effective contribution can be expected, though it cannot be guaranteed that always sufficient advices can be obtained concerning the above problems and that researches can be entrusted if necessary.

More concrete proposals would be necessary, to realize "the dispatch of a permanent or long-term researcher in connection with the establishment of a technology transfer center". In this report, it is avoided to make such far-reaching proposals, and it is only suggested as a problem worthy of being studied in future.

5-4-5. More intensified consideration for project planning

It is hoped that the preparation of the clauses of "Record of Discussions" and of the contents of project activities, and the drawing-up of an implementation plan for those activities will be considered carefully, based on the experience of this time. Especially, whether or not the drawing-up of a plan is "an exercise" or is intended to be executed changes the method of technology transfer greatly.

Chapter 6. Evaluation and Opinions on the Management and  
Operation of the Project - N.SASANO and M.OTA -

6-1. Basic Framework of Project Operation

The framework of the project can be illustrated as shown  
in Fig.II-4.

Fig.II-4 Organization of the project

6-1-1. Japanese administrative structure

(1) Inter-ministerial conference

The conference consists of Agricultural Technical Cooperation Division of JICA, International Cooperation Division of Ministry of Agriculture, Forestry and Fishery, and Technical Cooperation Second Division of Ministry of Foreign Affairs, and decides the administrative policies, implementation plans, execution plans, budget, etc. for the project. Furthermore, when the necessity of discussion on any problem occurs concerning the despatch of a survey team, etc., the conference is held occasionally, to discuss and decide the policies to be pursued.

(2) Technical support committee

1) Background for the establishment of the committee

As described several times, this project was intended to transfer pure software based on agricultural projects, for the purpose of transferring regional agricultural development planning techniques. This is quite a new field in the technical cooperation by our country, and yet, the number and fields of the experts despatched were limited in light of the enormous quality and quantity of contents of the cooperation. Therefore, it was thought absolutely necessary to provide technical support in the various fields concerned, in this project, and the establishment of the committee was decided.

2) The articles of the committee

Article 1 The Technical Support Committee for South Sulawesi Regional Agricultural Development Planning Project (hereinafter to be called "the committee") shall be established in JICA.

Article 2 The committee shall discuss and provide advice and suggestions on the special and technical matters concerning the operation of the regional agricultural development planning project to be executed in South Sulawesi of Indonesia, when inquired by the President of JICA.

Article 3 The duration of the committee shall be 30 months; provided that it can be extended as necessity arises.

Article 4 The committee shall consist of one chairman and seven members. The committee may ask the opinions of other men of learning and experience than the members of the committee, as necessity arises.

Article 5 The chairman and the members of the committee shall be nominated and entrusted by the President, from the men who have the learning and experience required for the duties of the committee.



Article 6 The chairman shall control the duties of the committee and supervise the proceedings.

2. If the chairman is not present due to unavoidable circumstances, the member appointed by the chairman beforehand shall perform the duties of the chairman.

3. The committee shall be convened by the chairman.

Article 7 The administrative affairs of the committee shall be performed by Agricultural Development Cooperation Department.

3) Names of the members of the committee and their affiliations

<u>Name</u>	<u>Affiliation</u>
Akira TAKAHASHI	Professor, Department of Economics, the University of Tokyo
Shingo ITO	Professor, Tokyo University of Agriculture
Kazuo MUTO	Assistant Professor, Tokyo University of Agriculture
Tsutomu SHIBASAKI	Regional Planning Official, Planning Division, Agricultural Structure Improvement Bureau (ASIB), Ministry of Agriculture and Forestry (MAF)
Kenjiro KAWASHIMA	Regional Planning Official, Resources Division, ASIB, MAF
Minonao MURATA	Regional Planning Official, Technology Division, ASIB, MAF
Ken KAMISUGI	International Cooperation Division, Agricultural and Forestry Economic Affairs Bureau, MAF (Former Agricultural attaché, Embassy of Japan in Jakarta)
Nobuharu SASANO	Chief of Rural Planning Laboratory, National Research Institute of Agricultural Engineering, MAF

On January 20, 1978, the above articles were partially modified, and Mr. Yasuo MIYAZAKI, regional planning official, Resources Division, ASIB, MAF was newly nominated and entrusted as a member.

#### 4) Role and results

The committee provides guidance and advice on the technical matters concerning the operation of the project. Since the first meeting held on April 20, 1977, total six meetings were held and contributed to the establishment of basic lines and to the settlement of various problems of the project.

However, to our regret, few official meetings could be held in the fiscal 1978.

There were various reasons. First, there was no budget enough to hold meetings. Second, as the lines of the project were decided, the secretariat had enormous volume of work such as despatching short-term experts and could not spare time for holding the meetings. Third, though the committee contributed much to the establishment of basic lines, etc. in the first year, it became apparent that the members of the committee who held important posts respectively could not be available for drawing up detailed technical plans such as preparation of training programs or drawing-up of technical operation plans. These were the main reasons. The minutes from the 1st to 5th meetings important to know the operational progress of the project are shown in the 6, PART III.

#### 6-1-2. Indonesian administrative structure

##### (1) Joint committee

This committee consists of 12 Indonesian members with Director-General of Secretariat Planning Bureau of Ministry of Agriculture (Dr. Birowo) as the chairman and 4 Japanese members. As necessity arises, general experts and Japanese Embassy staff can participate as observers. As for the composition of the Joint Committee, see the R/D shown in Attached Table

The Joint Committee is held in Jakarta, being an organ to discuss the basic policies, implementation plans, execution plans, etc. of the project between Japan and Indonesia, making cooperation under mutual understanding, for smooth operation of the project. The discussion and adjustment of the situations of implemented cooperation works are also important tasks of the committee.

##### (2) Steering committee

This committee consists of 26 Indonesian members with the Secretary General of BAPPEDA (Planning Bureau of the province (Mr. A.R. Maraka) as the chairman, and 4 Japanese members. The composition of the Steering Committee is shown in Table II-19.

Table II-19 Composition of the Steering Committee

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Chairman	:	1. Chief of the BAPPEDA of South Sulawesi (S.S.)/A.R. Makala S.H.
Deputy Chairman I:		2. Chief of the South Sulawesi Regional Office of Ministry of Agriculture (M.A.)/ Drs. Djoko Soejatno
Deputy Chairman II:		3. Chief of the Maros Agricultural Experiment Station/Dr. Ibrehim Manwan M.Sc.
Secretary I:		4. Secretary of the BAPPEDA of S.S./E.A. Adjaib
Secretary II:		5. Chief of the Regional Data Section, South Sulawesi Regional Office of M.A./ Mono Syamsuddin

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Members:

Representative of Agencies:

6. Asistant I of the Secretary of South Sulawesi Governor/Drs. H. Umar Laknuu
7. Chief of the Bureau of Development, South Sulawesi Governor's Office/ Drs. A. Bakri Tandaramang
8. Chief of the Economy and Financial Division, BAPPEDA of S.S./Drs. Dahlan Maulana
9. Chief of the Agricultural Extension Service of S.S./Ir. Sjamsuddin Abbas
10. Chief of the Forestry Service of S.S./ Ir. Hadimartono
11. Chief of the Animal Husbandry Service of S.S./Drh. J. Kadang
12. Chief of the Estate Crops Service of S.S./Ir. Syamsuar N.D.
13. Chief of the Fishery Service of S.S./ Ir. Mochtar Abdullah
14. A staff of the Agricultural Faculty of UNHAS/Dr. Ir. Muslimin Mustafa
15. A staff of the Faculty of Social Science of UNHAS/Drs. Ambar Tadang
16. Chief of the Irrigation Division, Public Works Service (DPU) of S.S./ R. Suratman B.I.E.

17. Chief of the Directorate of Agraria/  
H.A. Sukur
- 

Team of Counterparts:

- 18/20. Three (3) Counterparts on Regional  
Agricultural Planning/Ir. Nazaruddin  
L., A. Makkasau B.Sc.,  
Ir. Jusuf Marzuku
- 21/23. Three (3) Counterparts on Agronomy/  
Drs. Onggeng Bachtiar, Tadjuddin Dullah,  
Ir. Isman Abu
- 24/25. Two (2) Counterparts on Agricultural  
Economy/Drs. Azis Mattola, Drs. Dahlan  
Noor
26. Secretary of the Project/A. Axis Lahiya
- 

- Team of Experts:
27. Team Leader/Expert on Regional Agricultural  
Planning/Setsuzo KIKKAWA
28. Expert on Agronomy/Kiyooki KUBO
29. Expert on Agricultural Economy/  
Kunihiro OZAKI
30. Liaison Officer/Koji TANABE
- 

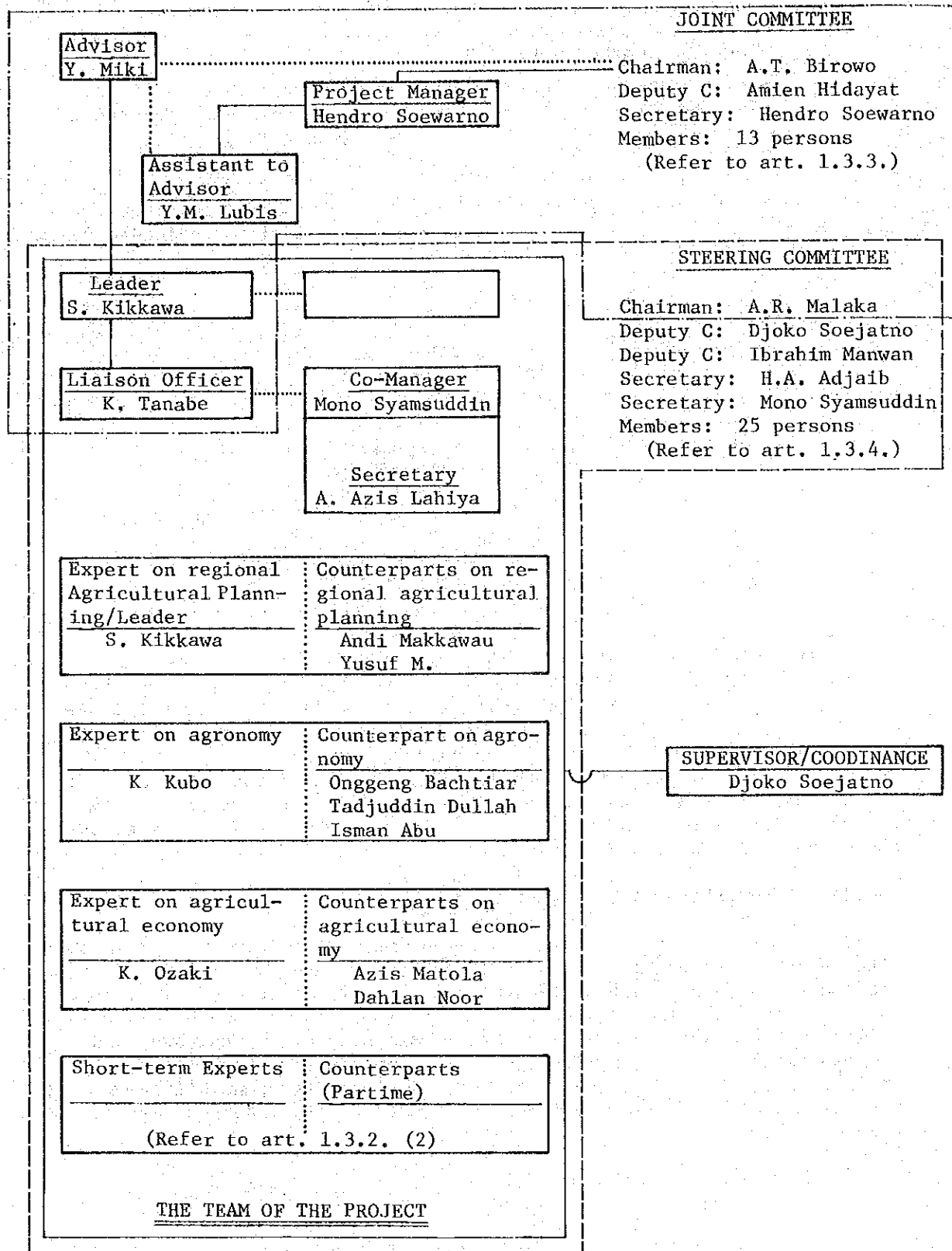
Remark: This composition has been recomposed on August 3,  
1978, based on the Decision Paper of South Sulawesi  
Governor, No. 472/VIII/1978, dated August 3, 1978.

The Steering Committee is held in Ujung Pandang, and is important as an organ which discusses more detailed implementation plans, annual execution plans, etc. than the Joint Committee and discusses and adjusts the needs of regional and local level.

(3) Organizational structure of the project team

The structure and roles of the project team and the relations with the counterparts are shown in Fig. II-5, and in the first year, the counterparts were not stationed sufficiently, often causing troubles in the activities. The project team is stationed in the South Sulawesi Office of Secretariat Planning Bureau of Ministry of Agriculture, and the manager of the Office (Mr. Djoko Soejanto) is also the manager of the project. Therefore, the system of control and responsibility was not sufficient, and some inconvenience was caused for the Japanese expert team.

Fig. II-5 The Project Team's Structure of Organization



6-2. Study on the Operation of the Project

As obvious in "Background and objectives of the project" at the beginning, the objectives of the project were very far-reaching. The project has two aspects that there was a major objective of "transfer of planning techniques" in light of quality, while "drawing-up of plans" could not be neglected, and it cannot be evaluated only in either aspect. Also in light of volume, it was required to collect and analyze the enormous data concerning the agricultural development in South Sulawesi, to draw up sector plans, to make feasibility studies in specific two Kabupatens, and so on.

To face a project with such far-reaching objectives was the first trial in agricultural technical cooperation.

Furthermore, it was a very difficult task from the beginning, for five long-term experts to attain the above within the almost same framework of technical cooperation as before.

For this reason, Technical Support Committee was established, to complement the portions which could not be covered by the long-term experts and the persons concerned with technical cooperation.

When the operation of this project is seen in the framework of technical cooperation based on conventional projects, it has three features. The first feature is that it included extensive and complicated contents which could not be covered by the active cooperation of the expert team only. The second feature is that constant mobility was required to cover the very wide area, partly because of the limit in the cooperation period. The third feature is that in view of the largest objective of technology transfer, the expert team was required to have especially the technique as teachers as well as them as experts, since the objective could be attained only when counterparts acted positively and always to achieve the targets by themselves. In light of the means to attain the objectives, in relation with the above, many short-term experts had to be despatched, requiring many cars to provide mobility with, and business machines, etc. to prepare reports with.

It is also a feature that the number of accepted trainees was large, compared with other projects.

This project can be said to have been "a groping project" in which the development of new agricultural technical cooperation was groped for by both Japan and Indonesia.

It is very difficult to evaluate whether or not the operation of the project with such features could be executed effectively. However, also for the same kind of projects to be executed in future, it is necessary to try evaluation from the following four viewpoints.

(1) When the project was established, were preliminary investigation activities made sufficiently according to the cooperation contents of R/D and were the conditions and accuracies of the data of the covered areas and the technical level of technicians understood sufficiently?

(2) Even though it was a groping project, was the strategy in the Scope of Activities discussed in detail under the mutual understanding of Japan and Indonesia?

(3) Were the setting of objectives and the strategy to attain them discussed in detail in the framework of technical cooperation of our country?

(4) Could the Support Committee and other institutions, and the above mentioned three major features be used sufficiently and efficiently in the present framework of cooperation, in the operation of the project?

With regard to (1), it is surmised that the activities of the expert team and the short-term experts must have been executed more efficiently, if system planners and experts on sociology, development economy, regional planning, etc. had executed implementation design and survey for about 2 months before or immediately after the establishment of the project, to know the present situations of South Sulawesi sufficiently, and to establish the strategy for technology transfer in the stages of project planning and preparation.

As regards (2), what were the intended results is crucial. If the transfer of planning techniques was the final objective, it can be evaluated that the fact of having taught is enough. Further, it can also be evaluated that the drawing-up of a master plan means technology transfer.

If emphasis is placed on technology transfer, the master plan may become less precise. In the other case, technology transfer may become insufficient. Thus, unless the final objective, intended results and strategy for them are sufficiently examined, different persons involved in this kind of projects may have different opinions, making the effective implementation impossible. In this regard, also as to the interpretations of terms, Indonesian and Japanese parties concerned will have to have sufficient discussion.

As for (3), opinions may be divided. That is, there is an argument that since a new trial always involves difficulty, a determined challenge should be made, beyond the present framework. This is true in one sense. However, international cooperation, especially technical cooperation, is similar to constructing a house in another person's garden. A good house pleases him, but if a house in which people cannot live is built, it may be a useless and obstructive thing and yet cannot be broken, giving a more disatisfactory result.

With regard to the increase of budget and problems concerning systems, a challenge should be made in a new direction, but a plan which cannot be realized with sincerity or a plan which does not provide any prospect, in other words, a plan for which the strategy for setting and attaining objectives is not examined in detail is not surmised to give good results for the partner country or Japan.

When the project is judged to be imperfect in this sense, it will be necessary not to hurry in the establishment of the project, but to endeavor to examine how to make strategy within the present framework, then to move to execution.

Regarding (4), the establishment of the Support Committee and the results shown in Chapter 3 "Input of the Project", Part II for the three features can be appraised as such but there are some doubts as to whether they were effectively utilized in the project. Two causes can be considered. One is the problem of systematic administrative organization, and the other is the problem of strategy and preparation for setting the project. The latter problem was already mentioned and will be omitted here.

As described before, the project has extensive and complicated contents which cannot be covered by the positive cooperation by the expert team only.

To execute such a project, there must be any person who becomes the nucleus to arrange these elements toward the attainment of objectives. The nucleus is preferable to be formed by more than one person, and more preferable by an organization. Even if busy scholars are collected only when a problem occurs, it is nearly impossible to form a constructive opinion.

A person who does not know the entire flow of a project consistently from the establishment of the project is difficult to provide proper support. In this sense, it is urgently required to establish a permanent support organization based on a budgetary action.

Requests for this kind of cooperation will increase in future, and we shall have to face such situations. We hope sincerely that the lessons from South Sulawesi Regional Agricultural Planning Project will be left future projects.

### 6-3. Evaluation and Opinions on the Operation of the Project

#### 6-3-1. Internal-evaluation by the persons in charge of the project

According to the results of the questionnaire described before, the question "could you understand your role in the entire project?" of Item 2-1 was answered by yes by all in Phase I, and 12 out of 14 in Phase II. With regard to Item 3 regarding the satisfaction with the operation of the project, most replied they were satisfied or felt reasonable in both Phases I and II.