2.3.3 Use of Agricultural Machinery in the Philippines

(1) Pre-Harvest Machinery

Mechanization of agriculture in Southeast Asia is still in the initial stages of development. According to the Food and Agriculture Organization's (FAO) statistics, farm mechanization by unit paddy area to number of horsepower, ranges from the lowest Indonesian figure of 0.19HP/ha to the highest Korean figure of 1.72HP/ha. Farm mechanization in the Philippines is at about the same level as in Indonesia at 0.2HP/Ha.

In 1981, where the ratio of the farming population to the total population for Asia is 62.4%, the ratio for the Philippines is lower at around 50%. Horsepower per unit paddy area in the Philippines is lower than the average Asian figure, and with a low farming population base the individual farmer is required to work extremely hard. Consequently, there is considerable need for agricultural mechanization in the Philippines.

As shown in the sales chart of agricultural machinery (TABLE 2-20), the number of machines used gradually increased in the 1960s, reaching a peak in 1975. However, the Philippines was greatly affected by the two oil shocks placing extreme pressure on the farm economy.

The farmers had difficulty purchasing agricultural machinery due to: i) the high cost of imported machinery resulting from peso devaluation ii) spiralling of material prices for local production of agricultural machinery, and iii) bankruptcy of local manufacturers.

The current prices of agricultural machinery are shown in TABLE 2-21. The average area cultivated by a farmer in the Philippines is 2.5ha with an average yield of 2.4t per crop harvest. As the price of rice is around ₱3.5/kg, the purchase of the locally made 5-6HP power tiller would correspond to 37% crude income per crop harvest. In the case of large, locally manufactured threshers, the price would correspond to 1.14 times the crude income from one crop harvest. This is an expensive

TABLE 2-20

ANNUAL SALES OF AGRI-MACHINERY
(1965-1985)

YEAR	FOUR-WHEEL TRACTOR	P. TILLER	R. MILL	PALAY THRESHER
1965	607	-	-	-
1966	664	1,932	-	-
1967	1,531	3,058	-	-
1968	1,630	1,873	-	
1969	1,358	910	-	
1970	978	425	-	
1971	1,086	680	-	
1972	1,216	1,468	-	259
1973	1,517	3,120	-	256
1974	1,666	6,721	-	412
1975	2,176	11,077	-	608
1976	1,074	8,937	-	929
1977	1,318	9,803	-	1,800
1978	1,266	7,803	418	2,220
1979	1,224	5,370	644	3,006
1980	667	2,993	956	2,401
1981	728	2,901	1,568	1,137
1982	653	2,157	402	391
1983	525	1,635	180	335
1984	237	1,233	245	487
1985 *	80	728	197	405
TOTAL	22,201	74,773	4,618	15.154

* January to Otober only

PRICES OF AGRI-MACHINERY

1. Diesel Engine

	Japan make	Other country's make
4 ~ 5 HP	15,000 Pesos	11,500 Pesos(Taiwan)
6 ~ 7 HP	17,500 Pesos	
9 ~10 HP	23,500 Pesos	17,500 Pesos(Italy)
11~12 HP	34,000 Pesos	
15~18 HP	38,500 Pesos	

2. Gasoline Engine

3 HP	2,800 Pesos	
5 HP	3,100 Pesos	
7 HP	5,250 Pesos	
10 HP	8,200 Pesos	
15 HP	11,000 Pesos	
16 HP		12,500 Pesos(U . S . A .)

3. Rice mill

Paddy/hour	Japan make	Local make
750~900kg	65,000 Pesos	36,000 Pesos

4. Power tiller

	Local make
4 ~ 5 HP	7,500 Pesos
5 ~ 6 HP	8,000 Pesos

5. Thresher

per hour	Local make
1.5 ~1.75tons	25,000 Pesos
0.75 ~1.0 tons	18,000 Pesos

SOURCE : AMMDA

purchase for small scale farmers (average holding less than 1.5ha) who comprise the majority.

On the other hand business, affluent residents in the rural areas (doctors, private business men, big land owners etc.) can purchase such agricultural machinery fairly easily. If they rent out a power tiller at ₱500 for example, they can collect an average of two ha rent a day and pay off the purchase price of ₱1,000 in about two weeks even including the cost of fuel. This represents an excellent business proposition for those with sufficient capital. Because these rental rates are high the farmer has to rely on water buffalo etc., to cultivate his paddy. Despite the high rates however, the farmer is forced to depend on rental threshing due to the demanding nature of threshing operations.

(2) Post-Harvest Machinery

At present total annual average Philippine rice production for 1980 stands at 5,150,000t. For the five years from 1979, the rice self-sufficiency level was barely maintained and if the buffer stock (three months total national consumption) which the ASEAN contries agreed upon in 1983 is considered, the self-sufficiency level is not even realized. Furthermore, in 1984 production itself fell below the consumption level. Rice self-sufficiency in the Philippines is shown in TABLE 2-22. From 1977, the self-sufficiency level began to deteriorate reaching a low in 1979, and with domestic production decreasing and consumption increasing, (1977: 39,000t; 1978: 150,000t; TABLE 2-22), the Philippines changed its status to that of a rice importing country.

Furthermore, the purchasing price of rice which the Government had controlled until 1985 was decontrolled in June 1985. Fluctuations in the price of rice are shown in TABLE 2-23 for Ex-Farm Price and in TABLE 2-24 for Retail Price.

Continuing along the above-mentioned trend, the post-harvest situation is considered extremely inadequate. As shown in TABLE 2-22, the number of threshers sold since 1970 is 15,154 units (according to AMMDA). If the life of the thresher is considered to be 10 years at the outside, there should be some 13,111 units, of which 13,000 are operable.

TABLE 2-22

RICE SUPPLY-USE, PHILIPPINES, CROP YEAR 1980-1985 (JUNE - JULY)

(In '000 Metric Tons)

	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Beginning stocks, July 1 1/	1,540	1,575	1,331	1,520	1,478	990
Production 2/	5,093	5,020	5,279	5,040	5,127	5,363
Imports	-	-	-	-	-	389
TOTAL SUPPLY	6,633	6,595	6,610	6,560	6,605	6,742
DOMESTIC REQUIREMENT	4,822	5,089	5,080	5,071	5,585	5,742
Food 3/	4,314	4,594	4,569	4,585	5,098	5,235
Feeds, Waste, Seeds	508	495	511	486	487	507
Less: Exports	236	175	10	11	30	-
ENDING STOCKS 6/	1,575	1,331	1,520	1,478	990	1,000
Less: 90 Days buffer	1,189	1,255	1,253	1,250	1,415	1,448
ASEN RESERVE	12	12	12	12	12	12
SURPLUS (DEFICIT)	374	64	255	216	(437)	(460)

1/ - SOURCE OF BASIC DATA: INTER-AGENCY COMMITTEE ON RICE AND CORN.

AVERAGE EX-FARM PRICES OF PALAY BY MONTH, PHILIPPINES, 1980-1985

(₱/Kg)

	1980	1981	1982	1983	1984	1985
January	1,13	1,35	1,51	1,54	2,09	3,52
February	1,18	1,41	1,55	1,58	2,85	3,65
March	1,23	1,43	1,57	1,57	2,23	3,67
April	1,24	1,45	1,55	1,60	2,28	3,67
May	1,23	1,46	1,57	1,63	2,35	3,65
June	1,24	1,50	1,64	1,70	2,65	3,70
July	1.31	1,56	1,68	1,77	2,90	3,90
August	1,35	1,60	1,68	1,83	3,01	3,87
September	1,42	1,59	1,64	1,81	3,15	3,45
October	1,33	1,48	1,54	1,77	3,13	-
November	1,27	1,43	1,46	1,78	3,12	-
December	1,31	1,47	1,49	1,99	3,27	-
AVERAGE —	1,27	1,48	1,57	1,71	2,75	-

AVERAGE WHOLESALE AND RETAIL PRICE OF REGULAR-MILLED RICE BY MONTH, PHILIPPINES, 1980-1985

I. WHOLESAL (₱/BAG OF 50 KILOS)

	1980	1981	1982	1983	1984	1985
January	107,72	118,56	128,46	129,11	180,33	301,80
February	108,83	121,07	129,92	129,92	182,77	310,53
March	109,43	121,40	131,36	129,87	185,39	310,12
April	108,97	120,61	131,28	133,75	186,50	308,89
May	111,94	121,52	134,39	134,98	192,49	310,99
June	110,86	125,78	137,34	139,74	229,12	313,38
July	115,49	133,32	142,00	142,29	241,42	334,66
August	119,71	135,43	142,23	150,71	247,16	330,33
September	124,66	134,93	142,25	151,98	260,26	300,00
October	122,73	130,42	140,81	157,31	269,38	
November	118,77	127,47	131,84	158,11	274,42	
December	115,68	127,36	134,84	179,03	280,52	
AVERAGE —	114,52	126,49	135,57	144,95	227,48	

II. RETAIL (₱/KILO)

January	2,31	2,51	2,74	2,83	3,74	6,28
February	2,27	2,52	2,76	2,83	3,80	6,48
March	2,33	2,53	2,78	2,86	3,80	6,44
April	2,34	2,56	2,78	2,86	3,84	6.40
May	2,34	2,54	2,80	2,91	3,96	6,44
June	2,32	2,61	2,87	2,96	4,71	6,52
July	2,41	2,76	2,98	3,01	5,02	7,00
August	2,47	2,81	2,97	3,10	5,09	6,90
September	2,56	2,80	2,97	3,12	5,44	6,40
October	2,56	2,76	2,96	3,25	5,66	
November	2,50	2,72	2,87	3,26	5,82	
December	2,46	2,71	2,85	3,68	5,89	
AVERAGE —	2,41	2,65	2,86	2,06	4,73	

Assuming a thresher capacity of 1.2t/hr and a national average cropping ratio of 140%, if a thresher is operated 8 hr/day for 2.5 weeks per crop season, annual average thresher capacity is 380t. Thus 13,000 threshers can thresh a little under 3,100,000t/year or about 60% of present total production. There therefore remains a considerable demand for threshers. Production for 1986 is estimated at 1,500 units and for 1987 at 1,650 units according to the AMMDA Plan (TABLE 2-25). Consequently, if the high price is disregarded, a considerable latent demand is anticipated.

However, Japanese manufactured threshers are not suited for threshing Philippine rice, as the ratio of rice adhering to the rice straw after threshing is quite high. Consequently, threshers are not being exported to the Philippines from Japan on a commercial basis.

Grain drying machines are in the first stages of introduction. The NFA owns fixed type dryers with a capacity of 155.23t/hr and portable type dryers with a capacity of 142.95t/hr for a total capacity of 304.42t/hr. Assuming that the private sector owns the equivalent of about 30% of NFA's capacity (data not available), drying capacity in the Philippines is estimated at about 400t/hr.

If the above machines are operated for 10 hours a day, 40 days a year (used only in the rainy season), 160,000t of paddy can be dried. This is equivalent only to about 11% of the total paddy harvested during the rainy season (some 1.46 million tons) making the demand for this machine very high among farmers.

As of 1982, the NFA owns fixed type rice mills with a capacity of 142.95t/hr and portable types of 26.35t/hr for a total capacity of 169.3t/hr. As there are mills in the private sector with a capacity of 716.81t/ha this would raise the national total capacity to 886.11t/hr. If the mills are operated for 300 days, 10 hours a day, the annual milling capacity would be approximately 2,700,000t. At 52% of total production, the operating hours/day (in the case of the NFA, some mills are operated continuously for

TABLE 2-25

SALES FORECAST OF AGRICULTURAL MACHINERY & EQUIPMENT
1986-1987

Machinery/Equipment	Imported 1986 Qty.	Imported 1986 CIF Value US$'000	Imported 1987 Qty.	Imported 1987 CIF Value US$'000	Locally Produced 1986 Production Qty.	Locally Produced 1986 Production Cost ₱'000	Locally Produced 1987 Production Qty.	Locally Produced 1987 Production Cost ₱'000
Four-Wheel Tractors								
Standard - 30 Hp-up	83	1,689	100	2,240				
Compact - Below 30 Hp	75	608	90	802				
Sub Total	158	2,297	190	3,042				
Power Tillers								
Gasoline Engine Driven	121	102	145	134	550	13,959	600	16,751
Diesel Engine Driven	100	200	120	264	1000	32,000	1100	38,700
Sub-Total	221	302	265	398	1550	45,959	1700	55,451
Engines								
Gasoline	7200	1,800	8640	2,300				
Diesel	2528	1,517	3034	2,002				
Sub Total	9728	3,317	11,674	4,302				
Post-Harvest Equipment (Without Primover)								
Threahors					1500	30,000	1650	36,300
Dryers (Batch type)					38	760	41	902
Dryers (Continous flow type)					15	1,125	30	2,475
Rice Mill	132	238	144	285	250	8,750	275	10,587
Rice Huller	100	30	110	36	100	1,000	110	1,210
Corn Sheller	—	—	—	—	300	6,000	360	8,712
Sub Total	232	268	254	321	2103	48,235	2466	60,186
Irrigation Pumps					360	540	540	891
Reaper/Harvester	150	180	165	218	30	840	36	1,109
GRAND TOTAL	10,489	US$ 6,264	12,548	8,281	4043	₱95,574	4742	₱117,637

BASIC ASSUMPTIONS:

1. The peso-dollar rate will remain at 18.8/US$
2. The $100 million Agricultural Loan Fund (ALF) will be fully operational by the last quarter of 1985.
3. The manufactueres(foreign or local) will increase their price by 10% every year.
4. The government will continue to support the agricultural productivity program.
5. The economic recovery program will be vigorously pursued/continued as envisioned by the government and the IMF.

24 hours) and the number of days of operation a year are being lengthened, placing considerable pressure on machinery and personnel.

Again, the milling charge of private mills is ₱4.5/cavan (50kg) or ₱0.09/kg. In short, if paddy is valued at ₱3.51/kg then the rental fee of ₱0.21 for the power tiller and ₱0.27 for the thresher and ₱0.12 for wages is comparatively low. In the light of the above circumstances, the NFA is planning to disseminate post-harvest machinery at the farm level.

A few days before this survey (from 22 October to 8 November 1985), a typhoon hit the provinces of Nueva Ecija and Tarlac, the rice basket of Manila, drenching some 25,000t of paddy which required urgent drying. This re-emphasized the importance of post-harvest machinery.

CHAPTER III

THE EFFECT OF THE INCREASED FOOD PRODUCTION PROGRAM

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THE EFFECT OF THE INCREASED FOOD PRODUCTION PROGRAM

3.1 IBRD, ADB and USAID

There are numerous international agencies presently involved in the reconstruction of the agricultural sector in the Philippines. Of these, IBRD, ADB and USAID are the major contributors and assistance provided by the same is outlined below.

3.1.1 IBRD

The loan from IBRD amounting to US$150 million was approved in July 1984 to finance import of essential inputs (feed grains, fertilizers, pesticides, veterinary products, and agricultural machinery and spare parts) required to meet the needs of the agricultural sector during the crop year 1984/85. As of August 1985, US$80 million was allotted for feed grains, fertilizers and pesticides, while the remaining US$70 million was reallotted to import of fertilizers during the crop year 1985/86.

3.1.2 ADB

The Agricultural Inputs Program Loan amounting to US$130 million was approved in April of 1984 to finance the import of fertilizers required to meet the needs of the production of rice, corn and vegetables during the crop year of 1984/85, and has been used accordingly.

3.1.3 USAID

The following agricultural development projects are already being financed by USAID.

1. Small Farmer System II Project (25 Sept. '81 - 30 Sept. '86) US$7.6 million

2. Rainfed Resources Development (29 Sept '82 - 30 Sept. '89) US$9.5 million

3. Farming Systems Development Project (Eastern Visayas, Sept. 30,'81 - Sept. 30,'86) US$3 million

3.2 Japan's Food and Increased Food Production Program

The Government of Japan has also been involved in promotion of the agricultural sector in the Philippines as improvement of this sector will contribute to economic development.

3.2.1 General

Japan's food assistance program has continued for five years, amounting to ¥1,573 million. The increased food production program commenced from 1977 and amounted to ¥16 billion by 1984. (see TABLE below)

KENNEDY ROUND FOOD ASSISTANCE

Exchange of Notes Concluded	Item	Equivalent in Yen (million)
1971.5.15	Japanese rice	360
1972.9.22	Japanese and Thai rice	154
1974.3.28	Thai rice	291
1975.3.31	Thai rice	446
1977.1.20	Thai rice	322
	total	1,573

INCREASED FOOD PRODUCTION PROGRAM

Exchange of Notes Concluded	Item	Equivalent in Yen (million)
1977.12.28	Fertilizers, pesticides, farm machinery	1,300
1979.2.1	Fertilizers, farm machinery	1,900
1980.1.9	Fertilizers, pesticides farm machinery	1,900
1980.12.24	Farm machinery	2,000
1982.2.10	Fertilizers, pesticides, farm machinery	2,000
1983.3.9	Fertilizers, pesticides, farm machinery	2,100
1984.1.30	Fertilizers, pesticides, farm machinery	2,300
1984.9.12	Fertilizers, pesticides	2,500
	total	16,000

Fertilizers account for the largest portion of 57% with 14% for agricultural chemicals and 29% for farm machinery. NFAC receives the major share of assistance at 74% while NFA and NIA receive 17% and 9%, respectively (TABLE 3-1 to 3-4).

SOURCES OF FINANCING FOR FARM INPUTS

Unit: US$1 million

Input	Total value	Sources of Financing			
		IBRD	ADB	U.S.A.	Others
Fertilizer	150.0	40	105	-	5.0
Pesticides	33.0	15	10	-	8.0
Animal Feed	194.9	60	-	73	61.9
Biological & Vet. Prod.	14.0	14	-	-	-
Breeding Stock	5.0	-	-	5	-
Raw Mat. for bags	20.1	-	15	-	5.1
Seeds	1.0	-	-	1	-
Agr. Mach. & Spare Parts	40.1	20	-	-	20.0
Total	458.0	149	130	79	100.0

As shown in the above table, the main sources of funds for fertilizer and agricultural chemicals in 1984 were World Bank, ADB and the Government of Japan. The latter provided 3% of fertilizer and 17% of agricultural chemicals.

3.2.2 Survey on Fertilizers

(1) Fertilizer Provided under the Program

The amount of fertilizers provided by the Japanese Government varied annually as shown below; however, on average the amount was equivalent to about 10% of that required for rice cultivation, covering an area of 70,000 to 100,000ha.

RECORD OF INCREASED FOOD PRODUCTION PROGRAM BY ITEM

	Fertilizer	Agro-chemicals	Agricultural Machinery				TOTAL (Million Yen)
			NFAC	NIA	NFA	TOTAL	
1977	987	134	78	—	—	178	1,299
1978	1,271	—	329	—	300	629	1,900
1979	794	51	—	55 (CIADP)	1,000	1,770	1,900
1980	1,124	76	—	426	370	796	1,996
1981	1,050	349	—	300	300	600	1,999
1982	878	522	—	300	400	700	2,100
1983	1,022	489	—	372	417	789	2,300
1984	1,906	594	—	—	—	—	2,500
	9,032 (57%)	2,215 (14%)	507 (3%)	1,453 (9%)	2,787 (17%)	4,747 (29%)	15,994

TABLE 3-2

FERTILIZE DONATION AND DESTINATION, 1980-1984

Item	Amount (Yen)	Quantity (MT)	Benefitted Area (ha)	Destination (MT)									
				Luzon				Cebu	Negros	Iloilo	Mindanao		
				North	Central	Manila	Southern				Davao	Cotabato	Mindanao
1980 FS													
Urea	490,039,272	6,975	42,018						4,400	2,575			
Ammo. Sulf.	117,000,000	3,000	8,403						3,000				
Ammo. Chlo.	201,850,000	5,000	16,666			3,000				1,000	1,000		
14-14-14	315,000,000	5,000	9,333			3,000				2,000			
			76,420										
1981 FS													
Urea	232,750,000	3,500	21,084						3,500				
Ammo. Sulf.	111,000,000	3,000	8,403							3,000			
Ammo. Phos.	508,939,958	8,343	10,667			3,343							
Ammo. Chlo.	114,000,000	3,000	9,999			2,000				500	500		
Super Phos.	83,800,000	2,000	6,000						2,000				
			56,153										
1982 FY													
Urea	236,000,000	4,000	24,096					1,320	1,400	1,280			
Ammo. Sulf.	215,228,750	7,115	19,930					1,200	3,050	865	2,000		
Ammo. Chlo.	223,960,000	6,998	23,324			3,998				1,500	1,500		
Ammo. Phos.	203,000,000	3,500	7,467						3,500				
			74,817										
1983 FY													
Urea	707,136,000	12,192	73,446	1,500	3,500				3,192	2,000	2,000		
Ammo. Phos.	114,000,000	2,000	4,267						2,000				
Ammo. Chlo.	201,264,000	6,289	20,960			4,789					1,500		
			98,673										
1984 FY													
Urea	979,180,000	17,300	104,216		7,200				9,000			1,100	
Ammo. Chlo.	256,077,632	8,000	26,664			5,500					2,500		
Ammo. Sulf.	296,469,985	9,833	27,543	3,000	3,243				1,300	1,300			990
14-14-14	374,095,000	6,506	12,160	1,190	1,579		2,537			1,000	200		
			170,583										
TOtal			476,646	5,690	15,522	25,630	2,537	2,520	36,342	17,020	11,200	1,100	990

AGRO-CHEMICAL DONATION AND VALUE, 1980-1984

Fiscal Year	Chemical	Amount (Yen)	Quantity (kg)	Benefitted Area (ha)	Quantity by Destination ※							
					Luzon			Bicol	Lyte & Samar	Eastern Visaya	Western Visaya	Mindanao
					Northern	Central	Southern					
1980	MIPC	7,070,000	6,370	3,902								
	MEP	13,600,000	10,000	2,639								
	Fenvalerate	55,400,000	2,000	9,200								
1981	BPMC	43,890,000	35,000	14,292								
	MIPC	64,197,120	49,920	30,576								
	MEP	75,000,000	50,000	13,194								
	Fenvalerate	166,320,000	6,000	27,600								
1982	Benthiocarb	39,285,840	30,360	10,084								
	BPMC	37,800,000	30,000	12,250	10,880	—	8,455	—	—	3,081	1,681	5,903
	MIPC	64,564,000	50,050	30,656	8,101	—	10,282	—	—	7,678	7,084	16,905
	MEP	45,000,000	30,000	7,917								
	Fenvalerate	221,760,000	8,000	36,800								
	Thiofanatemethyl	113,400,000	54,000	27,000	7,927	—	2,003	—	—	6,206	6,256	31,608
1983	Diazinon	68,370,000	31,800	12,720								
	Benthiocarb	51,811,760	40,040	13,299								
	BPMC	37,800,000	30,000	12,250	4,325	6,250	3,680	2,886	696	1,434	1,043	9,686
	MIPC	58,527,300	45,370	27,789	1,823	14,373	2,331	474	913	1,520	6,221	17,715
	MEP	15,000,000	10,000	2,639								
	Fenvalerate	164,670,000	66,000	303,600								
	PAP	50,820,000	30,000	4,600								
	SMCA	41,850,000	186,000	387,830								
1984	Diazinon	107,500,000	50,000	20,000								
	Benthiocarb	82,272,520	63,580	21,118								
	BPMC	44,100,000	35,000	14,292	8,705	8,965	4,162	2,068	418	201	3,453	7,028
	MIPC	58,695,000	45,500	27,869	9,551	10,665	6,876	498	243	275	5,408	11,984
	MEP	30,000,000	20,000	5,278								
	Fenvalerate	124,750,000	5,000	23,000								
	Thiofanatemethyl	63,000,000	30,000	15,000	295	2,132	887	127	193	699	3,541	22,126
	PAP	67,760,000	40,000	6,133								
	SMCA	15,980,000	68,000	141,787								
	Total	2,030,193,540		1,265,314								

※: Data of only a few types of chemicals were obtainable during this study.

TABLE 3-3

AGRICULTURAL MACHINERY AND DESTINATION, 1980-1984

Item	Amount (Yen)	Quantity	Reciep. Agency	Destination by Region (Qnty.)												
				I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
1980 FY																
Waterproof cloth	72,625,000	1 lot	NIA													
Vehicle	337,977,590	137	NIA													
Platform scale	15,060,000	50	NIA													
Huller	370,000,000	4	NFA		3		1									
Rice Mill		4	NFA				1									3
Pre-cleaner		14	NFA												14	
1981 FY																
Vehicle	299,998,804	396	NIA													
Drier	300,000,000	21	NFA		6	2							11	2		
Huller		3	NFA		2		1									
Pre-cleaner		30	NFA	2	2	3	2	1	1	3	8	3	4			
1982 FY																
Vehicle	300,000,000	280	NIA													
Rice Mill	400,000,000	2	NFA						1		1					
Trucks		99	NFA													
1983 FY																
Vehicle	371,924,600	305	NIA													
Rice Mill	417,000,000	3	NFA			1	1					1				
Huller		1	NFA				1									
Polisher		1	NFA						1							

TABLE 3-4

FERTILIZER PROVIDED BY INCREASED FOOD PRODUCTION PROGRAM (m.t.)

Year / Type	1977	1978	1979	1980	1981	1982	1983	1984
Urea	23,500	30,000	-	6,975	3,500	4,000	12,192	17,300
Ammonium chloride	-	5,000	2,500	5,000	3,000	6,998	6,289	8,002
NPK	-	-	-	5,000	-	-	-	6,506
NP	-	-	-	-	8,343	3,500	2,000	-
Ammonium sulphate	-	-	-	3,000	3,000	7,115	-	9,833
Superphosphate (0-18-0)	-	-	-	-	2,000	-	-	-
Total Nitrogen ton	10,575	14,750	625	5,719	4,290	5,604	7,379	12,761

(2) Fertilizers Usage

The amount of fertilizer used for rice cultivation in the past is estimated at:

		Japan's contribution
1973	84,900 Nitrogen ton	-
1979	129,300 - do -	4,000 Nitrogen ton (3%)
1983	128,000 - do -	7,400 - do - (5.7%)

Japan's fertilizer contribution for rice cultivation accounts for 3% to 6% of total fertilizer consumption. The fertilizer is received by fertilizer distributors through which it is distributed to dealers and outlets. Planters Products Industry (a distributor and dealer) distributes fertilizer received under the Increased Rice Program for which it is providing credit. As fertilizer will be used for rice cultivation in the same season as it arrives, little stock is carried over. Fertilizer provided under the Increased Food Production Program which is prepackaged is easily distinguished from bulk imports of Urea from Rumania and Indonesia which are packaged in the Philippines. Although the market price is 20% higher than that of other countries, Japanese fertilizer is highly evaluated by dealers and farmers.

(3) Pricing Policy

Fertilizer prices (including Increased Food Production Program) are regulated under the authority of FPA both at wholesale and retail levels. Any price changes are reviewed in consultation with an interagency committee composed of representatives of MAF, NFAC, BAEcon and NFA. However, fertilizer price changes require the final approval of the president.

Ex-warehouse prices (TABLE 3-5) are approved by FPA on the basis of the lowest two companies' cost, either locally produced or imported fertilizer with allowable profit mark-ups. In 1984, only the imported cost was used as the basis for cost calculation, since it was the lowest cost that year. Ex-warehouse prices and domestic prices are set at each warehouse by FPA. From these, retail ceilings are set by the respective Provincial Action Committee based on FPA recommended guidelines and computations. In computing retail prices the following are added (TABLE 3-6, 3-7):

1. transportation costs
2. handling charges
3. local taxes
4. maximum allowable mark-up

3.2.3 Survey on Agricultural Chemicals

(1) Provision of Agricultural Chemicals

The type and quantity of agricultural chemicals provided by the Japanese Government between 1977 and 1984 are shown in TABLE 3-9. Some part of these agricultural chemicals was distributed to BPI which is under the Ministry of Agriculture and Food. The BPI, a Plant Protection Office, conducts spraying operations when insect pest outbreaks occur and also stocks the agricultural chemicals required for this purpose.

Since 1979, all agricultural chemicals provided have been sold by the NFAC to domestic Philippine agricultural chemical firms. These agricultural chemical firms adjust and manufacture products, which after passing through wholesalers and retailers are supplied to the farmers. (FIG. 3-1).

TABLE 3-5

FPA AUTHORIZED EX-WAREHOUSE PRICES FOR ALL FERTILIZERS

DISTRICT/GRADE	UREA	21-0-0	25-0-0	16-20-0	18-46-0	6-9-15	6-10-4	12-12-12	14-14-14	0-18-0	0-0-60
					PER METRIC TON						
PANAY-NEGROS DISTRICT	P5,479.00	P2,890.00	P3,440.00	P4,787.00	P7,107.00	-	P2,459.00	P3,776.00	P4,969.00	P2,159.00	P3,794.00
LUZON ISLANDS DISTRICT											
Metro Manila	5,479.00	2,890.00	3,440.00	4,787.00	7,107.00	-	2,475.00	3,776.00	4,969.00	2,159.00	2,794.00
Bulacan/Pampanga	5,499.00	2,910.00	3,460.00	4,807.00	7,127.00	-	-	3,796.00	4,989.00	2,979.00	3,814.00
Tarlac	5,511.00	2,922.00	3,472.00	4,819.00	7,139.00	-	-	3,808.00	5,001.00	2,191.00	3,826.00
Nueva Ecija	5,523.00	2,934.00	3,484.00	4,831.00	7,151.00	P5,428.00	-	3,820.00	5,013.00	2,203.00	3,838.00
La Union	5,484.00	2,895.00	3,445.00	4,792.00	7,112.00	5,340.00	-	3,781.00	4,974.00	2,164.00	3,799.00
Batangas	5,486.00	2,907.00	3,457.00	4,804.00	7,124.00	-	-	3,793.00	4,986.00	2,176.00	3,811.00
SOUTHERN ISLANDS DISTRICT											
Cebu	5,479.00	2,890.00	3,440.00	4,787.00	7,107.00	-	2,308.00	3,776.00	4,969.00	2,159.00	3,794.00
Ormoc	5,514.00	2,925.00	3,475.00	4,802.00	7,142.00	-	-	3,791.00	4,984.00	2,194.00	3,829.00
Ozamis/Cagayan de Oro	5,529.00	2,940.00	3,490.00	4,817.00	7,157.00	-	-	3,806.00	4,999.00	2,209.00	3,844.00
Davao/Gen. Santos	5,484.00	2,895.00	3,445.00	4,832.00	7,112.00	-	2,495.00	3,821.00	5,014.00	2,164.00	3,799.00
Polloc	5,529.00	2,940.00	3,490.00	4,817.00	7,157.00	-	-	3,806.00	4,999.00	2,219.00	3,844.00
					PER 50-KG. BAG						
PANAY-NEGROS DISTRICT	P273.95	P144.50	P172.00	P239.35	P355.35	-	P122.95	P188.80	P248.45	P107.95	P489.70
LUZON DISTRICT											
Metro Manila	273.95	144.50	172.00	239.35	355.35	-	123.75	188.80	248.45	107.95	189.70
Bulacan/Pampanga	274.95	145.50	173.00	240.35	356.35	-	-	189.80	249.45	108.95	190.70
Tarlac	275.55	146.10	173.60	240.95	356.95	-	-	190.40	250.05	109.55	191.30
Nueva Ecija	276.15	146.70	174.20	241.55	357.55	P271.40	-	191.00	250.65	110.15	191.90
La Union	274.20	144.75	172.25	239.60	355.60	267.00	-	189.05	248.70	108.20	189.95
Batangas	274.80	145.35	172.85	240.20	356.20	-	-	189.65	249.30	108.80	190.55
SOUTHERN ISLANDS DISTRICT											
Cebu	273.95	144.50	172.00	239.35	355.35	-	115.30	188.80	248.45	107.95	189.70
Ormoc	275.70	146.25	173.75	240.10	357.10	-	-	189.55	249.20	109.70	191.45
Ozamis/Cagayan de Oro	276.45	147.00	174.50	240.85	357.85	-	-	190.30	249.95	110.45	192.20
Davao/Gen. Santos	274.20	144.75	172.25	241.60	355.60	-	124.75	191.05	250.70	108.20	189.95
Polloc	276.45	147.00	174.50	240.85	357.85	-	-	190.30	249.95	110.45	192.20

The FPA Provincial Coordinators, in consultation with the Provincial Action Committee (PAC), are enjoined to implement the revised ex-warehouse prices in computing for the retail prices which will include the following necessary expenses:

1) transportation;
2) handling charges
3) local taxes, if any; and
4) maximum allowable mark-up of P5.00/50-kg. bag.

AVERAGE IMPORT PRICES ($)/MT C & F

GRADE	1973	1974	1975	1976	1977	1978	1979	1980	1981		1982	1983	1984
Urea	105.53	277.98	371.37	122.36	130.14	158.18	176.42	232.36	275.08		195.07	145.49	193.06
Ammosul	57.87	168.03	219.34	67.87	90.02	103.41	111.57	136.83	153.14		99.76	84.39	92.86
Amchlor	58.85	162.16	-	-	71.98	85.82	101.82	149.69	169.32		128.54	-	-
C A N	88.67	253.88	-	-	-	-	-	-	-		-	-	-
MOP	51.55	88.50	90.28	75.78	68.81	70.89	93.15	150.04	151.42		115.48	94.96	131.37
SOP	87.46	142.29	189.02	131.23	151.10	148.02	189.46	262.75	259.54	FOB	-	-	-
18-46-0	153.60	149.22	-	-	-	172.60	203.75	317.48	300.50		258.98	220.62	282.08
15-15-15	117.19	232.21	302.96	-	-	171.00	-	-	-		-	-	-
14-14-14	147.30	282.38	-	-	-	170.50	176.75	263.19	235.97		179.42	166.58	185.38
Zinc Sulphate Hepcahydrate	298.14	353.17	368.41	245.00	224.19	193.31	196.72	-	-		-	-	-
Aqua Ammonia	-	63.03	69.56	49.24	60.36	75.66	61.80	149.00	183.88		-	-	-
Phosrock	-	69.11	89.70	48.01	56.41	55.15	63.88	89.46	77.85		71.54	-	-
Sulfuric Acid	-	-	-	25.00	20.00	32.00	31.00	36.01	36.71		43.08	-	-
12-12-12	-	-	-	-	-	167.00	171.00	-	-		-	-	-
6-9-15	-	-	-	-	-	-	194.50	-	-		-	-	201.00
16-20-0	-	-	-	-	-	-	-	259.63	225.37		168.14	159.84	177.46
NH3	-	-	-	-	-	-	-	387.67	325.09		312.18	-	-
TSP	-	-	-	-	-	-	-	367.00	-		-	-	-

Note:

1. 1973 - 1977, 1981 & 1982 - weighted average
2. 1978 - 1980 - straight average

TABLE 3-7

CHANGE IN FERTILIZER PRICES WITH SOME OTHER INDICES

	Ex-warehouse price*1		Import price*2		Int'l mkt price	Producer Price index for agricultural products*5	Consumer price index*6	Exchange rates Peso/ US$*7
	Urea	14-14-14	Urea (US$/ton)	14-14-14	Urea *3			
1971					46.0		55.2	6.391
1972					59.3	50.34	60.8	6.605
1973			105.54	147.30	94.8	54.59	69.3	6.754
1974			277.98	232.39	315.8	88.43	92.5	6.772
1975	94.78	63.74	371.37	-	198.0	88.58	100.0	7.230
1976	80.86	60.20	122.36	-	112.0	85.95	106.2	7.466
1977	75.35	60.20	130.14	-	127.4	95.56	111.5	7.436
1978	75.35	60.20	158.18	170.50	144.8	100.0	123.3	7.392
1979	84.08	71.20	176.42	176.75	172.9	114.26	146.5	7.400
1980	88.45	76.70	232.36	263.19	222.1	121.04	172.6	7.508
1981	107.24	93.30	275.08	235.97	216.0	125.99	195.7	7.856
1982	116.60	108.23	195.07	179.42	158.8	133.10	217.2	8.484
1983	123.75	120.89	146.67	169.16	136.5	155.95	240.7	10.989
1984	212.41	201.35	191.59	179.79	165.0		361.9*	17.025**

Notes: *1 Peso/50 kg bag
*2 US $/ton
*3 FOB Europe, bagged
Source: World Bank
*4
*5 Source: BAEcon (1978=100)
*6 Source: Key Indicators of Developing Member Countries of ADB., Volume XV, April 1984. (1975=100)
* Calculated on the basis of provisional information from NEDA.
*7 Average exchange rate for import.
Source: National Census and Statistics Office.
** 1st quarter = 14.049

ESTIMATED BREAKDOWN OF DISTRIBUTION COST OF FERTILIZER AS OF NOV., 1984

(Unit: peso/50kg·bag)

	Urea		Ammonium Sulphate	
		of which phys.dist. costs		of which phys.dist. costs
Import price (C&F)	208.43		94.60	
Landing charges	10.90	10.90	8.62	8.62
ADB/WB charges	6.25		2.84	
Transhipment	10.00	10.00	10.00	10.00
Operating expenses	7.18		7.18	
Interest on capital	25.84		18.43	
Mark-up	5.37		2.83	
Ex-Warehouse price	273.95	20.90	144.50	18.62
Transportation costs	7.80	7.80	7.80	7.80
Handling charges	1.50	1.50	1.50	1.50
Local Tax	1.50		1.50	
Mark-up	5.00		5.00	
Ex-retailer shop	289.75	30.2	160.30	27.92
Transportation costs	3.50	3.50	3.50	3.50
Farm gate price	293.25	33.70	163.80	31.42

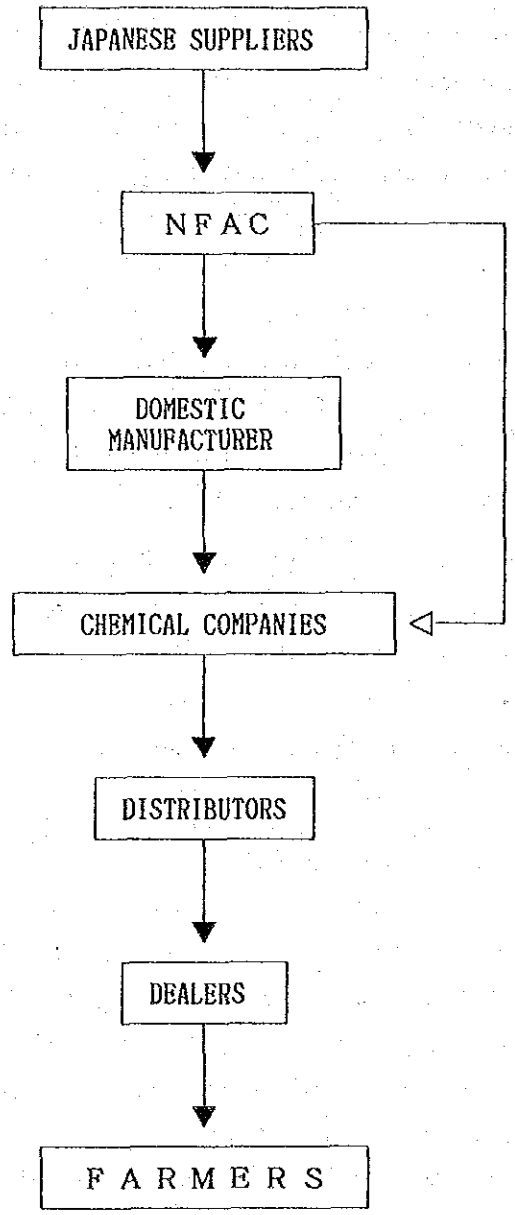
RECORD OF AGROCHEMICALS DONATION

	1977	1979	1980	1981	1982	1983	1984
Fenitrothion	1,900 (ℓ)	—	—	—	—	—	—
Diazinon	7,477 (ℓ)	—	—	—	—	※31,800	※50,000
Benthiocarb	5,000(bags)	—	—	—	※30,360	※40,040	※63,580
BPMC	7,125 (ℓ)	※31,200	—	※35,000	※30,000	※30,000	※35,000
MIPC	15,000(bags)	—	※ 6,370	※49,920	※50,050	※45,370	※45,500
2-4 D	2,253 (ℓ)	—	—	—	—	—	—
Zinc Phosphate	30,000(cans)	—	—	—	—	—	—
Coumatetralyl	20,000 (kg)	—	—	—	—	—	—
Warfarin	20,000 (kg)	—	—	—	—	—	—
MTMC	15,000(bags)	—	—	—	—	—	—
MBP	—	※20,000	※10,000	※50,000	※30,000	※10,000	※20,000
Fenvalerate	—	—	※ 2,000	※60,000	※ 8,000	※66,000	※ 5,000
Thiofanatemethil	—	—	—	—	※54,000	—	※30,000
PAP(Phensoate)	—	—	—	—	—	※30,000	※40,000
SMCA	—	—	—	—	—	※ 186,000	※68,000
TOTAL VALUE (¥'000,000)							
F O B	126	47	75	407	506	473	574
C I F	134	51	76	433	522	489	594

※ : Technical Grade (kg)

FIG. 3-1

DISTRIBUTION FLOW OF AGROCHEMICALS IN RP-JAPAN INCREASED FOOD PRODUCTION PROGRAM



The selling price of chemicals sold by the NFAC to domestic Philippine agricultural chemical firms is fixed after considering the original price of procurement and competitiveness with other chemicals. The price at which the chemicals are sold to the farmers is determined by the individual agricultural chemical firms without government intervention on the basis of market competitiveness and other factors. The end retailer, after considering transportation costs and competitiveness in the region, determines the counter price. The type of agricultural chemicals received from Japan by each agricultural chemical firm are as follows:

Planters Products Inc.: MIPC, BPMC, Thiofanatemethil,
Shell Chemical Company Inc.: MEP, Fenvalerate, Diazinon.
Union Carbide Philippines, Inc.: Benthiocarb, Phensoate.
Agchem Manufacturing Corp.: SMCA.

In principle, agricultural chemicals are to be distributed among farmers in kind as part of a crop loan; however, as the agricultural chemicals sold to farmers are already products of the above companies, the NFAC is unable to directly intervene in their sales procedures and thus some cash sales are also being conducted.

(2) Utilization of Agricultural Chemicals Provided by the Japanese Government

As above mentioned, use of chemicals falls into two categories: 1) those used by BPI for pest control in the case of outbreak and, 2) those which have been processed and prepared by domestic Philippine agricultural chemical firms and are sold to farmers for routine insect pest control. Only 6% of the total CIF value donated are in the first category, while the remaining 94% falls into the second category.

Although BPI used 86% of Coumatetralyl supplied, it used only about half of the other chemicals. According to BPI sources, the chemical composition of some of the stock in storage is changing. Main agricultural chemicals and present use are presented in the table below.

UTILIZATION OF MAIN AGRICULTURAL CHEMICALS
SUPPLIED BY THE JAPANESE GOVERNMENT

Year	Diazinon	Warfarin	Coumatetralyl	Zinc Phosphate
	(ℓ)	(kg)	(kg)	(kg)
1978	2	---	137	23
1979	222	5,597	2,819	4,837
1980	5	120	516	1,320
1981	35	22	1,490	1,252
1982	675	200	2,036	638
1983	100	---	274	84
1984	305	---	6,057	2,600
1985	5	6,300	3,914	4,320
Total	1,349 (18%)	12,239 (61%)	17,243 (86%)	15,074 (50%)
Initial Quantity	7,477 (100%)	20,000 (100%)	20,000 (100%)	30,000 (100%)
Balance	6,128 (82%)	7,761 (39%)	2,757 (14%)	14,926 (50%)

Agricultural chemicals sold by the Philippine Government to agricultural chemical companies are in principle to be used for a specific project or in a specific region; in actual fact however, once they have been absorbed into commercial channels and distributed throughout the country, their use and effectiveness often can not be traced.

Agricultural chemicals sold to Planters Products are being supplied to farmers participating in the Intensified Rice Production Program (IRPP: Annex A-6). The IRPP is an action program of the national level Masagana 99 and, as in Masagana 99, technical guidance and a crop loan are incorporated. Farmers' opinions regarding supply of agricultural chemicals under the IRPP are as follows:

a) The quantity of chemicals supplied is uniform and the farmers recognize that the objectives of the program are prevention and control of insect pest damage.

b) Due to drastic increases in agricultural chemical prices, farmers would like to curb the quantity of agricultural chemicals used as much as possible.

c) Farmers are eager to exterminate pests even if it entails the use of expensive agricultural chemicals; but they are negative about damage control.

Under these circumstances, farmers feel that the quantity of agricultural chemicals supplied is too large and the loan burden too great. On the other hand, agricultural chemical supply has proved to be inadequate in the face of actual pest outbreaks as supply recommendations are based on the national average.

(3) NFAC and FPA

1) NFAC

As the Japanese Increased Food Production Aid Program has much in common with NFAC programs (Masagana 99, Maisagana and Gulayan sa Kalusugan), fertilizers, agricultural chemicals and some of the agricultural machinery provided under the former are supplied through the NFAC. Basic NFAC activities include: 1) deciding the quantity of agricultural chemicals to be requested, 2) agricultural chemical procurement including bidding, receiving and dispatching to firms agricultural chemicals and payment of imports; and, 3) sale of agricultural chemicals to agricultural chemical firms.

2) FPA

The FPA undertakes the following activities related to agricultural chemicals and fertilizers.

- Supervision of import and export
- Supervision of manufacture, preparation and distribution
- Supervision of sale, transportation and storage
- Supervision of use and disposal
- Survey of effects on the environment caused by use of agricultural chemicals
- Education regarding agricultural chemicals for farmers, retailers and agricultural extension workers
- Registration of agricultural chemicals, etc.

In the Increased Food Production Program the FPA is responsible for adjustment of type and quantity of agricultural chemicals requested by agricultural chemical firms, evaluation of bidding for procurement, and evaluation and determination of selling sales price to agricultural chemical firms.

3.2.4 Survey on Agricultural Machinery

(1) Supply Situation

From 1977 to 1984, machines were supplied to the NFAC, NIA and the NFA as shown in TABLE 3-10, 3-11 and 3-12.

As may be seen from the tables all equipments, except for a part of mini-tractor and backstrap sprayer supplied to the NFAC, are being used by Government agencies, particularly by the agency which originally received the equipment. In the past, the NFAC sold machinery directly to the general public; however, considerable difficulties were encountered and the machinery was stored for a long period of time. Recently, NFAC has been distributing the machinery to agencies connected with the Department of Agriculture such as the BPI and BAEx. For example machinery received in 1977 was distributed to the BPI Visaya Rice Experiment Station in 1983. Of this machinery, some 233 mini-tractors which is only a part of the total number were turned over to the KMMI. Machinery supplied to other Government departments are being used in the Irrigation Control Office, the Regional Offices of the NIA and various branches of the NFA.

Among the machines provided under the Japanese Program, those supplied to the various Government departments appear to be comparatively well kept and effectively particularly utilized, with a peak operation of 24hr/day in the operation of rice mill. The NIA pick-up trucks are extensively utilized to collect paddy to pay for irrigation fees.

TABLE 3-10

RECORD OF AGRICULTURAL MACHINERY DONATED TO NFAC

Items	Fisca year	Q'ty	Destination
1. 2WD Mini Tractor	1977	215	B P I and other Experimental farms and K M M I
2. 4WD Mini Tractor	1978	270	Seed farms, B P I Experimantal farms and K M M I
3. Power Sprayer	1977 1978	6 15	B P I and it's branches, experimental farms and B A E x branches
4. Mist duster	1977	50	B P I branches, B A E x branches
5. Knap sack Sprayer	1977	837	M R R T C and other B P I Farms and etc.
6. 2rows Binder	1978	4	M R R T C and other B P I Farms
7. 1row Binder	1978	4	-do-
8. Small Seale Rice Mill Plant	1980	1	C L S U
TOTAL		¥ 5 0 7 Millions	

TABLE 3-11

RECORD OF AGRICULTURAL MACHINERY DONATED TO NIA

Items	Q'ty	Destination
— 1979 —		
1. Vinyl Cavers	1 lot	Riginal Offices and R I S Office
2. 4WD Multi-purpose Vehicle	30	-do-
3. Pick-up Track	62	-do-
4. Stake Track W/Spare parts	45	-do-
5. Platform Weighing Machine	50	-do-
— 1980 —		
1. Station Wagon W/Spareparts	3	-do-
2. Portable Warehouse (15×10×5.45 M)	15	-do-
3. -do- (12× 8×4.7 M)	30	-do-
4. Platform Wieghing Machine	82	-do-
5. Moisture Meter	113	-do-
6. Small Ricemill (Unit)	60	-do-
7. Test Mill	5	-do-
8. Test Husker	5	-do-
9. 4WD Pick-up Track	80	-do-
— 1981 —		
1. 4WD Pick-up Track	65	-do-
2. 4Wd Station Wagon	8	-do-
3. Stake Track(6t)	26	-do-
4. Portable Worehouse (10×15 M)	46	-do-
5. Moisture Meter	70	-do-
6. Platform Weighing Machine	65	-do-
— 1982 —		
1. Moisture Meter	42	-do-
2. 4WD Pick-up Track (8×12 M)	18	-do-
3. 4WD Pick-up Track	65	-do-
4. Plat form Weighing Machine	50	-do-
5. Motorcycle (100cc)	44	-do-
6. 4WD Multi-purpose Vehicle	23	-do-
7. Stake Track (6t)	63	-do-
— 1983 —		
1. Detail unknown		
TOTAL Cost	¥ 1,453 Millions	

RECORD OF AGRICULTURAL MACHINERY DONATED TO NFA

Item	year	Q'ty	destination
1. Dyer (1TPH)	1977 1978	1 4	NFA Branches in Ⅱ、Ⅳ、Ⅷ、XⅡ
2. -do- (0.25TPH)	1981	21	NFA Branches in、Ⅱ、Ⅲ、Ⅴ、Ⅵ
3. Rice mill (2.5TPH)	1977	1	NFA Branches in、Ⅵ、
4. -do- (5.0TPH)	1977	1	NFA Branches in、Ⅷ、
5. -do- (5.0TPH)	1978	2	NFA Branches in、Ⅱ、Ⅵ
6. -do- (10.0TPH)	1979	10	NFA Branches in、Ⅱ、Ⅲ、Ⅳ、XⅠ、XⅡ
7. -do- (5.0TPH)	1982	2	NFA Branches in、Ⅵ、XⅤ
8. -do- (5.0TPH)	1983	2	NFA Branches in、Ⅵ、XⅤ
9. -do- (3.5TPH)	1983	1	NFA Branches in、Ⅲ
10. Huller (3.0TPH)	1978	1	NFA Branches in、Ⅱ
11. -do- (3.0TPH)	1980	4	NFA Branches in、Ⅱ、Ⅵ
12. -do- (3.0TPH)	1981	3	-do-
13. -do- (5.0TPH)	1983	1	NFA Branches in、Ⅵ
14. Rice Polisher (5.0TPH)	1980	3	NFA Branches in、Ⅵ、XⅢ
15. -do- (4.0TPH)	1983	1	NFA Branches in、Ⅵ
16. Huller with Paddy Separator	1980	1 lot	NFA Branches in、XⅡ
17. Pre-cleaner	1981	30	NFA Branches in、Ⅰ、Ⅱ、Ⅲ、Ⅳ、Ⅴ、Ⅵ
18. Pick-up Track	1982	14	
19. Stake Track (large)	1982	15	
20. Stake Track (Midium)		20	
21. VHF Radio (Mobile)		3	NFA Marila
22. -do-		7	〃 Mindanao
23. Knapsack Sprayer		10	
24. Fogger		20	
25. Laboratory Equipment		5 sets	
TOTAL Cost		¥ 2,787 Millions	

(2) Results of Site Survey

The Study Mission visited the following four areas to survey related facilities, hold hearings on present conditions and needs, and discuss the situation with those concerned.

1) Iloilo Area, Region VI

a) NIA Regional Office

Three jeeps were observed at this office all of which were quite well maintained. Annual mileage averaged 12,000km and they are used for general office activities and supervision of maintenance and operation of river irrigation systems. One double cab pick-up truck was recently assigned to the Office, but it is not used very much.

b) NIA (Jalaur River Irrigation System Office)

At this office, two pick-up trucks, one truck and one small rice mill were inspected. The pick-up trucks and cagotrucks are being used to collect paddy irrigation fees. Although the tires were completely worn out attesting to comparatively heavy use, the engine compartment and body were very well maintained. The truck had less than 10,000km on its odometer, and was only slightly damaged.

The small rice mill was being used to mill rice for the staff, but because of unskilled operation, the quality of milled rice is low. Poor mill operation arose from inadequate staff training by the dealer.

c) NFA Regional Office

There are two rice mills with capacity of 10t/hr at this office, but only one has been assembled. Operation, maintenance and management are extremely good, but there was much dust which may have been caused by malfunction of the dust removal equipment.

d) BPI Visaya Rice Experimental Station

Although a mini-tractor was supplied in 1983, it was not operated until almost a year later for lack of an operator. Consequently the tractor was in almost new condition.

2) Isabela Area, Region II

a) Echague, NPGC Rice Mill
(Northern Philippines Grain Complex, NFA)

This complex operates two large scale rice mills with 10t/hr capacity. A loan of US$36 million for the whole complex from the Asian Development Bank (ADB) has been earmarked and various bids are being made. The mills will be part of the complex which will be integrated into the ADB project. The present maintenance and management is handled by one assigned plant engineer, one mechanical plant operator and two laborers, and is extremely well managed.

3) Cabanatuan Area, Region III

a) NFA Cabanatuan Regional Office

This office is a demonstration center of the NFA and is one of its largest facilities. It has a large rice mill with a 10t/hr capacity and a sorter. The rice mill has a special attachment for separating high quality rice, in anticipation of export rice. As with the other rice mills, maintenance and supervision were quite good.

The sorter was a portable type with two motors attached. It appeared that the sorter had been introduced not so much to function as a sorter, but because of the two attached motors. The one at this office had the generator removed and the sorter itself did not appear to have been used for some time. The maintenance did not seem to be of a very high order.

b) Central Luzon State University

There is at the Post-harvest Training Center of this university a small rice mill plant (capacity 2t/hr) supplied by the NFA. As this plant is used for training of students at the university and for milling the rice grown at the university, the machine is well-maintained and in good order.

c) Marigaya Rice Research & Training Center (BPI)

There were at this center seven mini-tractors but as they had been used for some 5,000hr, the seats were quite worn out, and there were rust spots everywhere. Two tractors had been cannibalized and were inoperable. Those in charge said that they were unable to buy the appropriate spare parts because they were too expensive, and were therefore using locally made parts, and even these were expensive. However, even in consideration of 5,000hr of use (approximately 3 years), the extent of damage was excessive. Although reportedly the machines were left out in the open only for the inspection, as all the machines were out in the open, including inoperable equipment, it is believed that the machines are parked outside all the time.

d) NIA Upper Panpanga RIS Management Office

At this office, a pick-up truck (with approximately 2,000km on the odometer) and a small-scale rice mill were inspected. The pick-up had just been delivered and was brand new. The small-scale rice mill had only completed three to four months of operation and was also almost brand new. The small rice mill was being rented to farmers who were members of the RIS, indicating that it is not only used by the NIA.

4) Bulacan Area, Region III

a) NIA Regional Office

At this office pre-fabricated warehouses, small-scale rice mills, jeeps and pick-up trucks were surveyed. There were two pre-fab warehouses, but one of them had been dismantled and was about to be shipped to another region.

The outside of it is of vinyl canvas and the inside pipes are of accordion type construction. Complaints were raised that due to poor ventilation it becomes too hot inside, and the vinyl canvas being weak, lasts for only two to three months. There were three small-scale rice mills, but only one was in operable condition, the others still being in their crates. It was reported that they were thinking of possible delivery sites. The condition of the jeeps and pick-up trucks here was much the same as in the other regions.

An operations and maintenance manual had been prepared by the Mechanical Engineer of the Regional Office with maintenance of the machines conducted on the basis of the same.

Use of agricultural machinery in the Philippines is as described above. The farmers who are directly concerned with agricultural production do not directly benefit from machinery provided under the grant. The price of Japanese manufactured farm machinery is too expensive for direct purchase by the farmers themselves; however, establishment of a hire service would give them access to the same.

3.3 Counterpart Fund

3.3.1 Accounting Method

Proceeds from sales of fertilizers and agrochemicals are to be deposited under the account of NFAC/PR-Japan Food Production Program to the Philippine National Bank (PNB) as indicated in FIG. 3-2. At NFAC,

Special Projects Division distributors like PPI, FERMAP, Shell Chemicals, Union Carbide Phil. and Agchem Manufacturing Corp. make payment in the form of a check on the scheduled due date. The check is recorded and notified for control purposes and signed by Deputy Minister Domingo F. Panganiban, the authorized signatory. Subsequently the check is entered in the ledger of the Accounting Section and is then deposited by the Cash and Disbursement Section under the account of the NFAC/PR-Japan Food Production Program to the Philippine National Bank (PNB) as the official depository of the Government of the Philippines as stated in the Exchange of Notes (EN). (see FIG. 3-2)

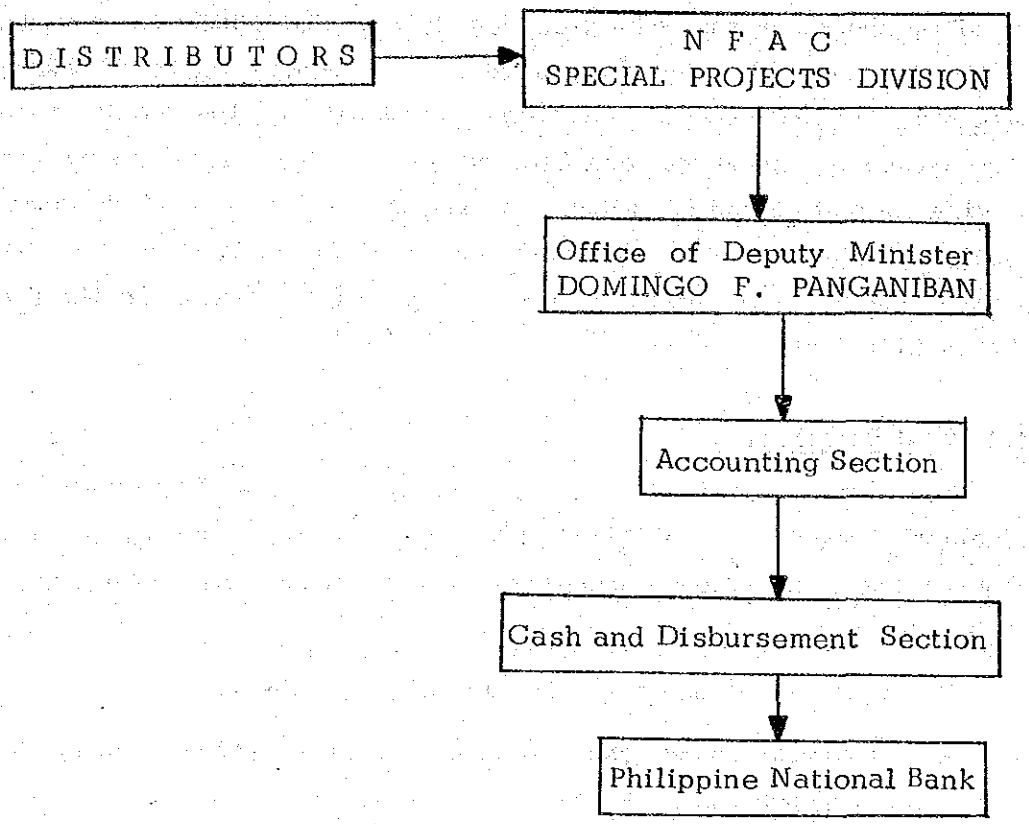
3.3.2 Fund Utilization

The fund deposited in the account of the NFAC/PR-Japan Food Production Program is utilized for agricultural development purposes including increased food production in the country in consultation with both Governments.

The steps involved in utilization of funds are:

1. Submission of project proposal by proponent agency to NFAC for possible funding;
2. Study and evaluation of the project proposal by NFAC, the administering agency of the Increased Food Production Program and subsequent forwarding to NEDA for further evaluation;
3. Request by NEDA as the coordinating agency to the Ministry of Foreign Affairs (MFA) to endorse it for the Japanese Embassy;
4. Necessary endorsement to the embassy by MFA and request for concurrence;
5. Review of the proposal by Japanese Embassy staff and forwarding of the request to the Tokyo Office; if the project is approved, subsequent informing of NFAC by embassy staff; and,
6. Withdrawal of funds from the Philippine National Bank (PNB) by NFAC upon receipt of concurrence and transferal to the Bureau of Treasury (BT); after transfer of funds, request Office of the Budget and Management (OBM) for release of

PROCEEDS ACCOUNTING METHOD FIG. 3-2



NFAC Special Projects Division - is where the distributors like PPI, Fermap, Shell Chemicals, Union Carbide Phil. and Agchem Manufacturing Corp. make payment in the form of check on their Scheduled due dates. The check is recorded and notified for control purposes.

Office of Deputy Minister Domingo F. Panganiban - Deputy Minister Domingo F. Panganiban, being the authorized signatory signs the check.

Accounting Section - enters the check into the ledger.

Cash and Disbursement Section - deposits the check under the account of NFAC/RP-Japan Food Production Program to Philippine National Bank (PNB) as the official depository of the Government of the Philippines (GOP) as stated in the Exchange of Notes (EN).

funds and informing of the proponent agency about the approval by NFAC.

The above steps area summarized in the Fund Utilization Flow Chart, FIG. 3-3.

1. NFAC Past Utilization of Deposit

NFAC has used the proceeds from sales of grant commodities since 1977 for various agricultural related projects (animal husbandry, agricultural statistics, KKK, etc.), and has reported the same to the Japanese Embassy. To date, ₱243 million were deposited to PNB against the total amount of ₱247 million the interest on which amounted to ₱49 million (TABLE 3-13). Total expenditures amounts to ₱76 million, and the balance is ₱216 million. Several new projects are being proposed for utilization of the deposits.

2 NIA

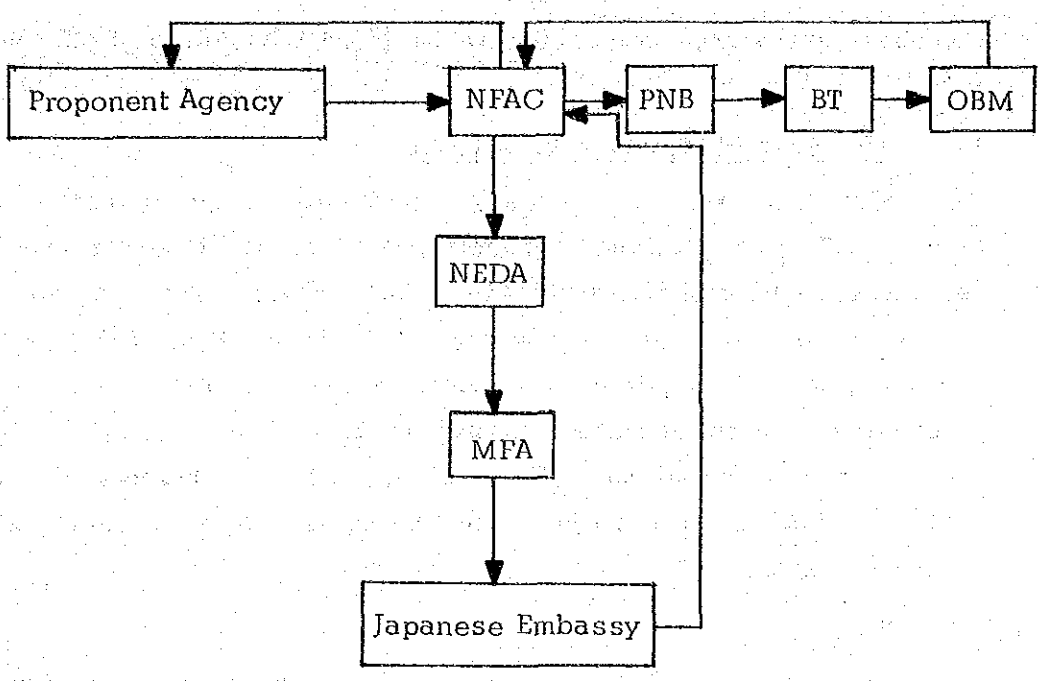
NIA has budgeted the equivalent amount to cover operation and maintenance costs of NIA. It is very difficult however, to identify exact use of the fund and NIA's reported fund utilization for 1983 provision to the Japanese Embassy and those of previous years were unclear. According to NIA, the equivalent amount was included in the ordinary fiscal budget for operation and maintenance cost.

3 NFA

NFA also budgeted the equivalent amount in the ordinary budget which was used for construction of buildings to house machinery provided under the Program. Budgeting was carried out in the subsequent fiscal year.

FIG. 3-3

FUND UTILIZATION PROCEDURE



Steps:

1. Proponent agency submits project proposal to NFAC for possible funding.

2. NFAC being the administering agency of the RP-Japan Food Production Program studies the project proposal and evaluates it, then forwards to NEDA for further evaluation.

3. NEDA as the coordinating agency requests Ministry of Foreign Affairs (MFA) to endorse it to Japanese Embassy.

4. MFA then makes the necessary endorsement to the embassy and requests for concurrence.

5. Japanese Embassy staff reviews the proposal and forwards request to Tokyo Office, then if project is approved, informs NFAC.

6. NFAC upon receipt of concurrence, withdraws fund from Philippine National Bank (PNB) then transfers it to the Bureau of Treasury (BT). After transfer of funds is done, request Office of the Budget and Management (OBM) to release the fund. Then, NFAC informs the proponent agency about the approval.

TABLE 3-13

COUNTERPART FUND STATUS OF NFAC

Unit: Peso

Grant	Value of the Grant	Amt. Required to be deposited to FNB	Total Bank Deposits	Net Interests	Withdrawals	PROJECTS	Withdrawal Amount	Balance
First	31,149,114.78	28,291,151.55	24,464,199.70	8,856,671.58	24,300,000	Philippines Dairy Corporation	5,000,000	5,020,871.28
						BACIAD'S Bohol Int. Area Development Project	1,000,000	
						Fertilizer and Pesticide Authority Project	1,200,000	
						BAEcon Regional Agricultural Data Delivery System	2,100,000	
						BPI Satellite Research Laboratories	1,000,000	
						Malitbog Reg'l Goat Production Research & Training Center	2,000,000	
						Azolla Research & Utilization Project	2,000,000	
						Integrated Municipal Food & Nutrition Project	2,000,000	
						Biomass Research & Development Project	2,000,000	
						Highland Agricultural Project	500,000	
						BAEcon RADDS	2,500,000	
						Cattle Upgrading Project in Region X	1,000,000	
						NFAC-FSDC-KKK Livelihood Project	2,000,000	
						Subtotal	24,300,000	
Second	39,480,517.71	35,909,717.39	44,563,194.60	7,989,480.90	39,000,000	FSDC-NA-NFAC-KKK Livelihood Project	2,000,000	13,552,675.50
						NA-KKK Training on Samahang Nayon	2,000,000	
						MAISAGANA Information Campaign	10,000,000	
						MAISAGANA Export Drive	10,000,000	
						MAISAGANA Information & Training	10,000,000	
						Unified Azolla Program	5,000,000	
						*Agroforest Models for Degraded Areas	1,500,000	
						Subtotal	40,500,000	
Third	3,376,615.07	2,848,166.23	4,176,983.21	1,470,233.33	3,000,000	Integrated Program on the Prevention & Control of Abaca		2,647,216.54
						Bunchy Top & Masaic Diseases in Bicol Region	3,000,000	
Fourth	31,118,394.90	27,406,121.55	34,278,596.61	6,885,191.30	10,000,000	Total Rural Upliftment through Service & Technology Project (TRUST)	10,000,000	31,163,787.91
						*Multi-Storey Cropping Project	2,500,000	
						Subtotal	12,500,000	
Fifth	38,633,523.26	34,363,521.91	35,330,519.83	5,907,487.98		*Ating Alamin	1,560,000	41,236,007.81
						*MAISAGANA	10,000,000	
						*Intensified Rice Production Project	5,000,000	
						*National Soybeans Production Program	2,500,000	
						*National Rootcrops & Ipil-ipil Feed Crop Program	940,000	
						Subtotal	20,000,000	
Sixth	45,454,615.91	40,154,922.90	40,836,365.01	9,626,127.77		*Rice Research Coordinating	15,000,000	50,462,492.78
						*Farming System on Marginal Areas Through Fertilizer and Related Input Usage	5,000,000	
						NFAC Incentive Allowance	25,000,000	
Seventh	87,899,945.17	78,083,591.25	58,946,001.88	12,590,030.72			-	71,536,032.20
Grand Total	276,712,626.20	247,057,192.78	242,595,860.44	89,325,223.58	76,300,000.00			215,621,084.02

* project still pending

CHAPTER IV

EVALUATION OF THE PROGRAM FOR 1985

CHAPTER IV

EVALUATION OF THE PROGRAM FOR 1985

4.1 Objective

The Increased Food Production Program aims to support indigenous efforts to achieve self sufficient food supply in developing countries, as increased food production depends upon the efforts of local people at the grassroots level. The conditions of grant aid for the Increased Food Production Program are as follows:

a) Provision of Japanese commodities such as fertilizer, agrochemicals and agricultural machinery to contribute to food production increase;

b) Provision in local currency of the FOB price granted; and,

c) Obligation of the Philippine Government to utilize this fund for agricultural development projects.

Based on the above conditions, the Government of the Philippines held discussions with related agencies and allocated ¥1.7 billion to NFAC and ¥400 million each to NFA and NIA out of the total grant of ¥2.5 billion for 1985. In view of the need for increased food production, the NFAC is requesting ¥1.7 billion worth of fertilizer and agricultural chemicals to supplement domestic shortages and the FOB equivalent counterpart fund will be used in programs directly related to food production increase. The NFA request focuses on relatively small scale, portable harvest and post-harvest machinery for sale or rental by farmer's cooperatives. The NIA on the other hand, plans to distribute operation and maintenance equipment for farm road and irrigation canals to each NIA regional office.

4.2 Review of the Requested Items

4.2.1 Fertilizers

The main component of the Program will be import and distribution of fertilizers equivalent to about ¥1.2 billion comprising four kinds of

fertilizer products, as in the following table.

Type of Fertilizer	Content Rate	Amount (t)	Nitrogen Quality (t)
1. Urea	45-0-0	7,000	3,150
2. NPK	14-14-14	7,300	1,022
3. NP	16-20-0	3,000	480
4. Ammonium Chloride	25-0-0	6,000	1,500
Total			6,152

The mission questioned the inclusion of ammonium chloride in the request as it contains only 25% nitrogen which is much less than urea and is also bulky and costly. According to the explanation, farmers' requests for fertilizers were gathered from farmers, dealers and distributors. Ammonium chloride was one of those requested and has been used traditionally. NPK (14-14-14) has also been used traditionally although there is a newer NPK (15-15-15).

NFA has been allotted ¥1.7 billion under the Program for procurement of fertilizer and agricultural chemicals. If a portion of the budget is left over as a result of bidding, increased procurement of urea is recommended as it has the most direct effect of all the fertilizers on yield increase and is also highly marketable. If a shortage of funds should occur, reduction of ammonium chloride is recommended as its nitrogen content is low and handling is difficult.

Benefits from fertilizer and pesticide use are dependent on the responses of the various crops to given levels of the nutrients N, P and K. The benefits from fertilizer and pesticides have not been quantified separately because of their complementary nature; the response ratio assumed in the analysis reflects their combined effect. Based on nationwide studies in the Philippines, the response ratio adopted for calculating benefits is 15kg palay per kg of fertilizer nutrient for irrigated rice.

Increased rice production with provision of Program fertilizer (total nitrogen 6,152t) is estimated at 92,280t of paddy (58,000t of rice). The benefit/cost ratio (BCR) for the Program is estimated at 1.3.

4.2.2. Agricultural Chemicals

(1) General

Agricultural chemicals play an important role in maintaining yields and in fact, have a much greater economic effect than fertilizers. As part of the 1981-83 Increased Food Production Program the value of agricultural chemicals provided by the Japanese Government came to approximately 7.4% of total agricultural chemicals imports. Although aid is never very extensive, it is a steady source of supply indicating a greater effect in the agricultural chemical market than the quantity would otherwise show.

In this manner, because of the important position occupied by the agricultural chemicals supplied under the Increased Food Production Program of the Japanese Government in the agricultural production plan of the Philippine Government, the NFAC has requested the following agricultural chemicals under the Japanese aid program for 1985. Although some of the items were listed according to commercial brand names, these have been changed to the active ingredient names as it is customary to use the name of the active ingredient when designating agricultural chemicals. According to the NFAC, active ingredient names have been used in the bidding for agricultural chemical purchases in the past and therefore no difficulties are envisaged.

Item	Weight (kg)	Old name (used in request list)
Insecticide		
MIPC	40,040	Mipcin
BPMC	20,000	BPMC
Diazinon	50,000	Diazinon
MEP	30,000	Sumithion
Fenvalerate	3,000	Sumicidin
PAP	50,000	Elsan
DEP	2,300	Dipterex
Germicide		
EDDP	4,000	Hinosan
Weedicide		
Benthiocarb	59,400	Saturn
SMCA	80,000	SMCA
Raticide (Rodenticide)		
Coumatetralyl (10%)	1,000	Racumin
Coumatetralyl (0.75%)	10,000	Racumin

In selecting agricultural chemicals to be requested, the NFAC organized a technical committee chaired by the BPI's Crop Protection Division with the NFAC's Chief of the Special Projects' Division as Vice Chairman, to conduct selection and procurement procedures. The Committee, using the FPA views as reference for selection of agricultural chemicals, considered the following items.

a) Agricultural chemicals having high market demand.

b) Results of tests and research on the efficacy of agricultural chemicals made by Japanese firms.

c) Chemicals which Japanese agriculurual chemical firms can supply.

d) Agricultural chemicals recognized by the FPA of the Philippine Government.

Regarding the quantity of agricultural chemicals requested, the Government has designated which agricultural chemical firm is to import each specific item. The final quantities to be requested are determined by a technical committee after weighing the requests from the firms involved in view of demand forecast and budget framework.

(2) Examination of Content

The agricultural chemicals requested this year may be divided into Coumatetralyl, a rodenticide to be supplied to the BPI and agricultural chemicals to be sold to the agricultural chemical companies. Agricultural chemical distribution outlets are described below.

1) BPI

Agricultural chemical use as reported by the Japanese Government under its first Increased Food Production Assistance Plan in 1977 is presented in detail in 3.2.3 (2). The only chemical which has been substantially consumed after eight years is Coumatetralyl. The majority of other chemicals have remained eight years in storage and some of these are undergoing chemical change. These factors raise such questions as the possibility of over supply or of limited opportunities to use the chemicals; of selection of chemicals which were not in high demand or a drastic decline in insect epidemics after 1978.

As the BPI nationwide observation network does not collect data regarding areas affected and yield loss resulting from insect epidemics, it is difficult to reach a conclusion. Among the agricultural chemicals requested this year rodenticide was in greatest demand. Moreover, the 10,000kg of formulated chemicals requested are considered for immediate use, while 1,000kg of 10% coumatetralyl are designated for storage. As the amount of Coumatetralyl used in 1984-85 approximated 10,000kg, this year's request is equal to two years immediate or emergency use and two years' storage.

From the foregoing, the requested agricultural chemicals appear to be appropriate.

2) Agricultural Chemical Companies

a) Types of agricultural chemicals

Among the agricultural chemicals requested this year, seven insecticides, one fungicide and two weedicides are set aside for sale to agricultural chemical companies as shown in section 4.2.2. The efficacy and use of these agricultural chemicals are shown in TABLE 4-1.

Name of Agricultural Chemical	Crop	Insect Pest and Weed	Quantity and Frequency
Insecticide			
MIPC	Rice	Plant hopper, leaf hopper	2% (40kg/ha) x 2 times
BPMC	Rice	Plant hopper, leaf hopper	2% (4kg/ha) x 3 times
Diazinon	Rice	Stemborer	3% (40kg/ha) x 2 times
MEP	Rice, fruit trees, tea, vegetables	Stemborers and wide range of insects	3% (40kg/ha) x 3 times
Fenvalerate	Vegetables	Aphids, etc.	10% (1kg/ha) x 2 times
PAP (Phensoate)	Rice, vegetables, fruit trees	Stemborer, plant hopper, rice bugs and leaf hopper	5% (60kg/ha) x 2 times
DEP	Rice and vegetables	Plant hopper, aphids leaf hopper	4% (50kg/ha) x 2 times
Fungicides			
EDDP	Rice	Rice blast, brown spot	2.5% (40kg/ha) x 2 times

cont'd

AGROCHEMICALS

MIPC

Carbamate insecticide

Use: Control of leaf hoppers and plant hoppers of rice plant long period of remaining effect; systematic insecticide; application rate (1.5 - 2%) 20 - 40kg/ha

BPMC

Carbamate insecticide

Use: Control of leaf hoppers and plant hoppers of rice plants, systematic insecticide; application rate (2%) 30-40kg/ha

Diazinon

organophosphorus insecticide

Use: Control of rice stemborers, leaf miners and cutworms; application rate (2-3%) 30-40kg/ha

MEP

Organophosphorus insecticide

Use: Control of rice stemborers, fruit crop and vegetable pest; application rate (2-3%) 30-40kg/ha

Fenvalerate

pyrethroid insecticide

Use: Control of aplids for vegetables

PAP (Phensoate)

Organo phosphorus insecticide

Use: Control of rice stemborers, leaf hoppers and rice bugs; application rate (5%) 50-60kg/ha

TABLE 4-1
(2 of 2)

AGROCHEMICALS

DEP

organophosphorus insecticide

Use: Control of plant hoppers, aphids and rice bugs; application rate (4%) 30-50kg/ha

EDDP

organophosphorus pesticide

Use: Control of rice blast and leaf spot;
application rate (1.5-2%) 30-40kg/ha

Benthiocard

Thio carbamate herbicide

Use: Control of sedges and grasses;
Application rate (7%) 30-40kg/ha

SMCA

harmontype herbicide

Use: Control of broadleaves;
application rate (19.5%) 1.6-2.4kg/ha

Coumatetralyl

coumalyl rodenticide

Use: Control of rats; application rate (0.75%) mix with bait 20 fold as much as of rodenticide

Name of Agricultural Chemical	Crop	Insect Pest and Weed	Quantity and Frequency
Weedicide			
Benthiocarb	Rice	Barnyard grass,	7% (40kg/ha) x 1 time
SMCA	Rice	Broad leaf weed	19.5% (2.4kg/ha) x 1 time

The Ministry of Agriculture and Food in its national programs for food self-sufficiency, Masagana 99 and Maisagana, has compiled lists of recommended agricultural chemicals. On the Masagana 99 list are 31 insecticides, 2 fungicides, 30 weedicides and 6 rodenticides while on the Maisagana list, there are 10 insecticides, 11 weedicides, 1 fungicide and 3 rodenticides. Details are shown in Annex A-8 and A-9. The results stating whether the agricultural chemicals requested by the NFAC this year were included in the above list are shown in TABLE 4-2.

This table shows that the requested agricultural chemicals except for Fenvalerate and DEP are recommended in the Masagana 99 Program. On the other hand, the only agricultural chemicals recommended in the Maisagana Program are BPMC, SMCA and Coumatetralyl. As the Masagana 99 Program is more important than the Maisagana Program, this fact is not envisioned to hinder progress.

Reasons for Fenvalerate and DEP inclusion in the current request are as follows:

Fenvalerate

This agricultural chemical is registered and used for vegetables, pulses, bananas, cotton, mangoes and other fruits. Field experiments also show effective use against paddy rice and corn insect pests.

COMPARISON BETWEEN REQUESTED PESTICIDES AND RECOMMENDED PESTICIDES BY MAF

Chemical Name	Brand Name	Company	Masagana-99	Maisagana
Insecticide				
MIPC	Mipcin/Hytox	PPI	YES	NO
	Etrofolam 50 WP	BAYER		
	Tsumacide			
BPMC	BRODAN 31.5EC	PPI	YES	YES
	Carvil 50EC			
	Baycarb 500EC	BAYER		
	Azodrin 500			
	Lorsban	DOW CHEMICALS		
Diazinon	Diagran 5G	SHELL	YES	NO
	Diazinon	PPI		
MEP	Sumithion 3EC	SHELL	YES	NO
	Bionex 40EC	PPI		
Fenvalerate	Sumicidin 3EC	SHELL	NO	NO
	Ambush 10EC	PPI		
PAP	Pennant 50EC	UNION CARBIDE	YES	NO
	Vindex Plus	UNION CARBIDE		
DEP (Trichlorfen)	Dipterex 95SP	BAYER	NO	NO
Fungicide				
EDDP	Kinosan	BAYER	YES	NO
	Fungifox 70WP	PPI		
Herbicide				
Benthiocarb	Saturn EC/D	UNION CARBIDE	YES	NO
	Lambast G	PPI		
SMCA	2-4-D Amine 40EC	UNION CARBIDE	YES	YES
	2-4-D Ester 44EC	HOECHST		
Rodenticide				
Coumatetralyl	Racumin 0.75 %	BAYER	YES	YES
	Racumin 1.0 %	PPI		

DEP

This agricultural chemical is used mainly to control army worm in corn fields, especially in the Mindanao region. The farmers prefer to use it because this pesticide causes litle damage to the crop itself.

As stated above, these two agricultural chemicals are already being used against paddy rice and corn pests, and on the basis of adequate experiments may be included in the list of agricultural chemicals for the Increased Food Production Aid Program. Other agricultural chemicals recommended in the Masagana 99 Program have been widely accepted and used and are determined to be appropriate for inclusion in this list of chemicals.

b) Quantities of Agricultural Chemicals Requested

Upon calculating the area for application of agricultural chemicals requested this year, the following figures emerged. Total area for insecticide application is about 82,600ha, for fungicides 1,900ha, and for weedicides 186,500ha. Details are shown in TABLE 4-3.

The IRPP is trying to incorporate the total amount of agricultural chemicals to be supplied under this plan into its loan. The IRPP target area for fiscal year 1984 covering 20 provinces totals some 150,000ha, and it is believed that from 1985, this figure will show an increasing trend.

On the other hand, the area that can be covered by agricultural chemicals requested is about 82,600ha. This was calculated on the assumption that use of the chemicals would not be duplicated over the same field. However, as the target pest differs for each agricultural chemical it is believed that different chemicals are frequently used on the same field. These factors would drastically lower the area which can be

COVERAGE BY REQUESTED PESTICIDES

Pesticide	Requested Amount (kg)	Concentration Rate (%)	Quantity of AI (kg)	Application Quantity of AI (kg/ha)	Coverage (ha)
Insecticide					
MIPC	40,040	98	39,239	1.6	24,524
BPMC	20,000	98	19,600	2.4	8,167
Diazinon	50,000	96	48,000	2.4	20,000
MEP	30,000	95	28,500	3.6	7,917
Fenvalerate	3,000	92	2,760	0.2	13,800
PAP	50,000	92	46,000	6.0	7,667
DEP	2,300	95	2,185	4.0	546
Sub-total					82,621
Fungicide					
EDDP	4,000	50	2,000	2.0	1,000
Herbicide					
Benthiocarb	59,400	93	55,242	2.8	19,729
SMCA	80,000	98	78,400	0.47	166,809
Sub-total					186,538

covered by the requested agricultural chemicals. As SMCA weedicide is generally applied twice, the area covered by SMCA would be only about 83,500ha which, coupled with an area of about 20,000ha for Benthiocarb, amounts to a total area of 103,500ha.

In consideration of the IRPP target area of 150,000ha, the requested quantity is considered appropriate. As the quantity of the requested agricultural chemicals was worked out item by item keeping in mind the demands of the current market as mentioned above, quantity of each item is also considered appropriate.

4.2.3 Agricultural Machinery

The list of equipment requested under this year's Increased Food Production Program is given below.

Equipment Requested

1.	NIA		
	(1)	Wheel loader with back hoe	32 units
	(2)	Bulldozer (medium)	6 units
	(3)	Motor grader (small)	10 units
2.	NFA		
	(1)	Portable pre-cleaner	18 units
	(2)	Portable dryer	18 units
	(3)	Small-scale rice mill (1t/hr): portable	9 units
		- do - : stational	9 units
	(4)	Portable warehouse (250t capacity)	18 units
	(5)	Testing husker	38 units
	(6)	Testing mill	38 units
	(7)	Double beam balance	45 units
	(8)	Testing thickness grader	38 units
	(9)	Infrared moisture meter	3 units

NIA has substituted 5 units of wheel loader with back hoe in place of the originally planned rubber dam for a total of 32 units of wheel loader units. NIA reportedly intends to request rubber dams at a future date.

(1) Examination of Scale

1) NIA Machinery

At the conference of NFAC, NFA and NIA co-ordinated by NEDA it was decided that NIA will receive ¥400 million worth of equipment. The NIA had decided however to import the above three types of equipment under the Increased Food Production Program. The order of priority and procurement for several units of wheel loaders with back hoes, motor graders, and bulldozers, was decided and as the scale of the request is in the order of ¥400 million, the request is considered to be appropriate. Equipment items are discussed below.

a) Wheel Loader with Back Hoe

According to the request one unit is to be assigned to the control office of each Regional and River Irrigation System. However, considering the limitations of the machine's capacity and that nearly all the regional offices have been allocated freight trucks under past Increased Food Production programs, it is believed that it would be more appropriate to allocate the machines in proportion to the scale of the area to be serviced.

The NIA has requested 32 units and, with a total service area of 216,000ha, appropriate allocation would be one unit per 7,000ha. However, as this machine is unsuitable for soft ground, the specifications will be studied.

If the above criterion is adopted the following distribution pattern emerges.

Region	I	II	III	IV	V	VI	VIII	IX	X	XI	XII
Wheel Loader with Back Hoe	1	7	6	3	3	1	1	1	3	2	4

As with other machinery, the Regional Office should exercise control over these units and at the request of RIS offices, dispatch these machines to raise their effective utilization.

b) Bulldozer

The bulldozers are allocated under each Regional Office as shown in the following chart.

Region	I	II	III	IV	V	VI	VIII	IX	X	XI	XII	Total
Present number of units	5	6	8	3	5	8	8	5	5	5	5	63
Requested number of units	1	1	--	1	1	--	--	1	1	--	--	6
Area to be serviced (1,000ha)	56	171	184	72	33	56	21	14	30	80	40	756

According to the request, Regions III, VI, VIII, XI and XII are not included in the allocation plan. If the allocation plan is based on the same criterea as that of the wheel loader, then ommission of Region VI and VIII is appropriate. However, although Regions I and V have been allotted 6 units each (5 existing plus 1 requested), Region XI which has a larger service area than the former, has only 5 existing bulldozers and is also excluded from the allocation plan. The same is true for Region III. Considering the present situation in conjunction with the allocation plan, allocation according to the following criteria would be most appropriate.

The present number of vehicles and the number requested together total 69. The area to be serviced is 216,000ha with an area of about 3,000ha to be serviced by one bulldozer. If these criteria are used the allocation will be as follows:

Region	I	II	III	IV	V	VI	VIII	IX	X	XI	XII
Basic units	5	15	17	6	3	3	5	2	3	8	4

Consequently, if the basic unit number is compared to the total of the present number, the requested four regions II, III, IV, and XI would be minus, and the other regions plus. Out of the regions to be plus, regions VI, VIII and XII are not included in the allocation plan. The other 4 regions of I, V, X and XI are however included in the plan. If the request number is substracted from the surplus regions of the above, one unit will be transferred to region II additionally, with two units for region III and a last unit for region X.

c) Motor Grader

At present there are six graders in Region II under the CIDP. The NIA does not have any graders. In the request for graders only Region III has been omitted whereas Region II should have also been ommitted.

2) NFA Machinery

The NFA has been allocated ¥400 million from the Increased Food Production Assistance Fund. With this assistance, the NFA has requested procurement of post-harvest machines, and plans to allocate them to the regions shown in Chapter IV, section 4.2.3, 2. According to this table, crop processing machines are planned to be rented on a trust basis (sale by yearly installment) to farmers' organizations (agricultural cooperatives) organized through the NFA's local

food sales extension movement. This yearly installment repayment method will be explained later.

The NFA has already received requests for trust loans from 42 agricultural cooperatives, from which they will carefully select those most capable of repaying the loans. The number of machinery requested has been determined under the estimated cost which is the balance amount of ¥4 billion for purchasing laboratory equipment to be utilized in some NFA grain warehouses. As outlined in the following chapter on project cost estimation, the cost estimate to NFA for these machinery is deemed appropriate. As NFA envisions allocation of the machinery individually to the farmer's cooperatives, all cooperatives who applied will be allocated at least one unit of machinery through the program. NFA is selecting and scheduling farmer's cooperatives and machinery to be allocated. Spare parts for all the machinery except rice mills will not be requested; however, preparation of spare parts equivalent to 10% of machinery cost will be considered.

The laboratory equipment will be allocated to some NFA grain warehouses out of the total 512 (1982). The double beam balance however will be allocated to 7 warehouses from other machinery allocation, and the infrared moisture meters, (standard moisture meter to calibrate existing moisture meter) will be allocated to the headquarter, Cabanatuan regional office and Iloilo regional office of NFA. Again, this request of NFA is judged appropriate according to the following chapter on cost estimation.

When the tender allocates a certain amount of surplus or minus to the budget, the number of postharvest machinery will be adjusted to meet that amount of budget. The number of machinery will be adjusted first for pre-cleaners then rice mills, portable warehouses and finally portable dryers.

NFA is requesting 2 kinds of rice mill for a total of 18 units. Nine units will be of the portable type with the

remaining 9 units of the stational type. A description of the two types are as follows:

Portable type

Receiving elevator with pre-cleaning device, singlepass type rice mill unit, magnetic iron remover, bran collector and 18 to 20 HP diesel engine.

Stational type

Pre-cleaner with destoner, dehuller, paddy separator, dual pass rice polisher, broken rice separator and bran collector The destinations of post harvest machinery are as follows:

1. Cagayan	5. Pampanga	9. Davao del Norte
2. Isabela	6. Iloilo	10. Agusan del Sur
3. Nueve Ecija	7. Bukidnong	
4. Bulacan	8. South Co Tabato	

(2) Study on Selection of Grade

1) NIA Machinery

a) Back Hoe Wheel Loader

This machine is used for dredging medium and small channels. The mud dredged up is loaded onto trucks by bucket loader.

Irrigation facilities in various regions were studied during the on-site survey and it was determined that unless the large waterways were dredged every four to five years and the medium and small scale waterways every two to three years, irrigation water would probably not reach the smallest channels. Also, where clam bucket crane dredgers and bulldozers could be used for dredging large channels, only the wheel loader could be utilized for medium and small channels. Excavators could be used but the existing machines capable of performing loading operations are more useful. However, these machines are generally unsuitable for soft ground, thus limiting mobility and accordingly the specifications should be reviewed.

b) Bulldozers

Besides being used for dredging of large waterways, bulldozers can also be used for repair and construction of roads running parallel to the waterways. The medium size may be the most appropriate when taking into consideration the width of the roads parallel to the present waterways. Those regions which have not requested bulldozers have already applied for loans from the World Bank.

c) Motor Grader

This machine is used mainly for repair and maintenance of the roads parallel to the waterways. Considering the road width, the small motor grader similar in size to the bulldozer, would seem most appropriate. As with the bulldozers, those regions already in possession of graders have not requested for these machines. On-site surveys confirmed that sections of road parallel to the waterways in parts were in bad repair.

By using existing machines to maintain roads before reaching a serious deterioration, repair costs could be minimized thus reducing transportation costs of agricultural materials.

As spareparts compose 10% of budget, when the tender for these machinery allocates a certain amount of surplus or minus, the percentage cost of spare parts shall have an allowance of plus minus 2% to meet this budget. If the surplus or minus is over 2% of the total machinery cost, the number of wheel loaders shall be adjusted.

2) NFA Machinery

a) Portable Pre-cleaner

Machines similar to the present machine have been used in the past to separate straw scraps, vinyl

strings, sand, stones, weeds and other foreign matter from paddy after drying. It can also be used as a generator. Machines in the past vibrated violently with the movement of the sieve, and thus an improved type is desirable.

b) Portable Drier (Recirculation Type)

This is a small grain drier which completely dries wet paddy quickly and efficiently to the appropriate moisture content of 14%. Drying capacity according to the NFA means drying paddy of 26% moisture content to 14% in 10 hours (drying rate 1.2%/hr), with the capacity measured in units of hours taken. This type of drier is popular in the Philippines and is one of the most sought after machines by farmers today.

c) Small Scale Rice Mill

Because the traditional corn type and kiskisan type (Engelberg type) rice mill had a very low clean rice retention rate, the NFA has been propagating the rubber roll huller type rice mill machine. Whereas the previous type of rice mill produced only 58% to 62% of polished white rice, the present type will produce between 68% to 70% white polished rice, nearly a 10% increase. Though this type of machine will not tie in with direct production, it will contribute indirectly to food supply. As most of the donated equipment the NFA will be allocating this year will go to agricultural cooperatives (annual installment sale) as discussed hereinafter, the appropriate capacity of the mill appears to be of 1t/hr.

d) Portable Warehouse (250t capacity)

This warehouse is used to temporarily store the farmers' paddy, until they are ready to sell. The NFA were considering using storage silos with aeration facility, but they usually become permanent facilities. Furthermore, if the crops are to be stored in common,

farmers would prefer to identify their own paddy, making a temporary warehouse more practical.

Warehouses similar to the present type were previously introduced by the NIA under the Increased Food Production Program. Although the present type is convenient and similar, problems of grain theft and warehouse durability will occur as the sides are made of canvas vinyl. This warehouse should be improved upon by reducing the paddy to the lowest desirable capacity of 250t for an agricultural cooperative, the maximum capacity of a portable warehouse.

e) Other Item, Test Equipment for Laboratory

In addition to the above the NFA has requested a test huller, a test mill, precision automatic scales, thickness testing sorter and an infrared moisture meter. These equipment are necessary for the NFA in classifying paddy at the time of purchase. The infrared moisture meter will be used to supplement the moisture meters now in use.

4.3 Counterpart Funds

4.3.1 Counterpart Fund and Cashing

Regarding counterpart funds mentioned in CHAPTER III, only the NFAC which handles fertilizers and agricultural chemicals, and is authorized to sell material to private companies has a private bank account to reserve counterpart funds. However, the NFAC found it difficult to sell the donated machinery received under the First and Second Increased Food Production Assistance Program, and finally distributed them to various agencies of the Department of Agriculture, three years after receiving them.

NFA counterpart fund savings are included in the general budget while the NIA lists such funds in its O & M budget. Because separate bank accounts are not kept, it is difficult to trace the flow of money with any accuracy. Accordingly, the Government of Japan has strongly requested the NIA and the NFA of the Philippine Government to convert all counterpart

funds into cash starting with 1985 counterpart funds and the Ninth Increased Food Production Program.

With the cashing of the counterpart funds, the flow of capital will become clear; however, implementation of this measure is hampered by the following:

a) The Increased Food Production Program states that it would be desirable to introduce Japanese manufactured agricultural machines to help small-scale farmers; however, they do not have purchasing power to buy these machines.

b) For the Philippine Government, post-harvest agricultural machinery has higher priority than operational farm machinery. However, the former is much more expensive, making it difficult to sell on the open market.

c) Agricultural machinery which is within the price range of individual farmers and conforms to local agricultural conditions (low productivity, small-scale farms, and low purchasing power among farmers) such as tillers can be locally produced. This makes it difficult for Japanese manufacturers to compete with them.

d) In the light of the problems enumerated in a) to c), it appears that local farmers cannot directly use Japanese agricultural machinery except through communal use in agricultural cooperatives.

Considering the above, as a measure to convert counterpart funds for 1985, the NFA is planning to sell agricultural machinery to solid agricultural cooperatives at annual interest rates of 10% with a repayment period of two years.

Responding to this plan, some 42 agricultural cooperatives have filed requests for purchase of agricultural machinery. Where rural banks in general lend at interest rates of 16 to 18%, the NFA loan has a low rate of 10% and thus this plan raises great hopes and expectations.

The NIA is on the other hand, not planning to cash their counterpart funds for 1985 because the equipment they supply are

mainly construction machines and vehicles which require maintenance and control and are thus not appropriate for sale or lease. Consequently, as long as the NIA continues to handle construction machinery and vehicles etc., it will be difficult for them to cash their counterpart fund.

4.3.2 Time of Deposit

In the Exchange of Notes for 1983, the deposit of the equivalent amount is for the 1985 fiscal budget. The Exchange of Notes is usually signed at the end of the Japanese fiscal year leaving almost one year until the Philippine fiscal year commences; however tendering, bidding, import, sales and collection of proceeds takes at least one year. Extension by one year for deposit of the equivalent amount is therefore required.

CHAPTER V

BASIC DESIGN OF THE PROGRAM, 1985

CHAPTER V

BASIC DESIGN OF THE PROGRAM 1985

5.1 Basic Design Approach

Details of the requests for agricultural materials such as fertilizer, agricultural chemicals, agricultural machinery etc., under the Ninth (1985) Japan-Philippine Increased Food Production Program by the NFAC, NFA and NIA were sumbitted through the NEDA in August 1985. After examining whether the selection, quality, utilization plan of the requested material, and method of establishing the counterpart fund and its utilization all conform to the Program, the types of material and quantity have been confirmed.

5.2 Basic Design

The Study Mission discussed each item provided by the Program with those concerned in the field with due respect for the wishes of the Philippine side for distribution of fertilizer, agricultural chemicals and farm machinery.

5.2.1 Supply of Fertilizer (NFAC)

The type and quantity of fertilizer will be selected and supplied based on study of the demand and the market, as discussed in section 4.2.1. Fertilizers, which account for ¥1,181 million out of the total ¥2,500 million equivalent of assistance material supplied, are as follows:

	Type	Content Rate	Quantity	Nitrogen Quantity (t)
1.	Urea	45-0-0	7,151	3,218
2.	Mixed fertilizer	14-14-14	7,300	1,022
3.	Compound Fertilizer	16-20-0	3,000	480
4.	Ammonium Chloride	25-0-0	6,000	1,500

5.2.2 Supply of Agricultural Chemicals (NFAC)

The process of selecting type and quantity of agricultural chemicals is explained in section 4.2.2 based on examination of disease and insect pest damage and circulation and market conditions. Some ¥519 million worth of agricultural chemicals will be supplied as presented in the following table.

Item	Quantity (kg)
Insecticide	
NIPC	40,040
BPMC	20,000
Diazinon	50,000
MEP	30,000
Fenvalerate	3,000
PAP	50,000
DEP	2,300
Germicide	4,000
EDDP	4,000
Weedicide	
Benthiocarb	59,400
SMCA	3,000
Rodenticide	
Coumatetralyl (10%)	1,000
Coumatetralyl (0.75%)	10,000

5.2.3 Supply of Agricultural Equipment

(1) Determination of Scale

1) NIA Equipment

In accordance with the criteria for determining scale, the basic design was drawn up and scale of equipment was established as follows:

a) The scale of each type was determined by studying the priority requirements of the NIA and its operational budget, which will be mentioned later. The selected scale is the same as that originally requested.

b) From the scale of the existing machines and the area serviced, the vehicles to be allocated to the regions were determined as presented below.

Region	I	II	III	IV	V	VI	VIII	IX	X	XI	XII	Total
1) Wheel loader with back hoe	1	7	6	3	3	1	11	1	3	2	4	32
2) Bulldozer	-	-	2	1	1	-	-	-	-	1	2	6
3) Motor grader	1	-	1	1	1	1	1	1	1	1	1	10

As there is no irrigation project under the direction of NIA in Region VII, it is not considered as a candidate for equipment supply.

2) NFA Equipment

As previously stated, the scale requested by NFA was determined appropriate and confirmed as follows:

a) Post-Harvest Equipment

- Portable pre-cleaner 18 sets
- Portable drier 18 sets
- Small-scale rice mill: portable 9 sets
- - do - : stational 9 sets
- Portable warehouse (250t capacity) 18 units

b) Crop Testing Equipment

- Testing husker 38 units
- Testing mill 38 units

- Double beam balance 45 units
- Testing Thickness grader 38 units
- Infrared moisture meter 3 units

The above equipment is to be distributed to the agricultural cooperatives now being selected by the NFA and to NFA food procurement warehouses throughout the country.

(2) Determination of Grade

1) NIA Equipment

As stated in CHAPTER IV the grades for NIA equipment are determined as follows:

a) Wheel Loader with Back Hoe

The wheel loader is an articulated front end type with a loading bucket capacity of more than $0.5m^3$. The back hoe attachment fixes on to the rear of the loader with a hydraulic pressure control which can be used when the back hoe is attached. The back hoe bucket has a capacity of more than $0.13m^3$. The machine is also equipped with a canopy for operation during rainy weather.

b) Bulldozer

This machine has a 56-85HP engine with straight or angle dozer blades, and regular operations such as lifting and lowering of dozer blades are controlled by hydraulic pressure during clutch and brake control. Tilting of dozer blades is also operated by hydraulic pressure. No reaper will be attached to the machine. Adequate lighting and a canopy for night/rainy day operation will be attached.

c) Motor Grader

This is a small-scale articulated type motor grader with a 60-75HP engine.

2) NFA Equipment

As noted above, the machines requested by the NFA are considered appropriate. However, due to discrepancies in their detailed use plan, the following grades were established for proper operation.

a) Portable Precleaner

This is a single body small-scale portable precleaner capable of separating foreign matter such as stones and sand from paddy. It has a capacity output of one ton of indica type rice an hour (moisture content approximately 36%). A 5.5kW mounted generator is operated by a 7.5HP engine. The necessary horsepower for an engine to operate a 5.5kW capacity generator is calculated as follows and designated at 10HP.

$$P\ (HP) = 5.5kW \div 0.758\ (kW/HP) \div 0.8 = 9.2HP$$

The separation of small miscellaneous matter is accomplished by wind separation using blowers and by shaking sieves, and stones and sand by a vibrating and aeration moving tray. The residue is removed by a duct to a distance of more than 10m.

b) Portable Drier

This small circulation drier with a holding capacity of 2t uses a kerosene burner, and can be disassembled and set up in another location as required. The crop to be dried is poured into the drier from the top and intermittently ejected from the bottom of the machine, then recycled through the top again. This recycled crop is exposed to the dry, hot air of the drier repeatedly when moisture appears on the surface. After passing the tempering section, the crop is completely dried. The machine is called a small circulation-type drier because of its capacity to circulate the crop to be dried. The drier is divided into two major sections; the drying section and the tempering section.

c) Small Scale Rice Mill: Portable

This machine is composed of a bucket elevator which has a pre-cleaning device to remove foreign matter, one or two one-pass type rice mills and an 18-20HP diesel engine with mounting base. The unit is mounted on the base equipped with removal wheels.

d) Small Scale Rice Mill: Stational

The stational rice mill has a hulling and milling capacity of 1t/hr of dried Indica rice and consists of a precleaner with a destoner, rubber roll huller with a paddy separator, a double friction or abrasive type rice polisher, a rice bran collector, a broken rice collector, a diesel engine and other attachments. Although a portable type mill was requested, a plant of the above scale would be too heavy to move on wheels. Instead of disassembling components individually, the components as a whole unit can be dismantled for transport and reassembled elsewhere.

The pre-cleaner corresponds to the portable pre-cleaner in item a), while the paddy seperator is part of the rubber roller huller. The rice polisher produces superior polished rice and the bran collector is attached with a broken rice separator. Power supply is determined by power requirement according to the manufacturers design. It is however greater than 25HP.

All machine components will be mounted on the base to incorporate them into a single unit which will be run by a single engine. Depending on the manufacturer's design apparatus, some component of the rice mill may be powered by a seperate generator with high engine horsepower to be adopted as necessary.

e) Portable Warehouse

This is a prefabricated warehouse which can be dismantled and erected in another location after two or three months usage at the shortest, and several years at the outside. The foundation work will be undertaken by the farmers themselves. The construction is kept as simple as possible allowing a unit to be erected and dismantled by a crew of 20 man-day. The warehouse is basically semi-circular in shape or in the usual shape of a warehouse. The following should be written in large letters on the side walls of the warehouse.

f) Crop Testing Equipment

The test paddy husker has a capacity of 50kg/hr, while the test mill has a capacity of 150kg/run. The double beam balance has a capacity of 200g and a 50mg accuracy while the test thickness grader has a capacity of 600g/run and the sample weight infrared moisture meter a capacity of 5g.

g) Spare Parts

At the time of procurement, purchasers will secure spare parts for machinery recommended by the maker to the value of 10% of the machine.

5.3 Implementation and Operation and Maintenance System

5.3.1 Implementation for Fertilizer and Agricultural Chemicals

The NFAC which is the main operational body for the implementation of this plan working in conjuction with the FPA and the BPI, will select the fertilizers and agricultural chemicals and determine the quantity for executing bidding procedures. The operational organization and channel are set forth in FIG. 5-1 and 5-2.

IMPLEMENTATION SYSTEM OF FERTILIZER

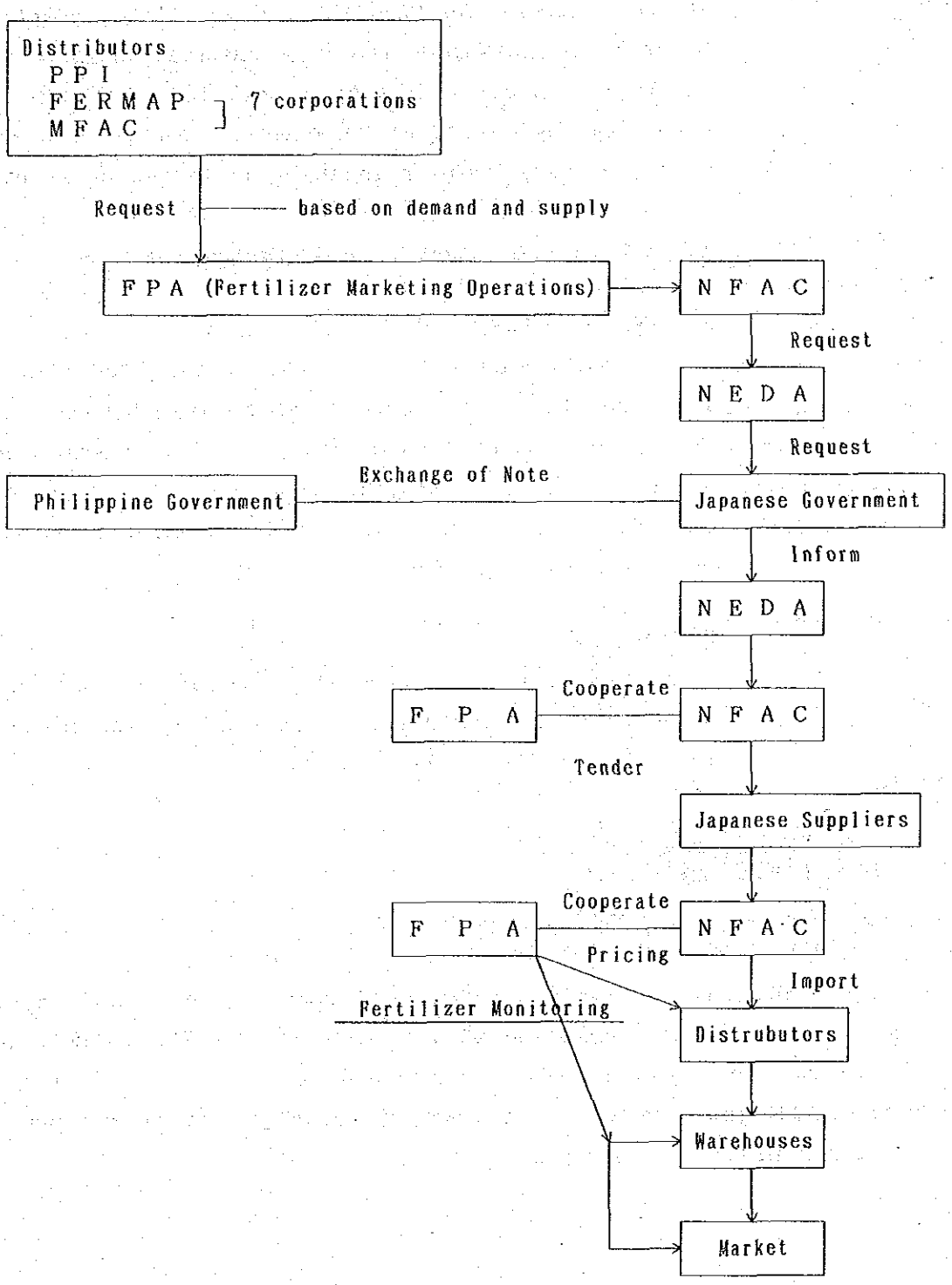
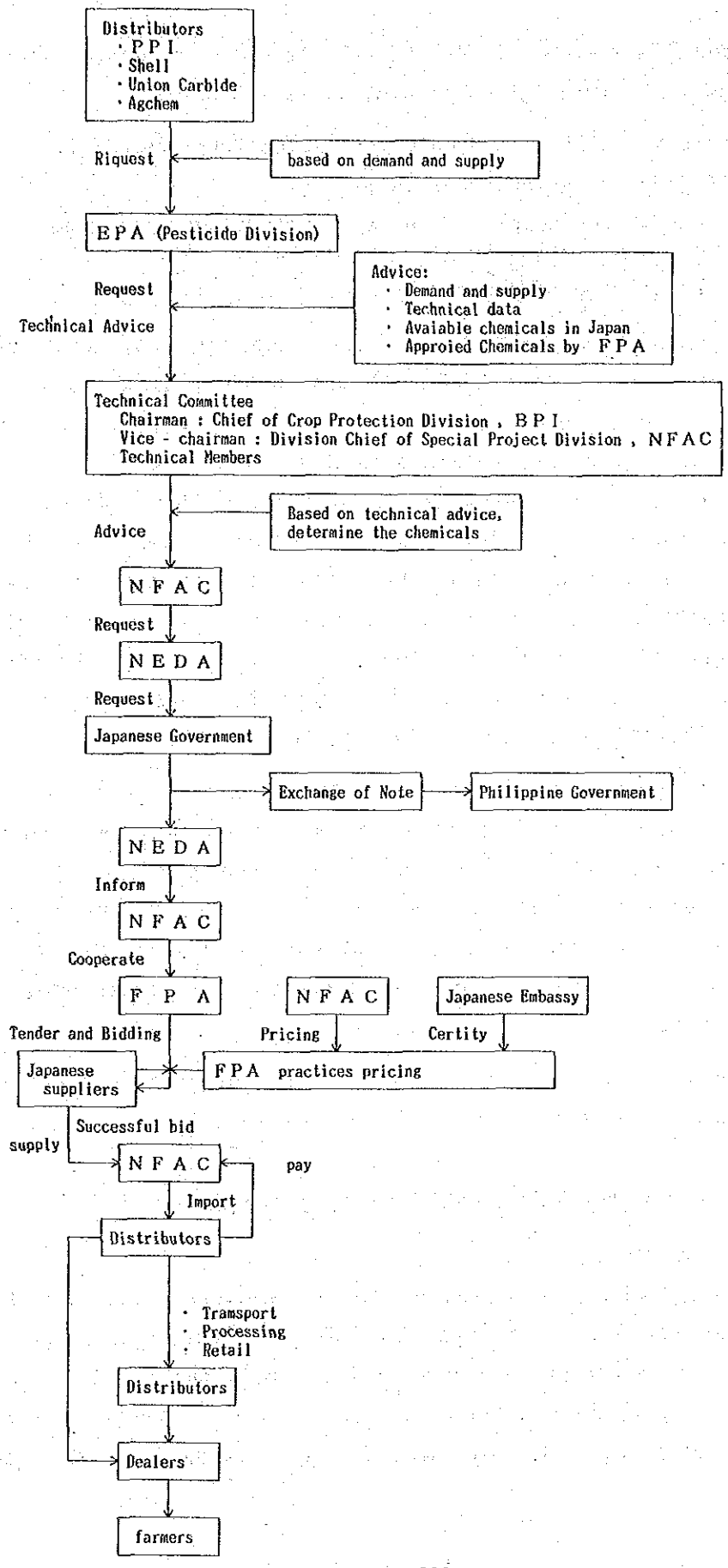


FIG. 5-2

IMPLEMENTATION SYSTEM OF AGRO-CHEMICALS



The FPA will collect and coordinate the requests from the agricultural chemical firms, at which time it will consider:

1) domestic Philippine demand for agricultural chemicals;
2) efficacy of agricultural chemicals;
3) potential for supply of the agricultural chemical requested by Japanese agricultural chemical firms; and,
4) authorization of use by the FPA.

After evaluation by a technical committee, the substance of the requests will be decided. The NFAC will submit the request items to the NEDA. NEDA will compile this submission with the others from NIA and NFA, and examine them. Upon this examination NEDA plans the request of the Increased Food Production Program and then submits this request to the Japanese Government. The Philippine Government and the Japanese Government will negotiate concerning these requests and when agreement is reached, will exchange official notes. Immediately upon receipt of this official document and on the basis of same, the NFAC through the FPA will institute procurement procedures for bidding in the case of agricultural chemicals and negotiated contract for fertilizer.

Philippine agricultural chemical firms are also already determined according to the agricultural chemical item and as soon as the goods arrive, they are turned over to the dealers who pay for the bonded warehousing and clearance through customs. (Fertilizers are duty free while customs levied on agricultural chemicals are 15% in original form and 25% in manufactured form). Thus the maintenance and supervision costs of the NFAC are nil.

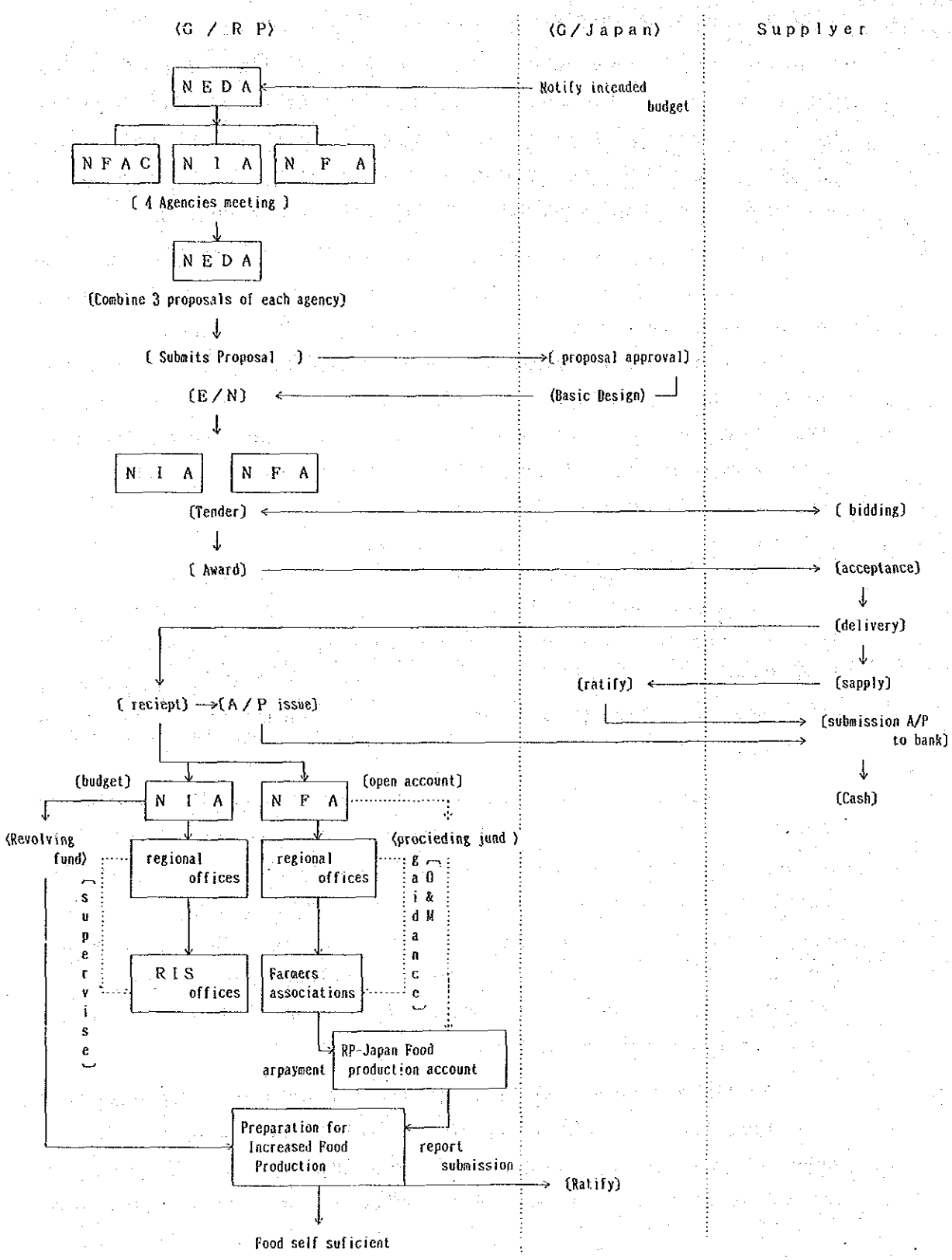
The technical specifications of the above mentioned fertilizers and agricultural chemicals are given in Annex B-1 and B-2.

5.3.2 Implementation System for Agricultural Machinery

(1) NIA Machinery

All machinery requested by NIA is delivered to CIF at Manila Port. Consequently, NIA pays port charges, customs clearance fees and local transportation costs, and delivers the machinery to the Regional Irrigation Service Offices through their respective Regional Offices. The NIA has already earmarked in the general

IMPLEMENTATION SYSTEM OF AGRICULTURAL MACHINERY



account these port charges, customs clearance fees and transportation costs, so that it can transport the machinery to the site as soon as it arrives in the country.

Maintenance and control of the machinery is assigned to the RIS office which is part of the Regional Office. Each Regional Office has technical staff consisting of an operator, driver and mechanic under the supervision of the Mechanical Engineer attached to the Regional Equipment Pool of the Regional Office.

The Mechanical Engineer prepares an "Operation and Maintenance Manual", which sets down the rules for daily, weekly and periodic inspection by the Technical Staff of the RIS Office. At the present time, each Regional Office has prepared and are using a manual on vehicles and building materials under guidance of their head office. The machinery supplied under this plan will also be maintained and controlled on the basis of a manual to be prepared by the Mechanical Engineer.

(2) NFA Related Matters

Up until 1983, the NFA had used all the machines supplied to it under the Increased Food Production Program in branch offices. From 1985, it will distribute the machines directly to the farmers, with the possibility of cashing the counterpart funds on a temporary basis.

The machines allocated to the Regional Offices will be distributed to certain agricultural organizations which have already been selected, and will be used communally. The NFA will distribute the machines to these farmers organizations on a trust loan basis. The farmers organizations will pay 10% of the rental fee in cash, and produce movables as mortgage to the NFA. The remaining 90% will be repayed with 10% interest in two installments a year over a period of two years.

As the machines will be supplied to the farmers organizations on a loan basis at first, their maintenance and control will be under the direction and supervision of the Technical Engineer of the NFA's Regional Office. Even after the repayments have been

completed, the NFA intends to continue providing advice to maintain and continue good maintenance and control practices. The NFA has already produced the "PHF (Post Harvest Facility) Operation Manual and Guidelines" to promote improvement of maintenance and management of its own staff and of farmers.

For repayment of the loan, the payments in cash and in kind will be deposited in the Increased Food Production Program Account, and following the NFA plan, will be used mainly for NFA projects. Part of the 1985 counterpart funds are planned to be used for purchase of spare parts for existing facilities.

5.3.3 Counterpart Funds

The savings of collateral from NFAC and NFA projects will be made in peso, the local currency, equivalent in value to the purchase price of material and equipment purchased. It will be deposited in the "RP-Japan Increased Food Production Program" account of the individual PNB, and disbursed for new specific agricultural development projects agreed upon by both the Japanese and Philippine governments.

The NIA on the other hand, will not be able to cash in its counterpart fund for 1985; however, a separate column will be introduced in their budget specifying the funds spent for specific operations and management of specific projects.

5.4 Cost Estimate

Cost for implementation of the Program is estimated at ¥2.5 billion, with ¥1.181 billion for fertilizer, ¥0.519 billion for agricultural chemicals, ¥0.4 billion for NFA post-harvest machinery, and ¥0.4 billion for NIA construction machinery. Cost was estimated with the following conditions:

(1) Unit Prices for November-December 1985 were used in calculations.

(2) Tax on imported goods was not included.

(3) Foreign exchange rate for 2 December 1985 (US$1 = ¥202) was adopted.

CHAPTER VI

PROPOSED IMPROVEMENTS IN THE PROGRAM

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PROPOSED IMPROVEMENTS IN THE PROGRAM

On the basis of the field survey and home office analysis proposed improvements in the program are presented hereunder.

(1) Submission of the request to the Government of Japan is frequently delayed. As this prevents adequate study of the request items, it is recommended that the request be submitted before the year in which assistance is to be implemented.

(2) In the Philippines, aid commodities are distributed nationwide which greatly impedes post evaluation. In order to facilitate post evaluation, it is necessary to specify the project to which aid commodities are provided. For this purpose, a nationwide master plan with phased implementation should be established to clearly distinguish projects which are supported by Japan. Distribution of commodities within national projects such as Masagana 99, Maisagana and Intensified Rice Production Program, or existing irrigation projects should be specified on a yearly basis according to the exact region of allocation.

(3) As direct sale of farm machinery to farmers is difficult, it is recommended that a machinery hire service be undertaken by well-managed farmers' cooperatives and that rental fees be used for counterpart funds.

(4) A major part of the Increased Food Production Program is composed of fertilizers and agrochemicals and the proceeds from annual sales are to be used for construction of food production infrastructure. At present, the proceeds from NFAC have been utilized for agricultural projects but not for construction of food production infrastructure. Utilization

for infrastructure for agricultural production increase is therefore recommended.

(5) Up to the present, the Government of Japan has given a tentative appropriation for the Increased Food Production Program to the Government of the Philippines to be allocated among the NFAC, NIA and NFA for request of commodities. The Government of Japan should dispatch an evaluation team to review the request and the program in detail as it does for other grant programs.

CHAPTER VII

PROGRAM EVALUATION

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PROGRAM EVALUATION

The Government of the Philippines has been promoting staple food production through Masagana 99, Maisagana, and others and the Philippines attained self-sufficient food production in 1977 and maintained this production level through improvement of irrigation infrastructure. However, overinvestment in industry and improvement of structures in the energy sector coupled with the two oil shocks severely affected the national economy. Deterioration of the national economy and natural calamities damaging food production in 1983, resulted in inflation of agricultural inputs and seriously retarded development of the agricultural sector and a return to rice imports in 1984 and 1985. Under these circumstances, the Government of the Philippines moved the focus from industrialization to agricultural development in 1984. In response to this change in emphasis, ADB and the World Bank are providing agricultural input loans to the Philippines. The Government of Japan, on the other hand, has been providing agricultural inputs and machinery under the Increased Food Production Program since 1977. This year ¥2.5 billion has been allocated to the Program.

The Government of the Philippines requested the Government of Japan to provide ¥1.2 billion in fertilizers, ¥0.5 billion in agrochemicals, ¥0.4 billion in agri-infrastructural machinery and ¥0.4 billion in post harvest machinery. The Mission reviewed the Program and confirmed that the fertilizers and agrochemicals requested will supply 5% of the total requirement and contribute to an increased production of 58,000t of rice. The benefit/cost ratio is 1.3, yielding a profit, while construction machinery and post harvest machinery indirectly contribute to increased food production. Total requirement of machinery in the Philippines is unclear and previous contributions under the Program could not be identified while NFA intends to supply post harvest machinery to farmers' organizations on credit.

In conclusion, the 1985 Philippine Increased Food Production Program is considered to contribute substantially to agriculture in the Philippines through provision of agricultural inputs and machinery. Some

portion of the commodities are to be provided to the farmers in ADB financed project areas.

Since the Increased Food Production Program was first begun in 1977, the Philippines has been a recipient of the same, receiving a total of ¥16 billion in farm related inputs. Of this, 57% was in fertilizers, 14% in agricultural chemicals and 29% in agricultural machinery. NFAC has received the majority of Program items at 74%, with NFA and NIA receiving 17% and 9%, respectively. Although the selling price of fertilizer provided by Japan is over 20% higher than that provided by other countries such as Indonesia, it is highly evaluated in terms of quality and effectiveness by dealers and farmers alike and is a popular sales item.

Agricultural chemicals provided under the Program since 1979 have been sold to domestic agrochemical firms by NFAC. These firms process and manufacture the chemicals and sell them to the farmers through small retailers and middlemen. Prices are determined in consideration of competitive price. Agricultural machinery, with the exception of some NFAC mini-tractors and knapsack type sprayers, are being used by government agencies (mainly NFA and NIA) and are generally very well-maintained and operated.

As evidenced by the above discussion, the Program has had a positive and effective impact on increasing food production in the Philippines.

Deposit of counterpart funds varies depending on the recipient agency of the Program. NFAC has been depositing proceeds from sale of inputs to the private sector since the Program commenced in 1977 and has used these funds for agriculture related projects in discussion with the Government of Japan. NIA and NFA, on the other hand, include the equivalent FOB price for the counterpart fund in the general budget; however, the procedure for entering accounts and recording expenditures of the counterpart fund is unclear. The NFA plans to stop entering the equivalent price in the general budget as of 1985 and instead to set up a separate account for counterpart funds in local currency. NIA has no plan to set up a counterpart fund; however, it is recommended that they establish a seperate account for savings derived from items provided under the Program.

CHAPTER VIII

CONCLUSION AND RECOMMENDATIONS

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8.1 Conclusion

On the basis of survey results, farmers welcomed Program commodities especially fertilizers; however, some machinery were too expensive for farmers to buy and were therefore utilized by government agencies. Regarding the 1985 request from the Philippines, agricultural inputs and machinery are considered suitable for agriculture in the Philippines.

Agricultural inputs are to be sold to the farmers and the proceeds from sales are to be deposited in the counterpart fund; however, agricultural machinery provided to NIA will be utilized by the same while NFA will sell the machinery in installments. An operation and maintenance system is required for machinery at both agencies and should be carried out under the present system.

8.2 Recommendations

The following recommendations are made on the basis of study results concerning the Increased Food Production Program, and counterpart funds.

(1) In order for the Government of Japan to adequately review the appropriateness of the request content, distribution plan and operation and maintenance program, the request should be submitted at least 12 months prior to desired implementation.

(2) Although request proposals are often prepared on a nationwide basis, it is recommended that such requests be limited where possible to a specific benefit area.

(3) Under circumstances where it is difficult to sell machinery directly to the farmer it is recommended that farmers' cooperatives be formed to sell or rent the machinery and that proceeds be deposited in a counterpart fund.

ANNEX