

*APPENDIX N : RICE PRODUCTION / MARKETING IMPROVEMENT
PROJECT*

APPENDIX N1 : AGRICULTURE

APPENDIX-N1 AGRICULTURE

TABLE OF CONTENTS

N.1.1 BACKGROUND OF PROJECT	<u>Page</u> N1 - 1
N.1.2 MANAGEMENT OF THE PROJECT FOR ORGANIZATION	N1 - 2

LIST OF TABLE / FIGURE

Table N1.1	Rice seed multiplication schedule	N1 - 10
Table N1.2	Price of F.S. & C.S.	N1 - 10
Table N1.3	Equipment cost of seed farm.....	N1 - 11
Table N1.4	Equipment cost of seed processing center.....	N1 - 11
Table N1.5	Equipment cost of seed control and certification office	N1 - 11
Table N1.6	Equipment cost of training center	N1 - 12
Table N1.7	Inundation damage	N1 - 12

N1.1 Background of Project

(Rice seed multiplied system in Dong Thap Province)

(1) Introduction

Dong Thap is a province that mainly produces rice. Rice seed production is very important for improving rice quality and quantity. Therefore, provincial governments paid attention to invest rice stations for supplying good rice seed. Before the year of 1995, main rice variety produced in Dong Thap was IR50404. It gives high yield but low quality, particularly with high chalkiness ratio. Since 1995, new rice varieties other than IR50404 increased from 12% to 64%.

(2) Provincial stations of rice varieties production

In Dong Thap province, there are two stations for producing and screening rice varieties :

- An Phong rice station in Thanh Binh district. Total areas are 32ha., of which 1ha for experiment, 5ha for producing foundation seed; 26ha for producing certified seed.
- Dong Cat rice station in Thap Muoi district. Total areas are 500ha of which 1ha for experiment, 10ha for producing foundation seed, 260ha for producing certified seed, remaining area for production of ordinary paddy.

Both of these stations produce foundation seed and supply them to seed farmers groups who continue to multiply these rice varieties.

Main functions of these stations :

- Receive new rice varieties from Can Tho University, Mekong Delta Rice Research Institute, Institute of South Vietnam Agricultural Science and others, and carry out experiment for evaluation and screening of 3 to 4 new varieties to be adaptable to the provincial conditions.
- Multiply foundation seed and certified seed according to national seed standard.
- Co-operate with Provincial Extension Center in introducing new rice varieties to the farmers.

(3) Multiplication seed system at the district level

At district level, progressive farmers are invited to organize rice seed farmer groups (RSFG). These farmer groups receive rice F.S. from two provincial. On average, one district has about 3-4 RSFG and some of them are very strong.

- Thanh Binh District begun to organize farmers group earliest, most of them living near An Phong Station. Some progressive farmers have high abilities and carry out experiment

themselves.

- Cao Lann District has been helped by Institute of Agricultural Science South Vietnam to carry out some experiment about screening of new rice varieties, carrying out demonstrations of new rice varieties and organize farmers group in district. All villages in district have 3-4ha for multiplication of rice seed.

N1.2 Management of the Project and Organization

(1) Objectives

Paddy is the most suitable and important crop in the Study Area. However, Vietnamese rice produced is generally considered to be of low quality in the international market. Therefore the export price of rice is rather low. The rice from Dong Thap area is the lower quality even in Vietnamese standard.

In crop production, the quality of produce highly depends on seeds. Having the high quality will surely increase the output.

In the province, the producing and supplying the foundation and certified seeds were carried out by two seed farms. The annual seed supplying of certified seed is about 1,100 tons, but this met only 1.4% to the actual demand. Farmers use seeds produced themselves or the buy and sell non-certified seed.

To solve this problem, it is necessary to recover the trust of certified seed, strengthening the system of the existing seed production and the supply system including seed inspection system.

For this reason, this project is very important to strengthen the rice production area and agricultural and economic development of the Study Area.

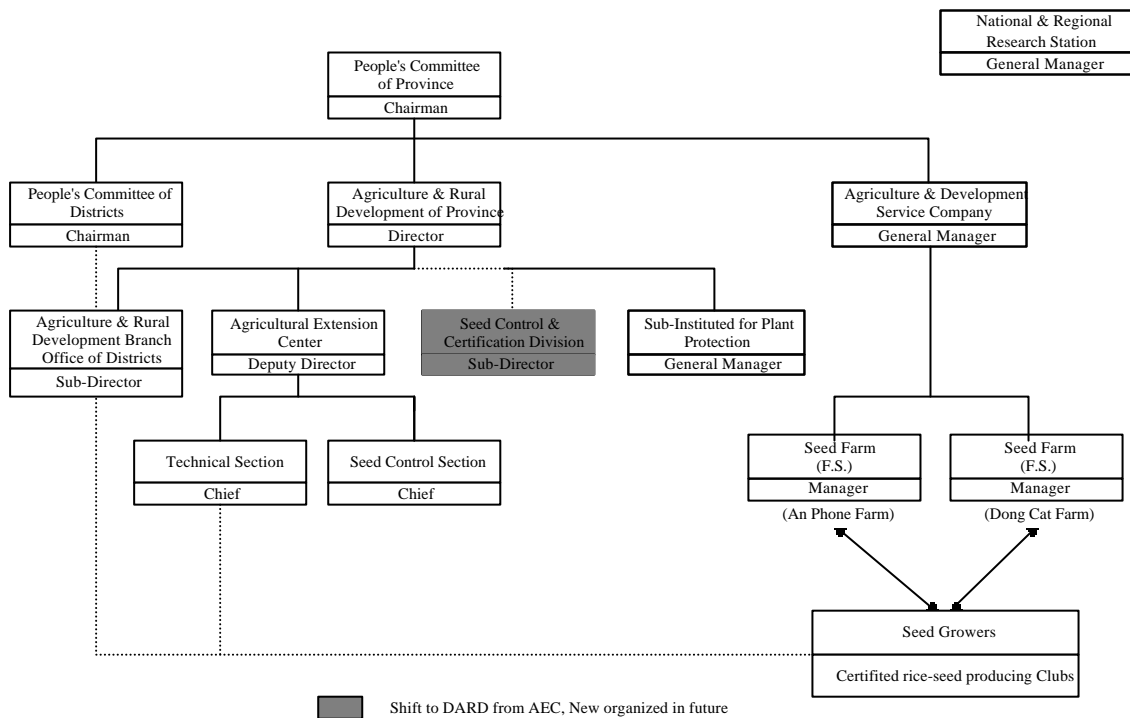
(2) Administrative Organization

Department of Agriculture & Rural Development (DARD) under the People's Committee of Province is responsible for the comprehensive operation of the project.

The Agricultural Extension Center (AEC) and Agriculture & Development Service Company (ADSC) of the province carry out the project under the Directorate of PC & DARD. PC & DARD are also responsible for the coordination with other Provincial Departments and National & Regional Research Institute.

National & Regional Research Institutes need to be closely involved in education of the staffs concerned and seed growers.

The production of foundation seed is entrusted to Agricultural and Development Service Company. After processing, the Seed Control Section under the Agricultural Extension Center will certify the seeds and those seeds are delivered to farms. In this project, the Seed Control Section will be newly created.



(3) Rice Seed Multiplication Schedule

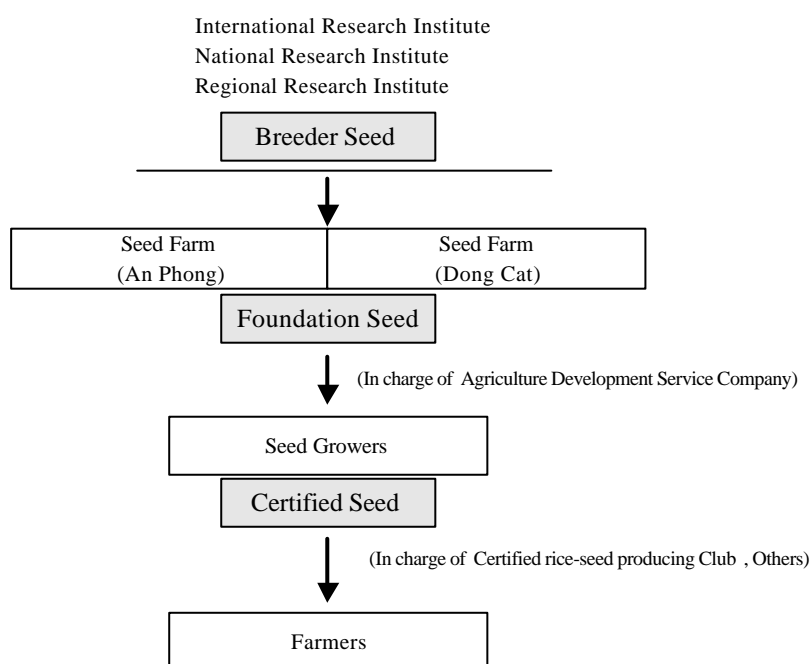
As the final target, seed renewal percentage will be raised to 20%. However, rice seed multiplication is carried out gradually in order to meet the seed demand. In practice the seed renewal percentage will be gradually raised from 1% to 10% by 2010. By way of improving existing seed farms, the foundation seeds are planned to be increased to 480ton from 58ton and the certified seeds to 8,500ton from 1,000ton. The implementation schedule is shown as follows

**THE STUDY ON INTEGRATED AGRICULTURAL DEVELOPMENT PLAN
IN THE DONG THAP MUOI AREA VIET NAM FINAL REPORT**

Present				Plan									
		1999 Certified Seed					2001	2002	2004	2006	2008	2010	2020
		Total product	Sold to outside	Sold to inside									
Frequency Rate of Seed		3.3%	1.9%	1.4%	Estimated Cultivated Area	ha	392,000	396,000	402,000	409,000	416,000	423,000	423,000
Cultivated Area	ha	388,710			Seed Requirement for Cultivated Area (0.2t/ha)	ton	78,400	79,200	80,400	81,800	83,200	84,600	84,600
Seed	ton	77,742			Expected Frequency Rate of Seed		3%	3.5%	4.5%	6%	8%	10%	20%
Certified Seeds	ton	2,600	1,500	1,100	Requirement of Certified Seeds	ton	2,509	2,772	3,618	4,908	6,656	8,460	16,920
Seed Cultivated Area	ha	520	300	220	Seed Cultivating land (0.2t/ha) Duble cropping x Finishing rate 80%	ha	314	347	452	614	832	1,058	2,115
Foundation Seeds	ton	140			Requirement of Foundation Seeds	ton	125	139	181	245	333	423	846
Seed Cultivated Area	ha	30			Seed Cultivating land (0.04t/ha) Duble cropping x Finishing rate 80%	ha	16	17	23	31	42	53	106
Breeder Seed	ton	2.40			Requirement of Breeder Seed	ton	1.25	1.39	1.81	2.45	3.33	4.23	8.46

(4) Proposed Seed Production and Distribution System

In this plan, the following production and distribution system is proposed..



(5) Management of the Project

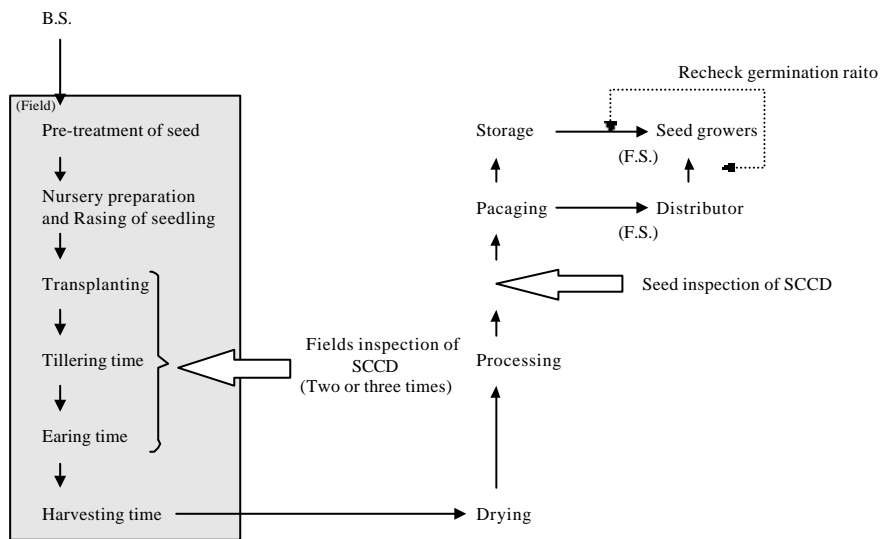
(5)-1 Foundation Seeds

Foundation seeds are produced at seed farms (An Phong Farm & Dong Cat Farm) under the AGRISED0.

(a) Production system

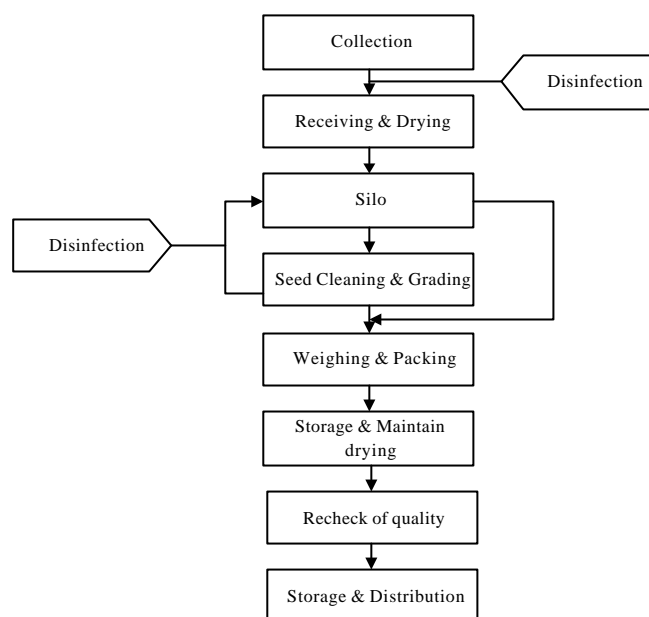
The knowledge and experience are required for the production of foundation seeds. In general, F.S. require strain be of good quality, uniform characteristics and fixity. Since genetic purity is not 100 percent, it must be devote to preserving the genetic traits of breeder seeds while producing adequate quantities of foundation seeds.

Process of F.S production



(b) Processing and Storage

The entire picture of the processing system is shown in the following figure. The silo plays important role in the system.



The plan of the operation is scheduled in accordance with the plan of cultivation and the plan of collection. To avoid the mixture of varieties, receiving operation should be made basically on "one day/one variety" system.

However, daily cleaning of processing facilities will result in big time loss. Therefore, it is recommended that "a week/a variety" method be applied.

(c) Distribution

Seed Growers Groups obtain seeds directly from seed farms or from AGRISEDO shops. This distribution is economical and suitable to local conditions.

At present, the stipulated amounts of seed per ha of land area are 200 kilograms for ordinary wet fields.

AGRISEDO provides C.S. by 50kg pack to prevent waste at farmers level. In addition, upon receipt of orders, AGRISEDO's or agent deliver seeds directly to the farmer-groups who distribute C.S. to individual farmers.

(5)-2 Certified Seeds

(a) Production system

Seed-growers groups produce certified seeds. In this project, seed –growers groups are organized in

the seed-cultivation districts designated around the seed farms. Within the seed-growers groups (from twenty to thirty to a group key farmers will be nominated who are enthusiastic about agriculture, technically skilled, and able to absorb new technical ideas and therefore will be able to play leading role in disseminating seed-raising technology.

The harvesting shall be done by hand cutting, and threshing and winnowing shall be conducted in the traditional method.

In order to avoid any kind of damage, which will affect germination rate, as well as for the rational collection of the paddy and further processing, adequate care shall be taken for the harvesting. In general the moisture content of paddy should be kept less than 20%.

(b) Processing and Storage

Seed Processing Centers will be equipped with the drying and cleaning machine and with warehouse. At the Seed Processing Centers, seed inspectors dispatched from SCCD, will take sample for inspection. These sample are sent to SCCD for testing in laboratory.

(c) Distribution

AGRISEDO sells certified seed directly to the farmers through its shops.

(5)-3 Training

(a) Content of Seminar on Seed Production

Seed production technology, which is different from ordinary rice cultivation, will be emphasized in the training, These include seed production methods, maintenance of quality and managing techniques for the seminars and training.

1) The following subjects are dealt for managing staff of seed production.

- Meaning of extension of good variety:
- Management and operation of the seed production project.
- Management and system of seed growing
- Seed control and marketing

- 2) The subjects and methods of training for staff of Seed Farms are as follows.
 - The technique of seed growing and production.
 - The way of sowing in nurseries.
 - Introduction of seed variety, evaluation of productivity and study of testing methods.
 - Management of seed production.
 - Crop protection.
 - Maintenance of soil fertility.
 - Method of extension for farmers.

- 3) The contents of the seminars and training for seed growers and their methods are as follows.
 - Special characteristics of good varieties
 - Preparation of fields for seed production.
 - Seed cleaning for seed production.
 - The way of fertilizing.
 - The way of management for seed production.
 - Harvest, preservation and control of crops in good condition

(5)-4 Seed Control and Certification Division (SCCD)

SCCD will be established as on responsible to conduct inspection and certification in the process of production and distribution of seeds for quality control.

(a) Organization

The activity of SCCD is authorized by DARD. SCCD and its laboratory locate in AEC to guide and supervise the techniques concerned.

(b) Inspection and supervision

SCCD deals with only rice seeds, with following activities

- Assessment of seeds
- Seed tests at laboratories
- Issue of seed quality certificate

- Supervision of distributed seeds

The test items of the laboratories are variety germination rate, germinating conditions, purity, sound kernel ratio and weight (weight of 1,000 kernel). The tests are conducted in accordance with the regulation of MARD. Sample tests on the above items are required before insurances of certificates.

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Table N1.1 Rice seed multiplication schedule

Present			Plan							
		1999 Certified product	Actual product		1 Target After 10 years	2 Target After 20 years				
Frequency Rate of Seed		2.1%	3.2%	Expected Frequency Rate of Seed	5%	10%	15%	20%	25%	30%
Cultivated Area	ha	388,710		Estimated Cultivated Area	423,000	423,000	423,000	423,000	423,000	423,000
Seed	ton	77,742		Seed Requirement for Cultivated Area (0.2t/ha)	84,600	84,600	84,600	84,600	84,600	84,600
Certified Seeds	ton	1,600	(2,500)	Requirement of Certified Seeds	4,230	8,460	12,690	16,920	21,150	25,380
Seed Cultivated Area	ha	300	(500)	Seed Cultivating land (0.2t/ha) Double cropping x Finishing rate 80%	529	1,058	1,586	2,115	2,644	3,173
Foundation Seeds	ton	105		Requirement of Foundation Seeds	212	423	635	846	1,058	1,269
Seed Cultivated Area	ha	30		Seed Cultivating Land (0.04t/ha) Double cropping x Finishing rate 80%	26	53	79	106	132	159
Breeder Seed	ton	2.40		Requirement of Breeder Seed	2.12	4	6.35	8.46	10.58	12.69

Table N1.2 Price of F.S. & C.S.

		per ha			per ha		
		An Phone	Dong Cat	Average	An Phone	Dong Cat	Average
Income							
Yield	kg	4,160	3,000	3,580	5,200	4,500	4,850
Selling price	VND	3,200	3,333	3,267	2,600	2,200	2,400
Total income	1,000VND	13,312	10,000	11,656	13,520	9,900	11,710
Cost							
Seeds (Seedling)	VND	350	300	325	600	350	475
Fertilizer		756	715	736	756	858	807
Agro-Chemical		350	850	600	350	1,100	725
Pumping cost		680	450	565	680	450	565
Land preparing cost		350	400	375	350	400	375
Small tools cost		150	130	140	150	130	140
Harvesting cost		1,394	713	1,054	1,394	713	1,054
Interests and other expense		0	200	100	0	200	100
Labor cost		4,320	680	2,500	1,200	510	855
Managing cost		4,962	5,562	5,262	8,040	5,189	6,615
Total		13,312	10,000	11,656	13,520	9,900	11,710

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Table N1.3 Equipment cost of seed farm

	An Phong Farm					Dond Cat Farm				
	Capacity	Number	L/C VND	F/C US\$	Total ¥	Capacity	Number	L/C VND	F/C US\$	Total ¥
Tractor & Implements	25HP	3		125,992	13,689,000	25HP	4		167,989	18,252,000
Rice Transplanter	4rows	2		15,352	1,668,000	4rows	2		15,352	1,668,000
Nursery Unit		1		68,574	7,450,600		1		68,574	7,450,600
Harvesting Machine				92,996	10,104,000				105,320	11,443,000
Combine	5hr/ha	1				5hr/ha	1			
Peaper	3-4hr/ha	2				3-4hr/ha	3			
Thresher	1ton/hr	3				1ton/hr	4			
Power Sprayer	20L	3				20L	3			
Bed Dryer	8ton/day	1	49,500,000		382,476	8ton/day	1	49,500,000		382,476
Vacume Cleaner	3ton/hr	1	75,000,000		579,509	3ton/hr	1	75,000,000		579,509
Belt Conveyor		4	40,000,000		309,071		4	40,000,000		309,071
Workshop equipment		1		43,424	4,718,000		1		43,424	4,718,000
Boat		1	40,000,000		309,071		1	40,000,000		309,071
Motor cvcle	150cc	2	50,000,000		386,339	150cc	2	50,000,000		386,339
Total			254,500,000	346,338	39,596,066			254,500,000	400,659	45,498,066

Table N1.4 Equipment cost of seed processing center

	An Phong Farm Seed Processing Center					Dond Cat Farm Seed Processing Center					Noug Nug Seed Processing Cent			
	Capacity	Number	L/C VND	F/C US\$	Total ¥	Capacity	Number	L/C VND	F/C US\$	Total ¥	Capacity	Number	L/C VND	F/C US\$
Bed Dryer	8ton/day	1	49,500,000		382,476	8ton/day	1	49,500,000		382,476	8ton/day	1	49,500,000	
Vacume Cleaner											3ton/hr	1	75,000,000	
Belt Conveyor														
Total			49,500,000	0	382,476			49,500,000	0	382,476			124,500,000	0

Table N1.5 Equipment cost of seed control and certification office

	Number	L/C VND	F/C US\$	Total ¥
Office utenset	1set	8,000,000	48,440	5,324,820
Verifying tools	1set		2,117	230,012
Sampling and distinguishing device	1set		27,474	2,985,050
Moisture content determination device			25,130	2,730,375
Device for analysis of purity	1set	7,000,000	17,100	1,912,002
Germination evaluation device	1set	20,000,000	115,536	12,707,522
Keeping sample room 18 , 12m ²	1set	20,000,000		154,536
Total		55,000,000	235,797	26,044,317

Table N1.6 Equipment cost of training center

	Number	Capacity	L/C VND	F/C US\$	Total ¥
Training Center					
Desk, Chair, Blackboard	220		44,000,000		339,978
Training equipment	1 set			18,408	2,000,000
Office equipment	1 set			30,032	3,263,000
Training facility rice processing					
Rice mill equipment	1 set	(1-2t/hr)		50,000	5,432,500
Equipment and tools for inspection and quality control	3 set			33,000	3,585,450
Flat bed type dryer	1 set	(4t/batch)	28,122,000		217,293

Table N1.7 Inundation damage

DONG THAP PROVINCE

TIEN GIANG PROVINCE

	1994	1995	1996		1995	1996
Damage of Production				Inundated paddy	2.86	7.33
S.A.Paddy	116.47		10.89	Inundated fruit garden	40.67	311.01
A.W.Paddy		13.65	9.07	Inundated upland	0.88	7.19
Tenth-month Paddy			0.50	Inundated pineapple	19.93	12.40
Upland crop	2.13		56.51	Inundated sugarcane	4.36	25.27
Inudated graden	160.58	30.26	1.41	Inudated aquarium	1.5	9.53
Inudated aquarium	14.22	3.27	23.58	Pigs	1.16	25.27
Cattle & poultry die	0.90		6.25	Poultry		2.79
Other			6.54	Transport	50.66	87.76
Inundated houses	58.48	14.00	73.33	Minor industry	1.5	0.67
Slid & Broken Situation	36.50	15.00	5.46	School	0.65	4.25
Transportation	28.75	6.98	78.98	Medical station	0.09	0.98
Health Service	3.33	1.54	16.10	Resident house	21.54	69.70
Education	6.12	5.29	8.01			
Irrigation	25.30	5.23	10.50			
Inundated office	0.70	1.00	5.10			
Inundated warehouse	1.10	1.00	0.60			
Other			9.72			
Total	454.58	97.21	312.81		124.26	494.45