

2.6 Target Group

1. Officers of DLD and CPD.
2. Provincial officers and dairy cooperative staff.
3. Dairy farmers.

2.7 Duration of the Project

Four years of 1992-1995.

2.8 Project Sites

1. The Centre at Pathum Thani.
2. The model demonstration dairy farm at Chaibadan.

2.9 Recommended Sources of Information and Data Related, to the Project, necessary for the Project Verification

Agriculture Economic Department. 1988. Annual Report for livestock.

Leitch, Helen. 1990. The current dairy cattle improvement programmes in Thailand.

Vinter, 1974. Crossbreeding Programs for Thailand. Thai Danish Project. M.Sc. Thesis University of Copenhagen, Denmark.

3. Details of the Implementing/ Operating Agencies
Institutional Framework (Including coordination with
other agencies concerned

3.1 Agencies concern.

3.1.1 Implementing agencies.

- Department of Livestock Development.

1. Secretary Section.
2. Personel Division.
3. Finance Division.
4. Animal Nutrition Quality Control Division.
5. Animal Disease Control Division.
6. Animal Breeding Division.
7. Biological Products Division.
8. Artificial Insemination Division.
9. Planning Division.
10. Veterinary Research Division.
11. Livestock Extention Division.
12. Veterinary Service Division.

- Cooperative Promotion Department.

1. Office of secretary.
2. Personel Division.
3. Finance Division.
4. Training Division.
5. Agricultural Cooperative Division.
6. Engineering Division.
7. Technical Division.
8. Planning Division.
9. Land Settlement Cooperative Division.
10. Non-Agricultural Cooperative Division.
11. Office of the Cooperative Inspectors.

3.1.2 Coordinating agency.

Foriegn Agricultural Relations Division.

3.2 Staff/Personel Participating in the Project Implementation
(i.e. number, qualification, availability etc.)

DLD

<u>Qualification</u>	<u>Number</u>	<u>Available</u>	<u>To be Engaged</u>
1. Qualified veterinarian	16	16	-
2. Animal Husbandry Officer	9	9	-
3. Certificated Veterinarian	8	8	-
4. Scientist	1	1	-
5. Engineer	1	1	-
6. Administrative officer	8	8	-
7. Typist	2	2	1
8. Cleaner	4	4	-
9. Bull attendant	10	10	-
10. Car driver	3	3	2
11. Guard	2	2	2
12. Lab worker	1	1	4

CPD

<u>Qualification</u>	<u>Number</u>	<u>Available</u>	<u>To be Engaged</u>
1. Cooperative promotion officer	10	10	-
2. Agricultural officer	6	6	-
3. Extention officer	5	5	-
4. Cooperative technician	3	3	-
5. Engineer	2	2	-
6. Administrative officer	2	2	-
7. Typist	2	1	2
8. Bilingual secretary	2	-	2
9. driver	3	3	-

4. Assistance Requested from Japan

4.1 Expert

Field of operation/Activity	Total		1992		1993		1994		1995	
	No	m/m	No	m/m	No	m/m	No	m/m	No	m/m
1.AI (ET).	1	48	1	12	1	12	1	12	1	12
2.Animal breeding.	1	48	1	12	1	12	1	12	1	12
3.Animal Reproduction.	1	48	1	12	1	12	1	12	1	12
4.Animal nutrition and management.	1	48	1	12	1	12	1	12	1	12
5.Dairy Farm Management.	1	48	1	12	1	12	1	12	1	12
6.Forage and Pasture management.	1	48	1	12	1	12	1	12	1	12
7.Coordinator.	1	48	1	12	1	12	1	12	1	12
8.Dairy* Cooperative management.	1	24	1	6	1	6	1	6	1	6
9.Milk handling* and quality control at farm level.	1	12	1	3	1	3	1	3	1	3
10. Agricultural* Machinery.	1	12	1	3	1	3	1	3	1	3

Field of operation/Activity	Total		1992		1993		1994		1995	
	No	m/m	No	m/m	No	m/m	No	m/m	No	m/m
11. Milk* processing and marketing	1	12	1	3	1	3	1	3	1	3
12. Milk* processing equipment operation and maintenance.	1	12	1	3	1		1	3	1	3

Remark: * short term expert.

4.1.2 Job Description of Each Expert Requested.

1. AI (ET) work.

Post Title :Expert in artificial insemination and Embryo Trasfer technology.
Duration :4 years.
Date required :October 1,1992.
Duty station :The Centre.
Duties :Supervising AI, applied research and also in ET, advance technology in sexing embryo and sperm, cloning embryo and in vitro fertilization.
Language :English.

2. Animal Breeding.

Post Title :Expert in Animal Breeding.
Duration :4 years.
Date required :October 1,1992.

Duty station :The Centre.
Duties :Supervising Animal Breeding, Genetic evaluation including progeny testing system.
Language :English.

3. Animal Reproduction.

Post Title :Expert in Animal Reproduction.
Duration :4 years.
Date required :October 1, 1992.
Duty station :The Centre.
Duties :Supervising Animal Reproduction and advising in enzyme immunoassay, mineral analysis technology, venereal disease diagnosis and cytogenetic technology.
Qualification :10-year experienced veterinarian in fertility controlling.
Language :English.

4. Animal Nutrition and Husbandry.

Post Title :Expert in Animal Nutrition and Husbandry.
Duration :4 years.
Date required :October 1, 1992.
Duty station :The Centre.
Duties :Supervising in animal nutrition and husbandry especially for improvement productivity in dry season.
Language :English.

5. Dairy Farm Management.

Post Title. :Expert in dairy farm management.
Duration :4 years.
Date required :October 1, 1992.
Duty station :The Centre/ the model demonstration farm.

Duties :Supervising dairy farm management in cluding
farm economic.
Language :English.

6. Forage and Pasture Management.

Post Title :Expert in tropical forage and pasture
management.
Duration :4 years.
Date required :October 1, 1992.
Duty station :The Centre/ the model demonstration farm.
Duties :Supervising in tropical forage and
pasture management and using agro-industrial
by-products as animal feed.
Language :English.

7. Coordinator.

Post Title :Expert in project management.
Duration :4 years.
Date required :October 1, 1992.
Duty station :The Centre.
Duties :Coordinating the Project.
Language :English.

8. Dairy cooperative management.

Post Title :Expert in dairy cooperative management.
Duration :6 months per year.
Date required :
Duty station :The Center.
Duties :Supervising in dairy cooperative management.
Language :English.

9. Milk handling and quality control at farm level.

Post Title :Expert in milk quality control.
Duration :3 months per year.
Date required :

Duty station :The Center/the model demonstration farm.
Duties :Supervising in milk handling and milk
quality control at farm level and milk
hormone analysis.
Language :English.

10. Agricultural Machinery Maintenance.

Post Title :Expert in agricultural machinery maintenance.
Duration :3 months per year.
Date required :
Duty station :The Center/the model demonstration farm.
Duties :Supervising Thai staff in agricultural
machinary operation and maintenance.
Language :English.

11. Milk Processing and Marketing

Post Title :Expert in milk processing and marketing.
Duration :3 months per year.
Date required :
Duty station :The Center/the model demonstration farm.
Duties :Supervising and advising in management
techniques of milk processing and marketing.
Language :English.

12. Milk processing equipment operation and maintenance

Post Title :Expert in milk processing equipment
operation.
Duration :3 months per year.
Date required :
Duty station :The model demonstration farm.
Duties :Supervising in operation and
maintenance milk processing equipments.
Language :English.

4.2 Fellowships.

In order to carry out the project successfully, Thai counterpart personnel need to be trained in Japan during the project period 1992-1995. The number of trainees per year is 8 persons, and its' details are as follows:-

Field of Study/Training	Total	1992	1993	1994	1995
	No m/m	No m/m	No m/m	No m/m	No m/m
1.Semen production and quality control.	3 9	1 3	1 3	1 3	
2.Andrology.	2 12	1 6	1 6		
3,Biotechnology. (sex determination in bull spermatozoa)	2 12		1 6	1 6	
4.Electron Microscope.	1 6				1 6
5.IVF/IVM	2 12			2 2(6)	
6.Embryo Manipulation. (gene transfer, nuclear transplant, sex determination)	2 12			1 6	1 6
7.Animal Breeding. (Sire evaluation, Animal Model, BLUP, gene mapping, blood typing.)	3 9		1 3	1 3	1 3

Field of Study/Training	Total No m/m	1992 No m/m	1993 No m/m	1994 No m/m	1995 No m/m
8. Animal Reproduction.	2 12				2 2(6)
9. Dairy Farm Management.	3 9	1 3	1 3	1 3	
10. Milk Marketing	3 9	1 3	1 3	1 3	
11. Milk Quality control.	3 9	1 3	1 3	1 3	
12. Dairy Cooperative Management and Extention.	3 9	1 3	1 3	1 3	
13. Operation and maintenance of ^{milk} processing equipment.	2 6		1 3	1 3	
14. AI and Cooperative. (observation tour)	8 1.2	2 2(2 wks)	2 2(wks)	2 2(2wks)	2 2(2wks)
Total	39	8	11	13	7

4.3 Equipment

The following facilities and equipment are necessary for the implementation of the project. (All are in Baht)

Description of Equipment Items	Amount Requested	Unit Price for each Item	Total	1992	1993	1994	1995
<u>AI(ET)</u> <u>Activity</u>							
1) Holstein Priesian deep frozen semen.	20,000	100	2,000,000	500,000	500,000	500,000	500,000
2) Semen quality analyser.	1	1,000,000	1,000,000	1,000,000			
3) Cooling centrifuge.	1	500,000	500,000			500,000	
4) Laboratory refrigerator.	1	300,000	300,000		300,000		
5) Water bath.	4	25,000	100,000	100,000			
6) Chromatography refrigerator.	1	400,000	400,000		400,000		

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
7)Electrical balance.	2	50,000	100,000	100,000			
8)Incubater.	1	100,000	100,000	100,000			
9)Hot air oven.	1	100,000	100,000	100,000			
10)Centrifuge.	2	50,000	100,000	100,000			
11)Autoclave.	1	100,000	100,000	100,000			
12)Specto- photometer.	1	100,000	100,000			100,000	
13)Microscope fully equiped with Phase contrast, Fluorescense.	1	500,000	500,000		500,000		
14)Sterco- microscope complete set with camera & screen.	2	200,000	400,000	400,000			

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1993	1994	1995
15) Electron microscope.	1	5,000,000	5,000,000			5,000,000
16) Microscope safty cabinet.	1	200,000	200,000		200,000	
17) Deep freezer.	1	100,000	100,000			100,000
18) Fuae Hood.	1	200,000	200,000	200,000		
19) Ultra- sound and scanner equipaent.	1	1,000,000	1,000,000		1,000,000	
20) Laparo- scope.	2	50,000	100,000			100,000
21) Micro- surgical equipaent.	1	50,000	50,000			50,000
22) Large aniaal surgical equipaent.	1	100,000	100,000			100,000

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
23)AI equip- ments.	-	-	2,000,000	500,000	500,000	500,000	500,000
24)ET equip- ments.	-	-	1,000,000	250,000	250,000	250,000	250,000
25)Chemical media & hormone.	-	-	1,000,000	250,000	250,000	250,000	250,000
26)Laboratory glassware.	-	-	400,000	100,000	100,000	100,000	100,000
27)Biotech- nological unit.							
-media & equipments for manipulatory, embryo,sexing, cloning etc., nuclear transplantation and gene transfer.	-	-	4,000,000	2,000,000	1,000,000	500,000	500,000

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
27)Biotechno- logical unit. (contd.) -equipments & media for IVF/IVH.	-	-	4,000,000	2,000,000	1,000,000	500,000	500,000
28)Air condition.	4	50,000	200,000	200,000			
29)Electric generator.	1	1,000,000	1,000,000	1,000,000			
30)Stabili- zer.	10	30,000	300,000	300,000			
31)Equip- ment for developing enlarging & printing film.	1	1,000,000	1,000,000			1,000,000	
32)Van for AI & BT field service.	1	690,000	690,000			690,000	

Description of Equipment Items	Amount Requested for each Items	Unit	Total	1992	1993	1994	1995
<u>Animal Breeding</u>							
1. Mainframe computer.	1	5,000,000	5,000,000			5,000,000	
2. Printer.	2	150,000	150,000			150,000	
3. Terminals.	5	20,000	100,000			100,000	
4. Online equipment.	1	50,000	50,000			50,000	
5. Data storage cabinet.	1	40,000	40,000			40,000	
6. Milk recording unit. (Milk analyser equipments for milk recording)			800,000	500,000	100,000	100,000	100,000

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
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Animal

Reproduction

1.Mobile clinic. (Ambulant car complete with air condition & equipment.)	1	2,500,000	2,500,000		2,500,000		
2.Equipments for collecting samples, culturing, staining, identifying various types of microorganism and AB-titration technique.			400,000	100,000	100,000	100,000	100,000
3.Equipment for blood typing lab & media.			300,000		200,000	50,000	50,000
4.Atcaic Absorption.	1	1,250,000	1,250,000		1,250,000		

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
5. Fluoro- Spectro photo meter.	1	750,000	750,000		750,000		
6. Reagents, Media medicine.			380,000		230,000	50,000	100,000
7. Hot Plate.	2		10,000		10,000		
<u>Training Section</u>							
1. Audio- visual aids.	1 set		200,000	200,000			
2. Textbook film video & Journal			130,000	100,000	10,000	10,000	10,000
3. Photo-copy with microprocessor.	1		50,000		50,000		
Total			40,250,000	10,000,000	10,200,000	10,050,000	10,000,000

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
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Dairy Farm
Management

1. Dairy cows.	10	50,000	500,000		500,000		
2. Barns.	1	500,000	500,000		500,000		
3. Milking Utencil.	1	50,000	50,000		50,000		
4. Lab. equipment for milk quality checking at fara level.	1	60,000	60,000		60,000		
5. Farn Storage Tank with Assesosies.	1	250,000	250,000		250,000		
6. Milking machine	2	50,000	100,000		100,000		

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
7. Pick up Truck.	1	320,000	320,000		320,000		
8. Animal Concentrate. mixing machine	1	400,000	400,000		400,000		
9. Stencil duplicating machine.	2	28,000	56,000				56,000
10. Stencil making machine.	1	60,000	60,000				60,000
11. Electric typewriter (Thai/Eng)	3	30,000	90,000				90,000
12. Electric calculator.	5	6,000	30,000				30,000
13. Photo copier.	2	25,000	50,000				50,000
14. Micro computer	1	200,000	200,000				200,000

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
15. Fascinilies machine with phone set.	1	55,000	55,000				55,000
16. refri- gerator.	3	20,000	60,000				60,000
17. Air conditioner.	5	40,000	200,000				200,000
18. Vacca Cleaner.	2	10,000	20,000				20,000
19. Air Condition Micro- bus (25 persons)	1	250,000	250,000				250,000
20. Motor cycple. (99 cc.)	6	35,000	210,000		35,000		175,000
21. Video Camera/ Video recorder with T.V. set 24"	2	100,000	200,000				200,000

Description of Equipment Items	Amount Requested for each Items	Unit	Total	1992	1993	1994	1995
22.Slide Projector. (sound on slide)	3	10,000	30,000				30,000
23.Generator 50 KVA	1	380,000	380,000				380,000
24.Overhead Projector with Screen 70"x70"	3	13,000	39,000				39,000
25.Amplifier with cassette deck.	1	60,000	60,000				60,000
26.Loud speaker.	1	20,000	20,000				20,000
27.Wireless Microphone, with tuner set.	3	21,000	63,000				63,000
28.Micro- phone.	4	2,000	8,000				8,000

Description of Equipment Items	Amount Requested for each Items	Unit	Total	1992	1993	1994	1995
29. Cassette recorder.	3	3,000	9,000				9,000
30. Camera with zoomed lens automatic.	3	10,000	30,000				30,000
31. Magnetic white board 4'x 2.5'	10	1,500	15,000				15,000
32. Electric fence (solar cell) km.	1 set	500,000	500,000		500,000		
33. Fork lift.	1	250,000	250,000		250,000		
34. Balance.	1	10,000	10,000		10,000		
35. Water Pump (Electric)	1	25,000	25,000		25,000		

Description of Equipment Items	Amount Requested for each Items	Unit Price	Total	1992	1993	1994	1995
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Forage and
Pasture Manage-
ment.

1. Tractor 85 H.P.	1	530,000	530,000	530,000			
2. Trailer (dump) 2 wheels.	1	100,000	100,000	100,000			
3. Trailer (dump) 4 wheels.	1	60,000	60,000	60,000			
4. Truck 6 wheel. (6ton)	1	750,000	750,000	750,000			
5. Grass Chopper and sprayer.	1	250,000	250,000	250,000			
6. Grass cutter (4 swing plate)	1	180,000	180,000	180,000			

Description of Equipment Items	Amount Requested for each Items	Unit	Total	1992	1993	1994	1995
7. Rotary Grass Cutter.	1	50,000	50,000	50,000			
8. Hay Rake	1	60,000	60,000	60,000			
9. Bailer	1	420,000	420,000	420,000			
10. Seed Drill	1	200,000	200,000	200,000			
11. Ferti- lizer Sprayer.	1	80,000	80,000	80,000			
12. Manure Spreader	1	250,000	250,000	250,000			
13. Mechanical Scale. (1000 Kg)	2	10,000	20,000	20,000			
14. Water Pump 4"	1	50,000	50,000	50,000			

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
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Coordinator.

a Car.

Milk Handling
and Quality
Control at farm
level.

1. Milkoscan for milk analysis.	1	960,000	960,000			960,000	
2. Milko- Tester.	1	550,000	550,000			550,000	
3. Prot-O- Mat.	1	350,000	350,000			350,000	
4. PH meter.	2	5,000	10,000			10,000	
5. Drying Oven	1	50,000	50,000			50,000	
6. Autoclave.	1	100,000	100,000			100,000	
7. Sterilizer (Hot Air)	1	100,000	100,000			100,000	

Description of Equipment Items	Amount Requested for each Items	Unit Price	Total	1992	1993	1994	1995
8. Electrical Balance. (Analytical)	2	50,000	100,000			100,000	
9. Incubator and Cooling incubator.	1	100,000	100,000			100,000	
10. Water Bath	2	25,000	50,000			50,000	
11. Lab. refrigerator.	1	10,000	10,000			10,000	
12. Lacto- densimeter.	15	2,000	30,000			30,000	
13. Automatic cryoscope.	1	400,000	400,000			400,000	
14. Cryoscope.	2	40,000	80,000			80,000	
15. Hand refractometer.	2	5,000	10,000			10,000	
21. Lab. Glassware and Utencil.			100,000			100,000	

Description of Equipment Items	Amount Requested Price for each Items	Unit	Total	1992	1993	1994	1995
<u>Agricultural Machinery.</u>							
1. Station Wagon. (4 wheel drive, Diesel)	1	400,000	400,000				400,000
2. Mobile Car for Farm Machinery and Training	1	500,000	500,000				500,000
Total			12,000,000	3,000,000	3,000,000	3,000,000	3,000,000

5. Thai Government Counterpart Contribution to the Project **

Description of Government counterpart contribution	1992		year 1	year 2	year 3	year 4	To be already request available	To be already request available	To be already request available	To be already request available
	Total contribution	already available								
<u>Project</u>	13,441,445	2,976,078	3,118,575	3,274,503	3,438,228	3,610,139	-	-	-	-
<u>Personel</u> (Professional staff and worker)										
<u>Equipment</u>										
-Premises and building	-	-	-	-	-	-	-	-	-	-
-Expandable	- 2,000,000	191,000	-	500,000	-	500,000	-	500,000	-	500,000
-Non-Expandable (DLD)	- 14,001,965	2,742,740	-	3,017,014	-	3,318,715	-	3,650,566	-	4,015,647
(CPO)	- 1,000,000	250,000	-	250,000	-	250,000	-	250,000	-	250,000
<u>Others</u>										
-Electricity & water supply	- 2,400,000	360,000	-	600,000	-	600,000	-	600,000	-	600,000
-Counterpart fund for foriegn experts.	- 400,000	-	-	100,000	-	100,000	-	100,000	-	100,000
Total	13,441,445	18,801,966	6,253,812	3,118,575	4,217,014	3,274,503	4,518,715	3,438,228	4,850,586	3,610,139
										5,215,647

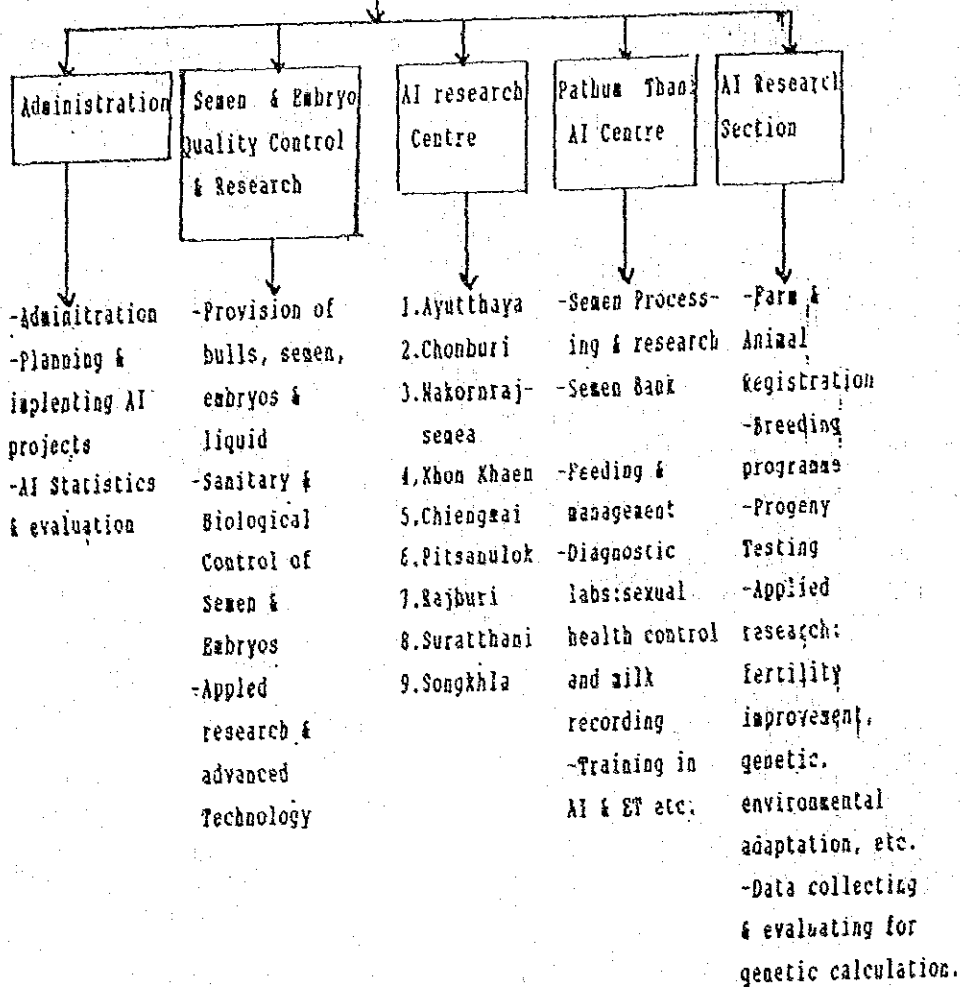
available from RTG regular budget.

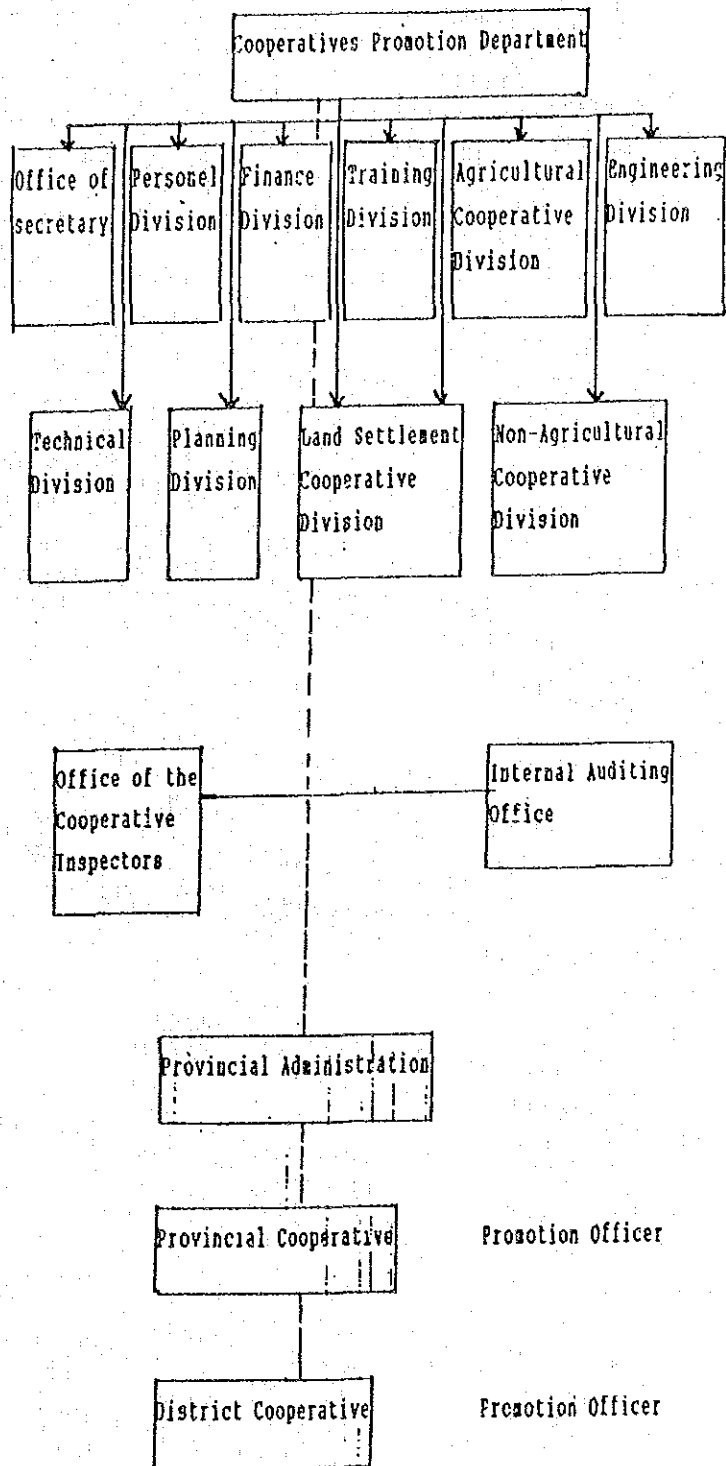
6. Related Projects/Activities

Proposal for the grant aid for the establishment of the National Artificial Insemination Research and Development Institute which have already been submitted to the Government of Japan, will provide the buildings and the necessary equipments at the Center and the model demonstration farm for this project.

Department of Livestock Development

AI Division





別添資料 2

団長レター（写）

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
THAILAND OFFICE

1674/1 NEW PETCHBURI ROAD BANGKOK 10310 THAILAND
TEL.: 251-4462-3, 251-1655, 251-2450 FAX: (02) 255-3725

Bangkok, March 5, 1992

Dr. Tweesackdi SESAWEECH
Director General of the Department of Livestock Development
Ministry of Agriculture and Cooperatives
The Royal Kingdom of Thailand
Bangkok

Dear Sir,

I am pleased to submit herewith the Tentative Framework of Technical Cooperation on the Dairy Farming Development Project in the central region of the Kingdom of Thailand on behalf of Preliminary Survey Team organized by Japan International Cooperation Agency and sent from February 23 to March 7, 1992.

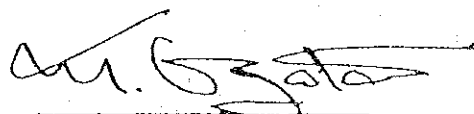
During the stay, the survey team not only visited the project sites, but also held a series of discussions and exchanged view on the Tentative Framework of Technical Cooperation on the Project.

Our team will convey the results of the survey to the Japanese Government authorities concerned as early as possible after return.

This Framework of Technical Cooperation is to be finalized by Japanese Implementation Survey Team which will be sent at early period of 1992/93 fiscal year, starting from April, 1992.

Finally, I, as leader of the Team, would like to express my gratitude for your kind arrangement and cooperation.

Sincerely yours,



Dr. Muneo OGATA
Team leader
The Preliminary Survey Team
Japan International
Cooperation Agency

cc: Dr. Sa-ngiam Mamuenvai, DG, Cooperatives Promotion Dept.
Dr. Yookti Sarikahputi, PS, Office of the Permanent Secretary

TENTATIVE FRAMEWORK OF TECHNICAL COOPERATION
ON
DAIRY FARMING DEVELOPMENT PROJECT
IN THE CENTRAL REGION
OF THE KINGDOM OF THAILAND

1. Objectives of the Project

Objective of the Project is, primarily, to stimulate domestic milk production in order to meet growing demand of national consumption of milk and milk products in Thailand.

The immediate objective of the Project is to contribute to increase dairy cow population and improve the conventional dairy farming technique in the central region.

2. Objectives of the Japanese technical cooperation

The objectives of the Japanese technical cooperation will be 1) further effective utilization of AI semen, 2) development of the conventional dairy farming technique, and 3) diffusion of the developed technique to local dairy farmer through providing technical guidances and advices.

3. Sites of the Project

Sites of the Project will be the followings:

- 1) Pathumtani AI Centre (hereinafter referred to as " the AI Centre ")
- 2) Dairy demonstration farm at Chaibadan (proviisional name, hereinafter referred to as " Demonstration farm")

4. Project activities envisaged

The project activities will be the followings:

1) The A-I Centre

(1) AI technique development

- a) Development of semen production in quantity and quality
- b) Development of AI service
- c) Trial experiment or demonstration on Embryo Transfer technology

(2) Development of appropriate dairy technique

- a) Development of appropriate dairy farming technique
- b) Study on efficient and rational dairy management
- c) Preparation of manual for dairy farming and management

(3) Provision of training of the developed AI technique and the developed dairy technique to the government officers and the technical staff of dairy cooperatives, respectively.

2) Demonstration farm

(1) Demonstration and provision of technical guidance to dairy farmers

(2) Trial application and evaluation on dairy technique to be recomendable to local conditions

(3) Technical development of forage and grassland management

5. Term of the Project

Five (5) years

6. Thai organization in charge of the project

- 1) Department of Livestock Development (DLD), MOAC
- 2) Cooperatives Promotion Department (CPD), MOAC
- 3) Foreign Agricultural Relation Division of Office of Permanent Secretary (OPS), MOAC, will act as a coordinating agency for the project

7. Measures to be taken by the Japanese side

1) Dispatch of experts

(1) Japanese long-term experts

- a. Team leader
- b. Coordinator
- c. Two or three long-term experts in the field of animal reproduction and disorder, AI(ET), animal nutrition/management, forage and grassland management, animal health and hygiene, training and extension

Note:

- a. Short-term experts on the related fields will be dispatched when necessary.
 - b. The team leader and Coordinator can hold as one expert mentioned above subjects.
- 2) Acceptance of Thai counterpart personnels in Japan for training. approximately three to four persons annually
 - 3) Provision of machinery, equipment and other materials, except for buildings and facilities, necessary for the implementation of the Project within the budgetary appropriation in each year

8. Measures to be taken by Thai side

1) Provision of buildings and facilities necessary for the implementation of the Project

(1) The AI Centre

To implement activities related to development of appropriate dairy technique will be the followings;

- a. Cow shed for 30 milking cows
- b. Milking equipment and facilities
- c. Milking cows (30 heads)
- d. Laboratories
- e. Grassland
- f. Hay storage
- g. Training facilities (dormitory included)
- h. Barn of Agricultural machinery

(2) Demonstration farm

To implement activities at Demonstration farm will be the followings;

- a. Cow shed for 10 milking cows
- b. Milking equipment and facilities
- c. Milking cows (10 heads)
- d. Grassland
- e. Hay storage
- f. Barn of Agricultural machinery
- g. Administration office

2) Assignment of the necessary number of full-time counterpart personnel to meet the fields of Japanese long-term experts. Furthermore, one in the field of farm management at the AI Centre, and each one in the forage and grassland management and in farm management at Demonstration farm

3) Budgetary allocation necessary for the implementation of the Project.

4) Coordination and harmonization of related agencies and institutions

9. Establishment of the Joint Committee

1) Members

(1) Chairman: Director-General of DLD

(2) Thai side;

- a. Deputy Director-General of DLD
- b. Deputy Director-General of CPD
- c. Director of Artificial Insemination Division, DLD
- d. Director of Artificial Insemination Center, Pathum Thai, DLD
- e. Director of Agricultural Cooperatives Division, CPD
- f. Director of the Demonstration farm, Chaibadan, CPD
- g. Director of Foreign Agricultural Relation Division of OPS
- h. Representative of Development of Technical and Economic Cooperation (DTEC)
- i. Representatives of Budget Bureau, Office of Prime Minister

(3) Japanese side;

- a. Team leader
- b. Coordinator
- c. Experts assigned to the Project
- d. Representative of JICA Thailand Office

Note: Persons who are nominated by the Chairman can take part in the Joint meeting.

2) Function:

- (1) To work out the annual working plan of the Project
- (2) To deal with budget of the Project

- (3) To review the Project implementation
- (4) To deal with other specific matters concerning the Project
- 3) Session of the Joint Committee

The Joint Committee meeting is basically held annually. Special meeting can be held if necessary.

- 4) Establishment of the Secretariat

The Secretariat of the Joint Committee is established at DLD.

Remarks:

- 1) To achieve the purpose of the Project, appropriate dairy promotion policies shall be incorporated with the execution of the Project.
- 2) Due consideration shall also be given to related commercial sectors.

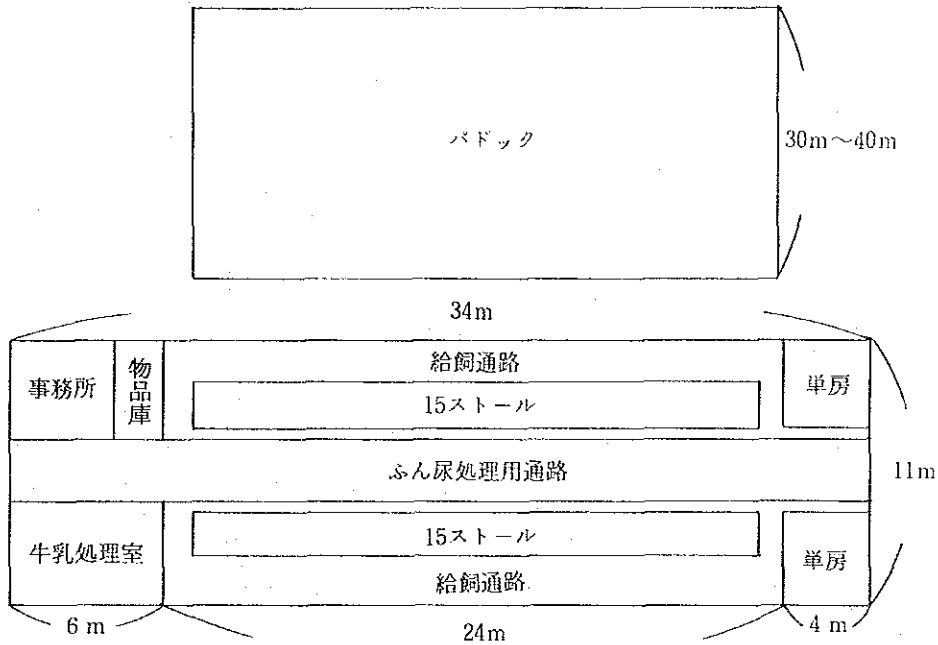
Information of dairy cooperatives
(Financial year 1988-1990)

	1988	1989	1990
1. Number of dairy cooperative societies	24	33	40
2. Number of cooperative members	7,866	8,961	11,186
3. Purchasing of feed-stuff and farm inputs (mil. Baht)	142	171	230
4. Collecting of raw milk (mil. Kgs/mil. Baht)	41/279	60/406	79/554
5. Processing and market of milk.			
-UHT milk (mil. Baht)	258	303	353
-Pasteurized milk (mil. Baht)	192	294	382
-Marketing of raw milk (mil. Baht)	115	195	303
6. Facilities belonging to cooperatives for providing services to members.			
-feed mill (unit)	8	8	9
-milk collecting center (unit)	14	21	23
-tanker trucks (unit)	1	1	5
-milk processing plant (unit)	8	10	10
-AI services. (society)	3	5	7

別添資料 3

酪農適正技術開発センター（仮称）及び
チャイバダン展示農場における建物施設見取り図面（素案）

(1) 酪農適正技術開発センター（仮称・30頭規模）主要施設平面図（素案）

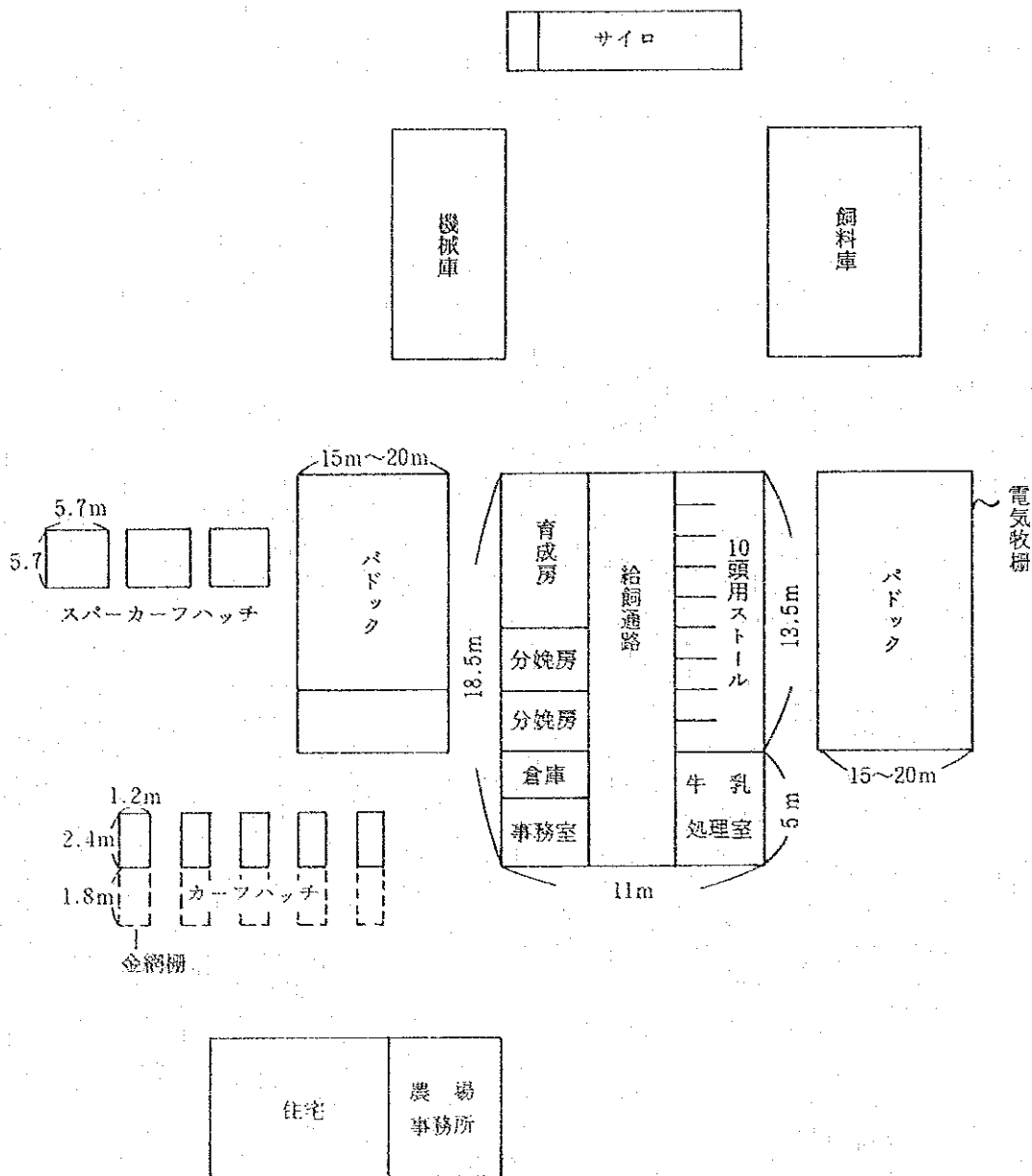


- (注) 1. 排水をよくするため、中央部等にマウンドをもうけるとよい。
 2. パドック柵に人通しをもうけると出入りに便利である。
 3. パドックは通常畜舎面積の3～4倍コンクリート化の場合は1頭あたり10㎡とする。

- (注) 1. ストールは 幅 1.35m
 長さ1.85mとした。
 2. 牛舎は、開放型とし、屋根はオープンリッジとすること。
 3. できれば屋根裏に断熱材を入れる。

(注) 全体敷地用地は、0.5ヘクタールである。

(2) チャイバダン展示農場主要施設平面図（案）



(注) 必要な敷地面積は建物の配置によるが、1ha程度

以上、(1) 及び(2) の平面図はMWPS、第4版酪農施設・設備ハンドブック（北海道農業施設研究会編集・発行）を参考とした。

別添資料 4 要請内容骨子

別添資料 5 タイ国における官民による酪農家、関係機関に
対する技術サービス、営農資金の流れ

別添資料 6 Dairy Development Project

別添資料4 要請内容骨子

- (1) プロジェクトの名称
Dairy Farming Development Project (酪農業発展計画)
- (2) タイ側関係機関
農業協同組合省畜産振興局(DLD) 及び農協振興局(CPD)
- (3) 協力期間
1992年から4年間
- (4) プロジェクトの目標
 - ①地域の牛乳需要を満たすための牛乳生産の増加
 - ②農家の所得と生活水準の向上のための酪農協の育成
- (5) プロジェクトの目的
 - ①酪農及び酪農協経営に関する適性技術の確立
 - ②AI技術者の増加及び専業酪農家の奨励・支援のための政府職員及び酪農家に対する研修
- (6) 予想されるプロジェクトの成果
 - ①タイC/P及び研修計画を通じて、乳牛管理、家畜改良、家畜衛生等の酪農技術が移転される。
 - ②DLD、CPD及び県職員(1,200人)、中核酪農家(5,100人)がセンターと展示圃場で訓練を受ける。
- (7) プロジェクトの活動
 - ①対象とする活動分野
AIとET/家畜育種/家畜繁殖/家畜栄養と管理/酪農経営/飼料作物の管理
農協経営/農家レベルの生乳の取扱いと品質管理/農業機械/生乳加工機材の維持
 - ②農家に対する適正・近代技術の開発を行うため、研修施設を有する中央研究所をバトムタニに設立する。
 - ③チャイバダン酪農協に酪農及び酪農協経営改善に関する展示圃場を設立する。
- (8) ターゲットグループ
 - ①DLD及びCPDの職員
 - ②県の職員と農協職員
 - ③酪農家
- (9) プロジェクトのサイト
 - ①バトムタニ人工授精センター
 - ②チャイバダン展示農場
- (10) プロジェクト(タイ側)スタッフ
 - ①DLDから獣医師16名他
 - ②CPDから農協担当者10名他

(11) 要請専門家数（協力4年間の通算人月）

①長期（各分野48人月）

AI(ET)／家畜育種／家畜繁殖／家畜栄養と管理／酪農経営／飼料作物の管理
／業務調整

②短期

酪農協経営（24人月）／農家レベルの生乳の取扱いと品質管理（12人月）／
農業機械（12人月）／生乳加工・販売（12人月）／生乳加工機材維持管理（12人
月）

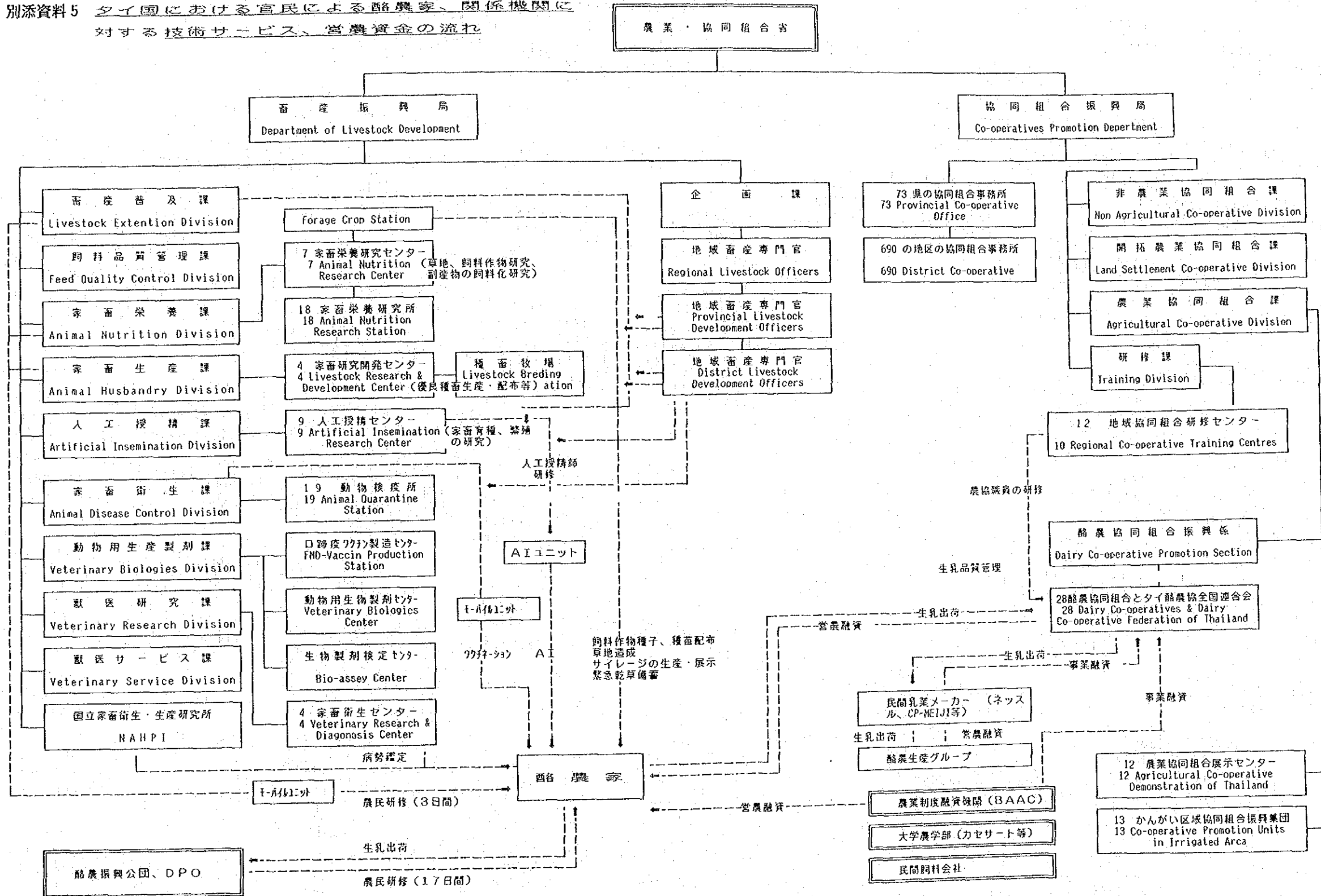
(12) 要請研修員数（協力4年間の通算）

・精液生産・品質管理 他 13分野 計39名

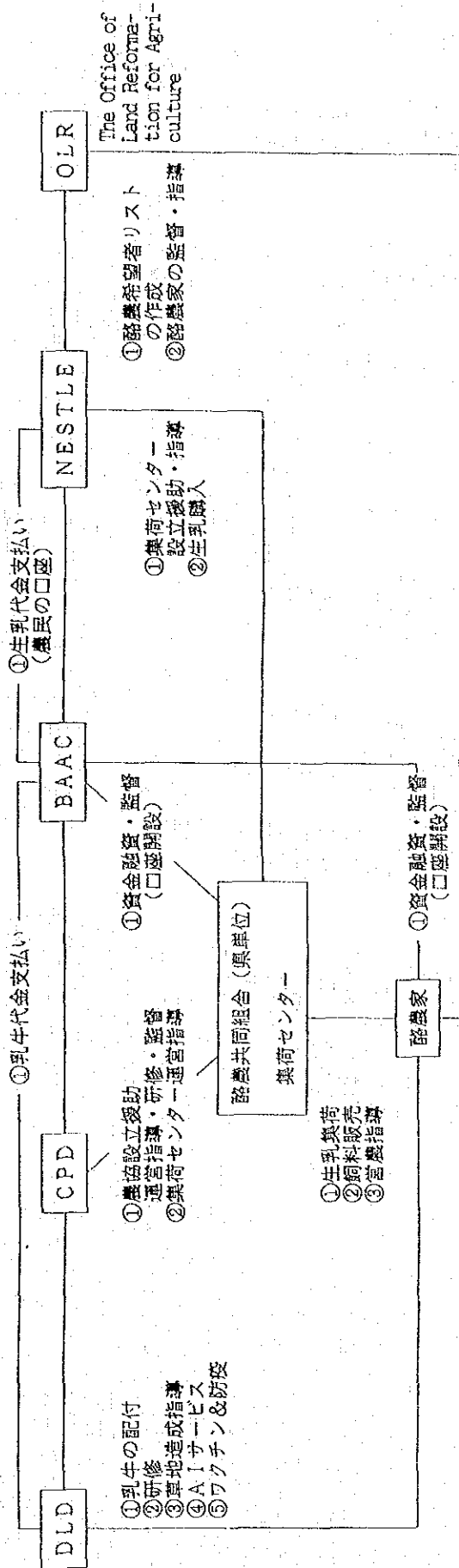
(13) 要請機材

・AI(ET)部門他 計120点 52,077千パーツ（邦貨約2億9千万円）

別添資料5 タイ国における官民による酪農家、関係機関に対する技術サービス、営農資金の流れ



別添資料6 Dairy Development Project



① プロジェクト促進
② 資金運用規則の設定
③ 他機関との調整

プロジェクト運営委員会

① 進捗状況報告
② 技術者グループの要請

SUB-COMMITTEE
各県

技術者グループ
家畜飼育、AI
草地、防疫、農協運営
マネージャー

: DLD 総局長、CPD 代表、Nestle 代表、OLR 代表
BAA C Credit 部長、Project 部長

: DLD 県事務所、BAA C 支店長、長期融資課長、CPD 県事務所
農民代表

JICA