付　属　資　料

1．合同委員会ミニッツ（評価レポートを添付）

2．分野別進捗状況および達成度

3．プロジェクトの活動状況

付属資料1．合同委員会ミニッツ

MINUTES OF DISCUSSIONS BETWEEN THE JAPANESE ADVISORY TEAM AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF KINGDOM OF THAILAND ON THE NATIONAL INSTITUTE OF ANIMAL HEALTH PROJECT PHASE II

The Japanese Technical Cooperation for the National Institute of Animal Health Project Phase II (hereinafter referred to as "the Project") by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), started on December 9, 1993, for a duration of five years, in accordance with the provision of the Record of Discussions (hereinafter referred to as "the R/D") signed on December 3, 1993.

For the effective and successful implementation of the Project, JICA dispatched the Advisory Team (hereinafter referred to as "the Team") headed by Dr. Yasuo MIURA to Thailand from October 23 to November 6, 1996.

During its stay in Thailand, the Team and the Japanese experts headed by Dr. Susumu FURUUCHI, had a series of discussions with the Thai authorities and counterpart personnel concerned with the Project, and participated in the Joint Committee Meeting of the Project.

As a result of the discussions, both parties agreed the Report of Joint Evaluation Mission as attached hereto.

Bangkok, November 5, 1996

Dr. Yasuo MIURA
Team Leader
Advisory Team
Japan International Cooperation Agency
Japan

Dr. Suwithaya POLLARP
Director General
Department of Livestock Development
Ministry of Agriculture and Cooperatives
The Kingdom of Thailand

The Report of Joint Evaluation Mission

1. Summary of mid-term evaluation

1-1 Objective of the Project

The Project aims at standardizing diagnostic techniques for major and important diseases, promoting systematic and effective disease control for protecting livestock from diseases, and thereby improving livestock productivities in Thailand.

1-2 Activities of the Project

The following cooperation activities have been implemented at National Institute of Animal Health (hereinafter referred to as "NIAH"), at its main site, and at three Regional Veterinary Research Diagnostic Centers (hereinafter referred to as "RVRDCs") for the purpose of attaining the above-mentioned objective:

(1) Epidemiological survey and research activities for the development of a control programme for major animal diseases of economic importance;
(2) Training activities and guidance for the RVRDCs concerned, for the promotion of relevant diagnostic and investigating activities;
(3) Improvement of diagnostic techniques for the establishment of appropriate diagnostic systems.

1-3 Objectives of Evaluation

(1) To determine what degree the project activities are achieved;
(2) To make recommendations and suggestions to the authorities concerned in order to facilitate achievements of the Project objectives.

The lists of agenda and attendants of the Joint Evaluation Meeting and the Joint Committee appear on Annex1, Annex2.

1-4 Evaluation Methods of the Project

This evaluation was conducted in accordance with the R/D and Tentative Detailed Implementation Plan (hereinafter referred to as "TDIP") by the Team and Thai authorities concerned through reports, interviews and discussions with the personnel involved in the Project. Items discussed for the evaluation are as follows;

(1) Input of the Project
(2) Activities of the Project
(3) Achievement of the Project

2. Results of Evaluation

2-1 Input of the Project

2-1-1 Japanese side

2-1-1-1 Dispatch of experts

According to the R/D, JICA have dispatched Team Leader, Coordinator and experts in the following seven fields of: virology, bacteriology, parasitology, pathology, epidemiology, immunology, biochemistry and toxicology. The detail is described in Annex 3, Annex 4. In the 1996 Japanese fiscal year (commencing in April, hereinafter referred to as "JFY"), one more long-term expert and eight short-term experts are scheduled to be dispatched by the end of March 1997.
JICA will dispatch long-term experts in the fields of animal infectious diseases mainly for promoting more effectively research activities and for improving diagnostic techniques, including the above-mentioned long-term expert. JICA will dispatch short-term experts in other fields as the need arises.

2-1-1-2 Acceptance of trainees in Japan

Sixteen Thai counterpart personnel have been trained in Japan . One more counterpart personnel will be trained in Japan by the end of March, 1997. The detail is described in Annex 5, Annex6.
In order to promote relevant diagnostic and investigating activities at RVRDCs, the portion of trainees from RVRDCs will be increased continuously.

2-1-1-3 Provision of equipment

The list of equipment provided by Japan is attached in Annex 7. The total amount is about 112 million yen (about 29.4 million bahts) up to the 1995 JFY. It is expected to be about 80 million yen (about 18.5 million bahts) in the 1996 JFY. It does not include the cost of equipment carried by Japanese experts, which is about 10 million yen (about 2.5 million bahts) up to the 1995 JFY and is expected to be about 6 million yen (about 1.4 million bahts) in the 1996 JFY.
Most essential equipment to implement the Project has been fully supplied. Hereafter it is required to utilize the equipment effectively and to maintain the equipment under good conditions. Therefore spare parts of the equipment will be provided for more effective utilization.

2-1-1-4 Local running cost

As is indicated in the Annex 8, JICA shared about 30 million yen (about 7.5 million bahts) up to the 1995 JFY. It is expected to be about 19 million yen (about 4.4 million bahts) in the 1996 JFY.
For smooth implementation of the Project, "General local cost" has been provided constantly. Budget for special program namely "Middle level trainees training program" and "Enlightenment and extension activities program" were also allocated for effective implementation of training activities.

2-1-1-5 Dispatch of the Survey Team

The Consultation Survey Team was dispatched in order to formulate the TDIP from January 19 to 28, 1995.

2-1-2 Thai side

2-1-2-1 Land, building and facilities

At NIAH and three RVRDCs, North, North-East and South, as the Project sites, land, building and facilities for implementation of the Project have been prepared and almost fully equipped.
Hereafter it is required to make greater efforts for their maintenance and management.

2-1-2-2 Allocation of budget

As is indicated in the Annex 9, Department of Livestock Development (hereinafter referred to as "DLD") shared about 32 million bahts up to the 1996 Thai fiscal year (commencing in October, hereinafter referred to as "TFY").
DLD has made appropriate efforts to allocate its budget to the Project. Hereafter it is required to manage the budget effectively whenever urgent needed with continuous efforts.

2-1-2-3 Allocation of personnel

Allocation of personnel concerned the Project is shown in the Annex 10.
In order to form the project operation unit, administrative side has been improved. DLD made great efforts to fill up vacant positions of South-RVRDC. DLD plans to construct new RVRDCs. Accordingly, it is required to make more efforts to allocate and assign personnel appropriately in order to ensure the smooth implementation of the Project.

2-2 Activities of the Project

The Project activities were analyzed and evaluated. The results are summarized in Annex 11. As it is indicated in Annex 12, several training activities have been organized with not only JICA budget but also DLD's.

2-2-1 Five major diseases

Activities on this subject have made a certain progress smoothly on the whole. However it is required to make continuous efforts to develop technical disease control program for major diseases and practical diagnosis techniques including ELISA.

2-2-2 Training activities and guidance for the RVRDCs

Activities on this subject have been implemented in three ways; 1) Group and individual training at NIAH; 2) Technical guidance by Japanese experts at RVRDCs; and 3) Seminars, lectures and workshop. The content of these activities is extended. The number of participants is increased enough. Hereafter more effective implementation is expected according to the plan.

2-2-3 Improvement of diagnostic techniques

Activities on this subject have been made satisfactory progress. It is expected to carry out continuous activities and to publish a standard diagnostic manual with regard to internationalization. It is recommended to organize a working group for this purpose.

2-3 Achievement of the Project

Achievement of the Project was examined through "Progress Report" published on October 25, 1996, interviews and discussions with the personnel involved in the Project. The results are shown in Annex 13.

2-3-1 Five major diseases

Some planned activities have been completed and the others are on going. Hereafter it is expected to conduct appropriate field researches for further studies of diseases.

2-3-2 Training activities and guidance for the RVRDCs

All planned activities are on going. For more effective technology transfer, not only

lecture but also practical training has to be emphasized.

2-3-3 Improvement of diagnostic techniques

Almost all planned activities are on going. Standardization of diagnostic methods is still in the plan. It is expected to appoint key persons in order to carry out this objective effectively.

3. Conclusions

The Project has made almost satisfactory progress according to TDIP. However there are considerable differences between activities and each objective. In order to achieve the project goal, further efforts are required in the collaboration between NIAH and RVRDCs under the systematic administration and management of DLD, during next two years of the Project.

4. Recommendations

For the further progress of the Project, the Team presents the following recommendations to the Joint Committee:

(1) Collaboration between NIAH and RVRDCs with support by DLD;
NIAH is the central laboratory of animal health situated in DLD and also functioning as the Central-RVRDC. However, the RVRDCs which are located in regions have been placed under the control of each Regional Livestock Officer because of the governmental re-organization issued on October, 1995. The organization chart is shown in Annex14.
NIAH has been playing important roles to other RVRDCs in leading research activities and instructing improved diagnostic technologies. In order to promote the collaboration between NIAH and RVRDCs, further coordination and support by DLD are strongly required. This should hold true to all RVRDCs concerned.

(2) Improvement of diagnostic systems;
In order to promote accurate diagnosis, the final diagnosis should be made by compiling and analyzing results from each section .

(3) Research reports;
The Team advised that Progress Reports of the research work should be prepared separately from annual reports.

(4) DLD-NIAH project.
Besides this JICA Project, NIAH takes part in other projects planned by DLD. In order to implement the Project smoothly and successfully in accordance with TDIP, the Team advised that all activities should be well-planned in advance.

Annex 1

The First Joint Evaluation Meeting of
The National Institute of Animal Health Project Phase II , JICA
on October 25 , 1996
at Meeting Room 1, National Institute of Animal Health
Chatujak, Bangkok 10900

Agenda

10.00 - 10.15	*Welcome Address* *by Dr.Vichitr Sukhapesna ,Deputy Director General, DLD* *Address* *by Dr.Yasuo MIURA ,Evaluation Team Leader, JICA*
10.15 - 10.20	*Introduce Evaluation Team Members (both sides)*
10.20 - 10.35	*Purpose of Evaluation* *by Dr.Yasuo MIURA, Evaluation Team Leader, JICA*
10.35 - 10.50	*Coffee Break*
10.50 - 11.10	*NIAH Overall Summary* *by Dr.Urasri Tantaswasdi, Director of NIAH*
11.10 - 11.35	*Project Summary* *by Dr.Susumu FURUUCHI, JICA Expert Team Leader* *Progress Report by Chairperson of each subject* *(1) Development of control program for 5 major animal diseases* *- Swine fever* *- Brucellosis* *- Bovine tuberculosis* *- Paratuberculosis* *- Arthropod - borne diseases*
11.35 - 11.45	*Progress Report by Dr.Susumu FURUUCHI* *(2) Improvement of diagnostic techniques* *(3) Technology transfer*
11.45 - 12.00	*Discussion*
12.00 - 13.30	*Lunch hosted by NIAH staff*
13.30 - 14.35	*Summary of Activities of Each Laboratory of NIAH and Regional Veterinary Research and Diagnostic Center* *by Section Chiefs and Director of RVRDC*
14.35 - 14.50	*Coffee Break*
14.50 - 15.50	*Discussion*
15.50 - 16.30	*Visit Laboratories*
18.30 - 20.30	*Welcome Dinner* *hosted by Dr.Suwithaya Pollarp, Director General of DLD*

List of Joint Evaluation Mission

I. Japanese side

1. Dr.Yasuo MIURA	Team leader Director, Biological Products Research Division, National Institute of Animal Health (NIAH) Ministry of Agriculture, Forestry and Fisheries. (M.A.F.F.)
2. Dr.Masato KISHIMA	Chief, Bacteriological Products Research Laboratory, Biological Products Research Division, NIAH. Ministry of Agriculture, Forestry and Fisheries.(M.A.F.F.)
3. Dr.Kazuno ITO	Officer, Animal Health Division Livestock Industry Bureau, Ministry of Agriculture, Forestry and Fisheries.(M.A.F.F.)
4. Dr.Yasuko TANIGUCHI	Officer, Livestock and Horticulture Division, Agricultural Development Cooperation Department, JICA.

II. Thai side

1. Dr.Vichitr SUKHAPESNA	Deputy Director General, Department of Livestock Development.(DLD)
2. Dr.Ab KONGTHON	Senior Veterinary Specialist (Biologics) Department of Livestock Development.(DLD)
3. Dr.Vises PRASERT	Regional Livestock Officer, Region 2, Department of Livestock Development.(DLD)
4. Dr.Vimol JIRATHANAWAT	Livestock Officer of Bangkok, Department of Livestock Development.(DLD)
5. Dr.Patchima INDRAKAMHANG	National Institute of Animal Health (NIAH) Department of Livestock Development. As a Secretary

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Annex 2

The Joint Committee Meeting of
The National Institute of Animal Health Project PhaseII , JICA
on November 5 , 1996

at The National Institute of Animal Health
Chatujak ,Bangkok 10900

Agenda

08.30 am.	*- Opening Address*
	by Dr. Suwithaya Pollarp, Director General of DLD
	- Address
	by Dr. Yasuo MIURA, Evaluation Team Leader
08.40 am.	*- Report of the Evaluation*
	by Dr. Yasuo MIURA, Evaluation Team Leader
09.10 am.	*- General Discussion*
09.30 am.	*- Signing of the Minutes*
	by Dr. Suwithaya Pollarp and Dr. Yasuo MIURA
09.50 am.	*- Closing address*
	by Dr. Suwithaya Pollarp, Director General of DLD

Joint Committee for the Project Evaluation

Thai Side

a) Deputy Director Genetal, DLD

b) Director of NIAH, DLD

c) Director of the Division of Veterinary Biologics, DLD

d) Director of Disease Control Division, DLD

e) Director of VRDCs, DLD

f) Director of the Planning Division, DLD

g) Chief of the International Coordination Section, DLD

h) Representative of the Department of Technical and Economic Cooperation (DTEC)

I) Representative jof the Budget Bureau

j) Representative of the Civil Service Commission

k) Director of Foreign Agricultural Relations Division, Office the Permanent Secretary (OPS)

h) Foreign Agricultural Relations Division office of the Permanent Secretary , MOAC

l) Dr. Vimol Jirathanawat

Japanese Side

a) Team Leader

b) Coordinator

c) Experts assigned to the Project

d) Other Japanese experts and personnel concerned dispatched by JICA, if necessary

e) Resident representative of Thailand Officee, JICA

Annex 3

NUMBER OF JAPANESE EXPERTS

(Dec.1993 - Sep.1996)

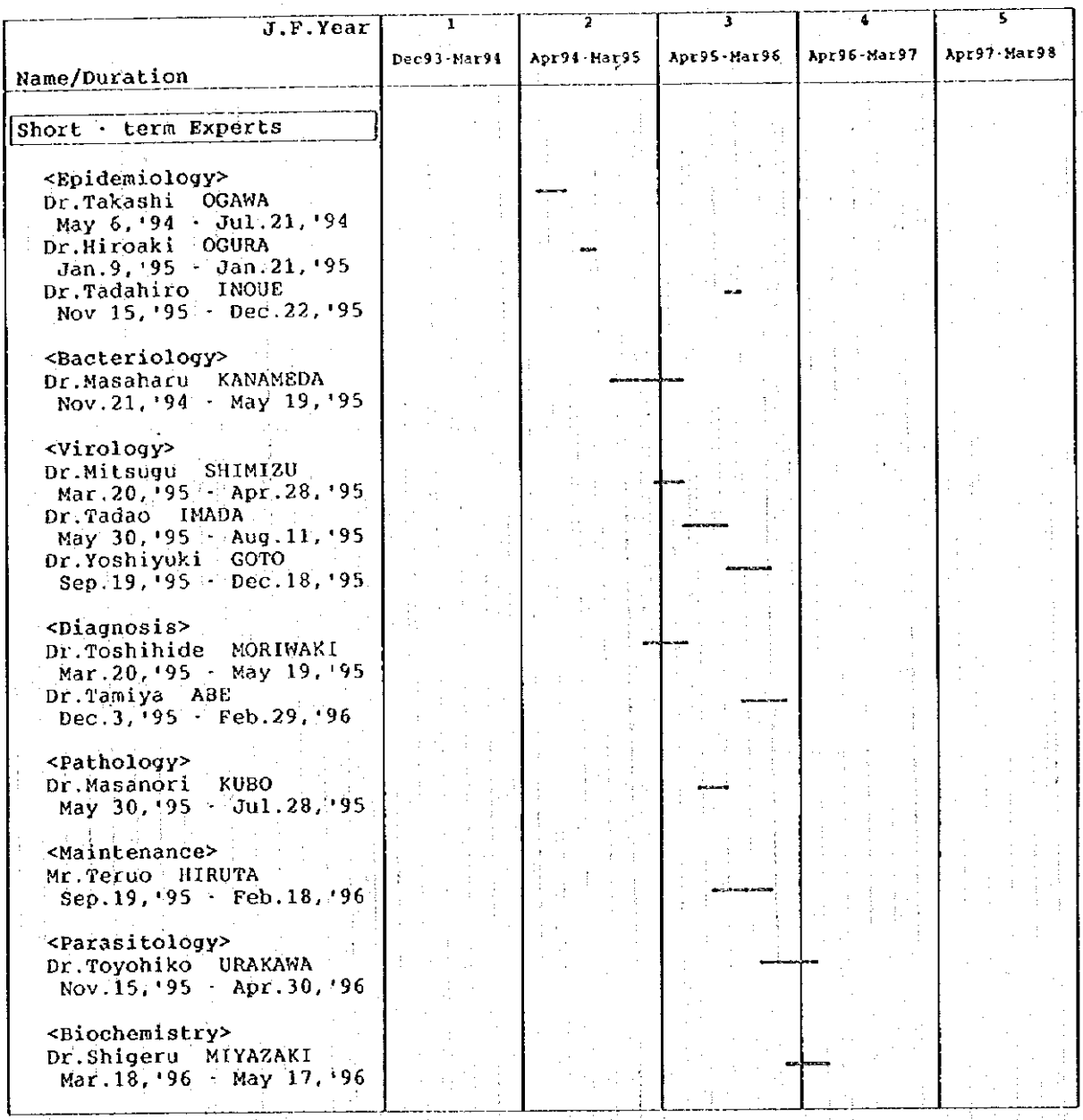
Duration / Expertise	Long-term	Short-term	Total
Leader	2	-	2
Coordinator	2	-	2
Virology	-	3	3
Bacteriology	2	1	3
Parasitology	1	1	2
Pathology	-	1	1
Biochemistry	1	1	2
Immuno-serology	1	-	1
Epidemiology	-	3	3
Diagnosis	-	2	2
Maintenance	-	1	1
Grand Total	9	13	22

Annex 4

ASSIGNMENT OF JAPANESE EXPERTS

J.F.Year / Name/Duration	1993 Dec93-Mar94	1994 Apr94-Mar95	1995 Apr95-Mar96	1996 Apr96-Mar97	1997 Apr97-Mar98
Long-Term Experts					
<Team Leader>					
Dr.Tatsuo KUMAGAI Jun.19,'89 - Jun.9,'94		———			
Dr.Susumu FURUUCHI Apr.1,'94 - Mar.30,'97		———	———	———	
<Coordinator>					
Ms.Yoshiko TANIGUCHI Nov.21,'91 - Mar.30,'95		———	———		
Mr.Tsunemasa MUROI Mar.20,'95 - Mar.19,'97			———	———	
<Immuno - Serology>					
Dr.Yoshihito KASHIWAZAKI Feb.17,'94 - Feb.16,'98		———	———	———	———
<Biochemistry>					
Dr.Yukiko OGURA May 31,'94 - May 30,'96		———	———	———	
<Parasitology>					
Dr.Yasuhiro ITO Jun.6,'94 - Dec.5,'96		———	———	———	
<Bacteriology>					
Dr. Kazunori HASHIMOTO Oct.20,'94 - Oct.19,'97			———	———	———
Dr.Masaharu KANAMEDA Jun.6,'96 - Jun.5,'98				———	———

ASSIGMENT OF JAPANESE EXPERTS



Annex 5

NUMBER OF COUNTERPARTS TRAINING IN JAPAN

<DEC. 1993 - SEP. 1996>

J.F. Year / Section	1993 Dec93-Mar94	1994 Apr94-Mar95	1995 Apr95-Mar96	1996 Apr96-Mar97	Total
DLD					
Deputy Director General		1	-		1
Director, Disease Control Div.		-	1		1
<Total>		< 1 >	< 1 >	< - >	< 2 >
NIAH					
Director		1	-	-	1
Virology		1	1	1	3
Biochemistry		1	-	1	2
Pathology		-	1	-	1
Bacteriology		-	-	1	1
< Total>		< 3 >	< 2 >	< 3 >	< 8 >
Northern Center					
Parasitology				1	1
Virology				1	1
< Total >		< - >	< - >	< 2 >	< 2 >
Northeastern Center					
Director		1	-	-	1
Immuno - Serology		-	1	-	1
Pathology		-	-	1	3
< Total >		< 1 >	< 1 >	< 1 >	< 3 >
Southern Center					
Director			1	-	1
Bacteriology			-	1	1
< Total >		< - >	< 1 >	< 1 >	< 2 >
Grand Total		5	5	7	17

Annex 6

COUNTERPARTS TRAINING IN JAPAN

<DEC. 1993 - SEP. 1996>

Year (JFY)	Duration	Position	Name	Study Place
1993				
....	.....	.....	.....	.....
1994	Jun.12,94-Jun.29,94	Deputy Director General,DLD	Mr.Wipit CHISRISONGKRAM	Tsukuba,NIAH
	Jun.12,94-Jun.29,94	Director, NAIH	Mr.Vichitr SUKHAPESNA	Tsukuba,NIAH
	Jun.12,94-Jun.29,94	Director, N.East Center	Mr.Somchai SRIHAKIM	Tsukuba,NIAH
	Jan.10,95-May 31,95	Virology, NIAH	Ms.Aree SAPCHAROEN	Kodaira,NIAH
	Jan.10'95-Jun.22,95	Biochemistry, NIAH	Ms.Panun TANACHAROENWATCH	Tsukuba,NIAH
....	.....	.....	.....	.....
1995	May 23,95-Jun.10,95	Director, South Center	Mr.Nimit TRIWANATHAM	Tsukuba,NIAH
	May 23,95-Jun.10,95	Dir.Disease Control Div.,DLD	Mr.Rapeepong VONGDEE	Tsukuba,NIAH
	Jul.4,95 -Dec.21,95	Immuno., N.East Center	Mr.Pornchai SONBACHAISK	Ohmiya Center
	Jul.4,95 -Dec.22,95	Virology, NIAH	Ms.Sudarat DAMRONGWATANA	Tsukuba,NIAH
	Sep.4,95 -Feb.23,96	Pathology, NIAH	Ms.Chira KONGKRONG	Tsukuba,NIAH
....	.....	.....	.....	.....
1996	Aug.26,96-Mar.13,97	Parasitology, North Center	Mr.Prasopporn THONGNOON	Tsukuba,NIAH
	Aug.26,96-Mar.29,97	Virology, NIAH	Ms.Porntip SIRIWAN	Kitasato Univ.
	Sep.24,96-Mar.30,97	Biochemistry, NIAH	Ms.Lanee SOOKTHINTHAI	Tsukuba,NIAH
	Oct.14,96-Mar.20,97	Bacteriology, South Center	Ms.Supalak CHANUDOM	Sendai Center
	Oct.14,96-Mar.20,97	Pathology, N.East Center	Mr.Sompong JUNTAHAN	Maebashi Center
	Oct.14,96-Mar.20,97	Virology, North Center	Ms.Nittaya WONGWONG	Niigata Center
	(Mar.97)	Bacteriology, NIAH	Ms.Apasara WORARACH	Kyushu,NIAH

Annex 7 LIST OF EQUIPMENT PROVIDED BY JICA

Year	Fd.	No.	Equipment/Material	Maker	Model	Q'ty	Amount(B)
1994	IC	1	Computer	Sun	SPARC station 20	1	700,000
	IC		Software	UNIX	Network file (SVR4)		
	IC	2	Back up system	Sun	150MB	1	48,750
	IC	3	Printer	HP	Laser Jet 4L	1	50,500
	JP	4	Computer	IBM	PS/VP/P 486DX 6472-H3B	1	281,000
			Printer	IBM	4037-5E		
	JP	5	Computer	IBM	PS/VP/P 486DX 6472-H3B	1	256,500
			Printer	IBM	4037-5	1	
	JP	6	Copying machine	Sharp	SF-8870,SF-A51N	1	173,800
	JP	7	Facsimile	Panasonic	UF-322	1	47,000
	IM	8	Autoclave	Tomy Seiko	SS-245	1	104,000
	IM	9	Balance	Mettler	PJ 300	1	98,900
	IM	10	Low temperature incubator	Sunaka	SL 1-4	1	221,500
	IM	11	Loop incinerator	Sigma		1	13,100
	IM	12	Multichannel micropipette	Labsystem	Finnpipette,4142407	1	38,900
	IM	13	Multichannel micropipette	Labsystem	Finnpipette,4142417	1	48,500
	IM	14	Multichannel micropipette	Labsystem	Finnpipette,4407927	1	53,900
	IM	15	Verichannel	Labsystem	Finnpipette,4347010	1	36,500
	IM	16	Automatic digital pipette	Rainin	EP-250	1	18,900
	PR	17	Microtube pump with silicone tube	Tokyo Rika	MP-32,594-64-82-05)	1	47,300
	PR	18	Homegenizer cup	Sanko Rika	PBA and PD-18 A	5	219,000
	PR	19	Computer	IBM	PS/VP2,486DX2,66MHz	1	112,700
			Printer	IBM	4037-5E	1	25,200
	PR	20	Peristaltic pump,1.6 L				
			Variable speed tubing pump	Millipore	Cat.No**80 000 05	1	90,800
			Filter unit	Millipore	Cat,No.MPGL 02S H2		
			Variable speed tubing pump	Millipore	Cat,No.**80 002 30		
	PR	21	Haematology analyzer				
			QBE V System	Becton Dickinson	Cat,No.4582	1	957,000
			Paralens UV microscope adapter	Becton Dickinson	Cat,No.JO-053010	1	
	BA	22	Sterilizer	Advantec	KST-142-JA	1	77,600
	BA	23	Refrigerator 3 doors	Mitsubishi	MR-V 364 GY/BE	2	86,520
	BA	24	Magnetic stirrer		Themolyne	1	7,900
	BA	25	Water bath	Memmert	350 T	1	19,200
	BA	26	Vortex mixer	Vortex	Genie 2	1	6,400
	BA	27	Air pump	Toyo	VP-20	1	42,400
	BA	28	Milk checker	Nellab		4	96,400
	BA	29	Digital micropipette	Socorex	Cat,No.822,0020	2	17,000
				Socorex	Cat,No.822,0100	2	16,500
				Socorex	Cat,No.822,1000	2	16,500
	BA	30	Freeze drying ample			20000	420,000
			vial			5000	170,000
	EA	31	Hepa filter : PAC 4-1,4-2		size 500x500x290 mm.	1	15,900
	EA	32	Hepa filter : PAC 4		size 610x610x150 mm.	1	6,370
	EA	33	Hepa filter : PAC 4=4,PAC6=2		size 610x610x60 mm.	6	37,620
	EA	34	Hepa filter : PAC 6=4		size 305x915x150 mm.	4	33,560
	EA	35	Hepa filter : PAC 6=5		size 305x1,520x150 mm.	5	70,000
	EA	36	Hepa filter : PAC 6=5		size 410x410x60 mm.	5	27,900
	EA	37	Hepa filter : PAC 6=4		size 510x510x60 mm.	4	25,640
	EA	38	Large animal balance	Alfa	705 Weight 500 Kgs.	1	74,300
	EA	39	Chicken cages : twn type	S'piyanantsupply	size 60x120x100cm.	6	118,140
	EA	40	Rat cages	Nalgena	Cat,No.660-P-2154	10	163,000
	EA	41	Sterilizing can	Tokyo Rika	TX-1	1	43,800
	EA	42	Rubber glove	Sanko Chemical	Type : C 8 #800	8	62,400
	PT	43	Ultratome	Leica	Ultracut S S1	1	2,100,000

Year	Fd. No.	Equipment/Material	Maker	Model	Q'ty	Amount(B)
1994	BI 44	Modular disk adapter	Beckman	P.N. 359152	1	28,500
	BI 45	Centrifuge tube	Sansho	CTF-10 code No.58424	100	31,500
	BI 46	Clean bench	Hitachi	CCY1311	1	499,500
	EP 47	Mobile centrifuge	Kokusan	Kokusan H-18	1	78,900
		Angle rotor	Kokusan	RA-012	1	
		Angle rotor	Kokusan	RA-014	1	
		Angle rotor	Kokusan	RA-013	1	
		Stabilizer	GES	PLC-1055	1	14,800
	EP 48	Vertical freezer	Sanyo	MDF-U 536	1	93,300
	EP 49	Computer	Toshiba	T 960 CT Portable	1	82,500
	EP 50	Hot plate	Sanyo	HPS-58G	1	5,500
	EP 51	Automatic autoclave	Kokusan	H-88LSD, SKO16(2)	1	140,800
	VI 52	DNA Thermal cycle	Perkin Elmer	Model 480	1	388,000
	VI 53	Tissue culture bottle	Shibata	500 ml	10	94,500
	VI 54	Hybridization incubator	Robbins	Model 400	1	145,500
	VI 55	Platform rocker	Stuart	Model STR9	1	42,700
	VI 56	Vacuum rotary	Sakura	VRX-23	1	853,200
Grand Total					Baht	9,898,000

An Abbreviation

Fd	:	Field
IC	:	Information Center
JP	:	Japanese Expert Office
IM	:	Immuno- serology
PR	:	Parasitology
BA	:	Bacteriology
EA	:	Experimental Animal
PT	:	Pathology
BI	:	Biochemistry
EP	:	Epidemiology
VI	:	Virology
TS	:	Technical Transfer
AD	:	Administration
N	:	Northern Center
NE	:	North-eastern Center
S	:	Southern Center

LIST OF EQUIPMENT PROVIDED BY JICA

Year	Fd.	No.	Equipment/Material	Maker	Model	Q'ty	Amount(B)
1995	AD	1	Micro bus 2000CC gasoline	Toyota	Hi-ace	1	400,000
	AD	2	Pick up 2500CC diesel	Isuzu	Double cab	2	1,120,000
	AD	3	Medium bus	Isuzu	25 seats	1	1,660,000
	AD	4	Station wagon	Isuzu	Wanderer	1	610,000
	AD	5	Duplicator	Riso	Digital	1	140,000
	S	6	Station wagon	Isuzu	Adventure 4x4	1	756,000
	S	7	Duplicator	Duplo	DP-3100	1	140,000
	S	8	Facsimile	Panasonic	UF-322	1	52,000
	S	9	Titer plate shaker	Lab line	4625-1	1	40,000
	S	10	ELISA plate	SLT	29001,22901	1	274,000
	S	11	Micro kjeldahl digestion	Miyamoto Riken	Type KLIF	1	48,000
	IC	12	Computer	Compaq	Prolines 1060/w	6	519,600
	IC	13	Computer	IBM	Thinkpad 345CS(540)	2	193,000
	IC	14	Color Printer	HP	Deskjet 660c	1	12,900
	IC	15	Printer	Epson	LQ1170i	1	346,500
	IC	16	Color scanner	Microtex		1	12,000
	IC	17	UPS	Leonic	500VA	4	24,000
	IC	18	Optical disk drive	Toray	Dual 2 in 1	1	12,000
			Mobil harddisk drive	Disk 2GO	HDD1.2GB	2	
			Software	Solarnet	PC-NFSPR 2.0	2	
			MO disk		550 MB	5	
			Flopical disk drive		21 MB	6	
			Cabling		MISC	4	
			Chair			3	
	TS	19	Slide producer	IBM	MTS100	1	374,000
	TS	20	Camera	Nikon	F45	1	99,500
	VI	21	Inverted microscope	Olympus	CK2-BIP-1	1	315,000
	N		Inverted microscope	Olympus	CK2-BIP-1	1	
	NE		Inverted microscope	Olympus	CK2-BIP-1	1	
	S		Inverted microscope	Olympus	CK2-BIP-1	1	
	TS	22	Refrigerated centrifuge	Kubota	5800	1	817,500
	NE		Refrigerated centrifuge	Kubota	5800	1	
	S		Refrigerated centrifuge	Kubota	5800	1	
	VI	23	Super Mixer for plate & tube	Iwaki	CST-040	1	200,000
	N		Super Mixer for plate & tube	Iwaki	CST-040	1	
	NE		Super Mixer for plate & tube	Iwaki	CST-040	1	
	S		Super Mixer for plate & tube	Iwaki	CST-040	1	
	N	24	High speed centrifuge	Kubota	7930	1	890,000
	N	25	Automatic plate washer	Bio-tek	EL404	1	310,000
	NE	26	Microscope	Labophot-2	Photomicrography	1	195,000
	NE	27	Station wagon 2000CC Gasoline	Mitsubishi	Space Wagon	1	610,000
	NE	28	Printer	HP	Jet5MP	1	42,000
	NE	29	UPS	Leonic	OA-4 1350UA	1	28,000
	NE	30	UPS	Leonic	OA-1 400UA	1	12,000
	NE	31	Computer	Mitac	1486DX4-100	1	47,000
	NE	32	Microplate shaker	Lab line		1	48,000
	NE	33	Micropipette digital	Proline	720010 0.5-10 ul	1	5,800
	NE	34	Micropipette digital	Proline	720020 5-50 ul	1	5,800
	NE	35	Computer	IBM	Server 320 (8640)	1	305,000
	EP	36	Computer	IBM	Aptiva MTS100	1	279,000
	EP	37	MO Catridge	NEC		1	34,500
	EP	38	MO Drive multi access	NEC	650 MB	1	31,800
	EP	39	Color scaner	Microtex		1	14,500
	EP	40	Computer table	Lucky	TEC70120	2	12,000
	EP	41	UPS	Leonic	OA-2 800UA	1	18,000
	EP	42	Printer	Epson	Stylus 1500	1	11,500
	EP	43	Program	Window NT,Quatro		1	35,300
	EP	44	Microwave oven	Sanyo	EM-607TW	1	6,300

Year	Fd.	No.	Equipment/Material	Maker	Model	Q'ty	Amount(B)
1995	PT	45	Refrigerated centrifuge	Hettichi	30RP	1	223,000
	PT	46	Block cabinet		139x240x50cm.	2	136,000
	PT	47	Refrigerator	GE	TBG 21J	1	66,200
	PT	48	Enlarger	LPL	C7425	1	166,000
	PT	49	Haematocrit centrifuge	Hawksley	01500	1	49,000
	PT	50	Fume hood	Shandon	Hyperclean20	1	174,000
	BA	51	Multichannel pipete		720340	1	20,000
	BA	52	Multichannel pipettors			1	46,500
	BA	53	UPS	Leonic	1000 VA	1	26,000
	BA	54	Dehumidifier	Frigidatre	FD375J8	1	18,200
	BA	55	Portable pipet-aid	Acuboy	155000	4	36,000
	BA	56	Magnetic stirrer	Thermolyne	S-46720-26	1	8,200
	BA	57	Stirring hot plate	Thermolyne	SP46920-26	1	12,300
	BA	58	Stirring hot plate	Thermolyne	SP477230-26	1	18,400
	BA	59	Duckless fume hood cabinet	Astec	4000HE	1	300,000
	BA	60	Anaerobic jar	Oxoid	HP11	1	27,800
	BA	61	Freeze dry ampule	Shibata	9x145mm.	5000	180,000
			Vial	Shibata	5ml	5000	180,000
	IM	62	French pressure cell	Amico	FOO78,030,021	1	375,000
	IM	63	Trinocular compound microscope	Olympus	BX40	1	175,000
	IM	64	Platform rocker	Stuart	STR9	1	35,500
	IM	65	Portable pipette aid	Pipetboy Acu	155000	1	18,000
	IM	66	Latex particle	Sekisui	012u	1	30,000
	IM	67	Air conditionor	Siam Daikin	Ceiling type	1	133,000
	EA	68	Spare part of centrifuge	Hitachi		1	92,000
	PR	69	Liquid nitrogen transport tank		50L	1	38,500
	PR	70	Spare part of Liquid nitrogen			1	45,000
	PR	71	Multiskan MS	Labsystem		1	300,000
	PR	72	Multiwash	Labsystem	8 ports	1	150,000
	PR	73	Low temperature freezer	Sanyo	MDF-U536D	1	110,000
	VI	74	Ultra-low temperature freezer	Sanyo		1	435,000
	VI	75	Computer	486DX23/66MHz	8525	1	150,000
	VI	76	Portable pipet-aid	Pipetboy Acu	155000	6	79,200
	VI	77	Hot air oven	Memmert	ULE600	1	80,000
	VI	78	Medical freezer	Sanyo	MDF-U536D	1	110,000
	VI	79	Microcell		50ul UV silica	1	95,000
	VI	80	Medi-pump aspirator	Thomes	1132D	1	60,000
	VI	81	Multichannel pipette	Labsystem	720220 5-50ul	2	47,600
	VI	82	Multichannel pipette	Labsystem	720420 50-300ul	2	49,000
	VI	83	Micropipette	Proline	722010 20 ul	2	20,000
	VI	84	Micropipette	Proline	722030 200ul	2	20,000
	BI	85	Gas chromatography	HP	5972A,Vectra486	1	2,315,400
	PR	86	Hepa filter PAC-1			1	56,000
			Prefilter			1	76,000
	BA	87	Hepa fillter PAC-2			1	84,000
	BA	88	Antisera	Denka-Seiken		1	1,300,000
	VI	89	Hepa filter PAC-3			1	37,000
	VI	90	Hepa filter for clean bench			1	142,700
Grand Total						Baht	19,454,000

Annex 8

INPUTS BY JICA

(Y 1,000.-)

J.F.Year / Inputs	1993 Dec93-Mar94	1994 Apr94-Mar95	1995 Apr95-Mar96	1996 Apr96-Sep96
General Local Cost (Expense for Project running)	1,502	8,816	7,920	9,723
Middle Level Training Cost (One week Seminar on Major dieases)			3,308	2,438
Expense for Enlightenment, Spread and Activities (Publication, Seminar for Local officer)			2,420	3,669
Technical Exchange Trip Cost (Parasitology Conference)				3,138
Urgent Operation Cost (Modification of Water Treatment)			5,303	
Equipment (Procured in Thailand)		42,000	70,000	80,000
Equipment (Carried by Experts)	1,000	4,400	4,800	6,000
Total	2,502	55,216	93,751	104,968

Annex 9

THAI BUDGET

(B 1,000.-)

	1994	1995	1996	1997
1. Temporary employee	(4,437)	(4,457)	(4,941)	(4,941)
2.				
2.1 Remuneration	288	193	422	156
2.2 Expense	2,271	2,263	2,721	2,773
2.3 Materials	4,169	4,139	3,251	3,332
	(6,728)	(6,595)	(6,394)	(6,261)
3.				
3.1 Electricity			3,500	3,500
3.2 Water			300	300
3.3 Telephone			360	360
3.4 Mail			10	10
	(3,176)	-	(4,170)	(4,170)
4.				
4.1 Equipment	3,876		1,390	7,269
4.2 Land and Construction	395		-	5,240
	(4,271)	-	(1,390)	(12,509)
5. Subsidy	-	-	-	-
6. Other Expense	-	-	(20)	(20)
Total	18,612	11,171	16,915	27,901

Annex 10 LIST OF THAI COUNTERPARTS

Fd.	J.F.Year Name	1993 Dec93-Mar94	1994 Apr94-Mar95	1995 Apr95-Mar96	1996 Apr96-Mar97
AD	Vichitr S.			(95/10)	
	Vimol J.				
	Vinai U.			(96/3) (95/4)	
	Ubol S.				
	Chokchai N.			(95/10)	(96/6)
	Urasri T.				(96/10)
IM	Dilok G.				
	Suree T.			(95/6)	
	Monya E.				
	Duangjai S.				
	Narudee K.				
	Bunchong A.			(95/5)	(96/8)
PR	Tasanee C.				
	Patchima I				
	Piyanoot P.				
	Tipawan P.			(95/5)	
	Darunee T.				
	Suthisak B.				
					(96/9)
PT	Somboon S.				
	Chira K.				
	Busanee C.				
	Ladda T.				
	Tuangthong B.				
	Sontana L.				
	Pairot P.		(94/11)		
VI	Urasri T.				(96/10)
	Aree S.				
	Wasana P.				
	Porntip S.				
	Sujira P.				

AD : Administration
IM : Immuno-serology
PR : Parasitology
PT : Pathology
NE : Northeastern Center
VI : Virology
BA : Bacteriology
EP : Epidemiology
BI : Biochemistry
S : Southern Center
IC : Information Center
TS : Technical Transfer
EA : Experimental Animals
N : Northern Center

LIST OF THAI COUNTERPARTS

Fd.	J.F.Year / Name	1993 Dec93-Mar94	1994 Apr94-Mar95	1995 Apr95-Mar96	1996 Apr96-Mar97
VI	Arunee C.				
	Ruenrudee P.				
	Sudarat D.				
BA	Tipa T.				
	Kaewmanee K.				
	Ladda M.				
	Wantanee N.				
	Indhira K.		(95/1)		
	Pornpen T.				
	Pachara T.				(96/5)
	Wonganun N.				
	Apasara W.				
EP	Prateep I.				
	Jatuporn S.			(95/5)	
	Yodyot M.			(95/11)	
	Chit S.				
	Chaisiri M.				(96/5)
	Kanya A.				
	Surapong W.				
BI	Rumpa I				
	Prapit K.				
	Suchin U.				
	Panun T.				
	Lanee S.				
	Nittaya P.				
	Malee T.				
IC	Nopporn S.			(95/11)	
	Somchai C.				
	Yodyot M.			(95/11)	
TS	Patiporn T.			(95/11)	

LIST OF THAI COUNTERPARTS

Fd.	J.F. Year Name	1993 Dec93-Mar94	1994 Apr94-Mar95	1995 Apr95-Mar96	1996 Apr96-Mar97
EA	Tarika P.			(95/10)	
	Somchai B.				
	Sopon T.			(95/10)	
N	Dilok K.			(95/6)	
	Janpen				
	Damrongsak				
	Pensri				
	Ithipol				
	Prasopporn				
	Chaiwat				
	Pairot				
	Pornchai				
	Narongchai				
	Wichian				(96/2)
	Kraikaew				(96/2)
	Kriangsak				(96/7)
NE	Somchai				
	Buddhachard				
	Topong				
	Nimit				
	Niyomsak				
	Sompong				
	Parinya				
	Manwika				
	Vinai				
	Pornchai				
	Satis				
	Nopadol				
	Siltham				

LIST OF THAI COUNTERPARTS

Fd.	J.F.Year Name	1993 Dec93-Mar94	1994 Apr94-Mar95	1995 Apr95-Mar96	1996 Apr96-Mar97
S	Nimit T. Chongmas A. Wasana S. Supalak C. Boonlert A. Sanong S.	———	———	———	———
S	8 new Commers				(96/11)

AD : Administration
IM : Immuno-serology
PR : Parasitology
PT : Pathology
NE : Northeastern Center

VI : Virology
BA : Bacteriology
EP : Epidemiology
BI : Biochemistry
S : Southern Center

IC : Information Center
TS : Technical Transfer
EA : Experimental Animals
N : Northern Center

OBJECTIVES	PLANNING OF ACTIVITIES	BRIEF DESCRIPTION OF ACTIVITIES	ACHIEVEMENT OF ACTIVITIES	PROGRESS ANALISIS EVALUATION OF ACTIVITIES	MEASURES TO BE TAKEN IN THE FUTURE
I.Epidemiological survey and research activities for the development of control program for major animal diseases					
1.Swine fever					
1) Epidemiological study	a. Collecting and analysing information from questionnaire survey	a. Collect and analyze field data from the farms to assess incidence, morbidity, mortality and so on	-Conducted questionnaire survey and analysed data on 381 swine farms of the four regions	-Analysis of data will be discussed with epidemiologists from 4 regions	-Complete data analysis
	b. Observational study	b. Interview farmers, observe farm conditions, collect the materials and select farms for study	-Two out of 10 farms cooperated and were visited every two months	-Maintein contact with the two farms for continuing study	-None
2) Study of chronic swine fever	a. Pathological analysis	-Study pathology, pathogenicity, biochemistry and other complications of experimentally transmission of a low virulent swine fever virus in piglets and in pregnant sows and the effect of their litters	-Experiment carried out in 18 piglets. Data and materials collected and examined	-Chronic swine fever could reproduced in experimental piglets	-Completed
	b. Pathogenecity of field isolates		-24 newborn piglets delivered from 2 sows infected with swine fever virus at 40 days gestation are being analysed	-They are being analysed virologically, serologically and pathologically -Experiment has been delayed due to difficulty in obtaining seronegative sows	-Experiment on sows in middle and late stage of pregnancy will be conducted
	c. Biochemical analysis		-Analysed vitamin level in infected piglets	-Vitamin level in experimental piglets were not so different from control ones	
	d. Examine other complications		-Tried to isolate other virus and bacteria	-Only several non-pathogenic bacteria were isolated	
3) Characterization of field isolates	a. Biological and physiological properties	a. Characterize and clarify the field isolates	-20 field isolates during 1988-1995 have been selected	-10 isolates were cloned	-Analyse characterization of cloned isolates
	b. Antigenical analysis	b. Analyze the field isolates antigenically	-Not yet started		-Analayse antigenicity of cloned isolates

OBJECTIVES	PLANNING OF ACTIVITIES	BRIEF DESCRIPTION OF ACTIVITIES	ACHIEVEMENTS OF ACTIVITIES	PROGRESS ANALISIS EVALUATION OF ACTIVITIES	MEASURES TO BE TAKEN IN THE FUTURE
2. Brucellosis 1) Application of new diagnostic methods	a. Compare ELISA technique with existing methods	a. To compare ELISA technique with existing methods in sensitivity and specificity	a. Several antigens were prepared and compared for their possible use	a. Soluble LPS was found to be a possible antigen in indirect ELISA	a. To evaluate ELISA
	b. Apply ELISA technique for serological diagnosis	b. To apply ELISA for practical use and establish as a standard technique	b. Not implemented yet	b. None	b. To standardize ELISA
2) Field investigation of diseases	a. Investigation of sero-prevalence	a. To investigate distribution of the disease by agglutination and CF test	a. Total 35,188 sera were assessed by the tests till July, 1996	a. 304 (0.9%) cases of laboratory samples were considered positive	a. To determine country wide prevalence
	b. Bacterial isolation	b. To isolate and identify the bacteria from specimens	b. Milk and organ samples were processed and cultured for Brucella organisms	b. 23 isolates of Brucella organism were obtained	b. To determine dominant biotype
	c. Pathological examination	c. To identify the disease and severity by pathological observation	c. Ten pathological samples including 3 autopsy cases were studied	c. Typical lesions (granulomatous) were found in 6 cases	c. To study characteristic of the disease with application of ABC method
3) Monitoring and development of control method in key farms	a. Selection of key farms	a. To select key farms from infected and uninfected herds	a. Based on serological results combined with other tests, several farms were surveyed	a. Three infected and 6 non-infected farms were selected	a. Completed
	b. Monitoring and surveillance of the disease	b. To investigate prevalence and severity of the disease from clinical ,microbiological and pathological examination	b. Infected herds were surveyed for disease event, pattern and control	b. Infected herd were monitored/sero-positive cattle Clean herds were monthly visited for surveillance	b. To follow by constant visits
	c. Disease contr ol by various methods	c. To attempt control the disease by immaculacy, vaccine and other methods	c. Infected farms were surveyed for possible measure to control	c. Culling suspicious animals, intoduction of clean cattle, annual examination were recommended	c. To continue to convince farm owners for effectiveness

OBJECTIVES	PLANNING OF ACTIVITIES	BRIEF DESCRIPTION OF ACTIVITIES	ACHIEVEMENT OF ACTIVITIES	PROGRESS ANALISIS EVALUATION OF ACTIVITIES	MEASURES TO BE TAKEN IN THE FUTURE
3. Tuberculosis 1) Application of new diagnostic methods	a. Comparison of ELISA technique with existing methods	a. To compare ELISA technique with single intradermal test (SID) and IFN assay in convenience and specificity	a. SID were not routinely done by provincial vets.. Indirect ELISA was standardized and applied in the central regions	a. Data were not matched between the tests	a. To select closed herds to perform the tests
	b. Application of ELISA technique for screening of the disease	b. To apply ELISA to practical use in sero-diagnosis	b. Total 30,278 sera were assessed by ELISA till July, 1996	b. High reactors to ELISA were recorded in 644 (2.2%) cases of serum samples	b. To evaluate ELISA
2) Field investigation of the disease	a. Sero-epidemiological survey	a. To investigate distribution of the disease by ELISA technique and skin test	a. Two surveys by SID were done in 2 provinces. Another surveillances were done in 5 provinces by local vets.	a. Annual positive rates in the province were ranged from 0, 2, 0.4%in 1994, 1995and 1996, respectively	c. To extend standardized technique for SID in the field
	b. Bacterial isolation	b. To collect specimens, and culture on various media and identify by biochemical tests	b. Five SID positive cattle were autopsied and cultured for mycobacteria	b. Two mycobacteria were obatained; one M.bovis from TB cattle and other non-typable one from NVL cow	a. To compare the media
	c. Pthological examination	c. To compare pathological and other examination. To attempt the immuno histochemistry examination	c. Five cattle above were autopsied and the results of premortal diagnosis compared	c. None visible lesions (NVL) were found in 4 cases	b. To apply more sensitive examination such as ABC
3) Monitoring and development of the disease control methods in key farms	a. Selection of key farms	a. To select key farms from infected and uninfected herds	a. Infected herds could not fined by SID. Six clean herds were selected	a. In central region, infected herds were difficult to find	a. To continue to set up infected herds for disease eradication
	b. Monitoring and surveillance of the disease	b. To monitor and survey the prevalence by several comparative diagnostic assays	b. Six clean herds were monthly visited for surveillance	b. Six clean herds remained uninfected	b. To visit constantly and follow up
	c. Disease control by various methods	c. To decrease the infection rate and disease by several methods	c. Serological surveillance are continued to find key farms	c. Can't find infected herds till now	c. Continue to find infected herds

OBJECTIVES	PLANNING OF ACTIVITIES	BRIEF DESCRIPTION OF ACTIVITIES	ACIEVEMENT OF ACTIVITIES	PROGRESS ANALISIS EVALUATION OF ACTIVITIES	MEASURES TO BE TAKEN IN THE FUTURE
4. Paratuberculosis 1) Application of new diagnostic methods	a. Preparation and quality control of ELISA antigen	a. To prepare and standardize ELISA antigen with assay in convenience and specificity	a. Bacterial cells were propagated for antigen preparation	a. Process of antigen extraction is going on	a. To continue ELISA antigen preparation
	b. Application of ELISA technique for screening of the disease	b. To apply ELISA to practical use in in sero-diagnosis	b. Sera are being tested with commercial ELISA kit	b. Not yet compared the sensitivity and specificity parale with CFT	b. To evaluate ELISA
2) Field investigation of the disease	a. Sero-epidemiological survey	a. To investigate the disease distribution by serological tests and cultivation of materials	a. Total 30,436 sera were assessed by CFT. till July, 1996. Positive sera were retested by both CFT and ELISA	a. 122 (0.4%) cases of laboratory samples were considered positive	a. To determine country wide prevalence
	b. Bacterial isolation	b. To collect specimens and culture for isolation and identification	b. Fecal and organ samples were processed and cultured for M. paratuberclosis	b. Nine isolates of M.paratuberculosis were obtained	b. To continue the effort for confirmation
	c. Pathological examination	c. To compare pathological and other examination. To attempt the immuno histochemistry examination	c. Autopsy was carried out on 5 cattle with sero-positive results	c. Histopathological examination confirmed para-TB in 3 of the 5 cases	c. To study characteristic of the disease with application of ABC method
3) Monitoring and establishment of the disease control methods in key farms	a. Selection of key farms	a. To select key farms from infected and uninfected herds	a. Based on serological results and combined with other tests, several farms were surveyed	a. Three infected and 6 non-infected farms were selected	a. Completed
	b. Monitoring and surveillance of the disease	b. To monitor and survey the prevalence by serological, bacteriological and pathological tests	b. Infected herds were surveyed for disease event, pattern and control	b. Infected herds were monitored after culling isolation/sero-positive cattle Clean herds were monthly visited for surveillance	b. To follow by constant visits
	c. Disease control by various methods	c. To attempt control the disease by several ways	c. Infected farms were surveyed for possible measure to control	c. Culling suspicious animals, introduction of clean cattle, annual examination were recommended	c. To continue to convince farm owners for effectiveness

OBJECTIVES	PLANNING OF ACTIVITIES	BRIEF DESCRIPTION OF ACTIVITIES	ACIEVEMENT OF ACTIVITIES	PROGRESS ANALISIS EVALUATION OF ACTIVITIES	MEASURES TO BE TAKEN IN THE FUTURE
5. Arthropod-borne diseases					
1) Development of ELISA technique for protozoan diseases	a. Preparation of ELISA antigen for Babesiosis (Bb.) and Anaplasmosis (Ap.)	a. To prepare the ELISA antigens and hyperimmune sera to Babesia and Anaplasma using splenectomized calves.	a. Anaplasma marginale and Babesia bigemina antigen were prepared	a. Purity, specificity and sensitivity of antigens are being evaluated	a. To prepare Babesia bovis antigen
	b. Development of ELISA technique for antibody detection of Babesiosis and Anaplasmosis	b. To develop and evaluate the ELISA test for antibody detection to Babesiosis or Anaplasmosis in cattle	b. ELISA system are under development using antigens	b. To establish the ELISA system	b. To evaluate ELISA test in the field cattle
	c. Development of ELISA technique for antigenic detection of Trypanosomosis (Tp.)	c. To develop the ELISA test using MoAb. for detection of Trypanosoma and evaluateits in the field	c. The Ag. ELISA system using polyclonal antibody has been established. Several MoAbs were also developed and the sensitivity was tested inexperimental animals	c. The Ag ELISA system seems more sensitive than parasitological diagnosis and more reliable than Ab. ELISA	c. To device more specific and sensitive diagnosis with MoAb
2) Sero-epidemiological survey of arthropod-borne protozoan and viral diseases	a. Sero-epidemiological survey of arthropod-borne protozoan diseases of beef cattle	a. To serological investigate the geographical distribution of Bb., Ap., and Tp. spp.	a. Not yet investigated	a. To start from 1997 due to delay of antigen preparation	a. To servey the geographical distribution using ELISA test
	b. Sero-epidemiological survey of arthropod-borne viral diseases	b. To serological investigate the geographical distribution of BLV, BEF, Bluetongue (BT) and JE in equine	b. About 1,000 cattle sera were collected to check for antibody against BL, BEF and BT, and about 700 horse sera collected to check JE antibody	b. Positive ratio in BL were 56 (7%) of 800 sera, and in BEF were 540 (90%) of 600 sera. BT and JE antigens are being prepared	b. Conclusion of the activities within the end of 1996
3) Geographical distribution of vectors	a. Survey of geographical distribution of ticks and its identification	a. To clarify and idontify the species of tick vectors, and investigate their geographical distribution.	a. Ticks were collected from cattle, water buffalo and vegetation in 22 provinces	a. Collected ticks were classified in 5 genera, 8 species, and predominant species are classified	a. Draw the distribution map of main species
	b. Survey of geographical and seasonal distribution of tabanid flies (TF)	b. To identify the species of tabanid flies as vector of protozoan diseases and investigate their distribution and activities.	b. Tabanid flies were collected in 26 prvinces under cooperation with RVRDCs	b. About 40 species of TF belong to 3 genera were identified. Seasonal occurence of TF in a key farm were observed and reported	b. idem
4) Field experiment of Babesia vaccines for the disease control	a. Test for efficacy and safety of Babesia vaccine	a. To compare the efficacy and safety of experimental Babesia vaccine with imported one.	a. Antibody level in vaccinated cattle were detected using IFA	a. Slightly elevated antibody titer in vaccinated animals. There were no clinical signs after challenge	a. To improve the vaccine production for high potency

OBJECTIVES	PLANNING OF ACTIVITIES	BRIEF DESCRIPTION OF ACTIVITIES	ACIEVEMENT OF ACTIVITIES	PROGRESS ANALISIS EVALUATION OF ACTIVITIES	MEASURES TO BE TAKEN IN THE FUTURE
II. Training activities and guidance for the RVRDCs for the promotion of relevant diagnostic and investigating activities					
1. Training on disease control and diagnostic technologies	1) Study on diseases	1) To introduce and study actual disease cases, problems on actual diagnosis, disease incidence and so on	1) Studied major diseases, diagnostic problems and so on in group training, lecture, workshop and routine guidance at NIAH and RVRDCs	1) The results utilized for improvement of the diagnostic knowledge andtechnologies in RVRDCs	1) Need to continue and promote of the activities
	2) Diagnostic technologies	2) To train diagnostic difficulties and problems in each section at NIAH	2) Studied in group and individual training at NIAH and in guidance by Japanese experts at RVRDCs	2) The results utilized for daily diagnostic activities in RVRDCs	2) Need to continue the transfer of diagnostic technologies
	3) Advanced technologies	3) To train advanced technologies on diagnostic and research works at NIAH and RVRDCs	3) Studied the theory and knowledge in the group training and lecture	3) Actual new technology are not transferred yet except ELISA test	3) Need to introduce the new technology
2. Technical guidance at RVRDCs	1) Technical guidance at RVRDCs by Japanese experts	1) To introduce and transfer the diagnostic technologies and methods on animal disease to RVRDC staff	1) Studied major diagnostic technologies and methods by long term and short term Japanese experts	1) The results of studies reflected for improvement of the diagnostic knowledge and technologies	1) Need to strengthen the technology transfer on the fields of virology, pathology and biochemistry
3. Seminars	1) For important diseases in livestock	1) Seminarson the knowledge and diagnostic technologies of important diseases and topics in livestock	1) Studied the knowledge, characteristics, diagnostic technologies and topic of major diseases in several kind of seminars and lectures	1) Seminars are useful for improvment of the disease investigation and diagnostic activities	1) The seminars need to more open
	2) For animal health and disease control	2) Seminars on animal health, disease controland so on	2) Studied the way of animal health management and disease control in seminars, lectures and workshop	2) idem	2) idem

OBJECTIVES	PLANNING OF ACTIVITIES	BRIEF DESCRIPTION OF ACTIVITIES	ACIEVEMENT OF ACTIVITIES	PROGRESS ANALISIS EVALUATION OF ACTIVITIES	MEASURES TO BE TAKEN IN THE FUTURE
III. Improvement of diagnostic techniques for the establishment of appropriate diagnostic systems	1. Evaluation of existing diagnostic methods used in NIAH and RVRDCs	1. To identify and compare the existing diagnostic methods and techniques at NIAH and RVRDCs.	1. The existing diagnostic methods and items of viral, bacterial, parasitic and non-infectious diseases using in NIAH and RVRDCs were investigated, monitored and clarified.	1. Present diagnostic method and items used in NIAH and RVRDCs were clarified List of the disease need to make standard diagnostic manual was made	1. Completed.
	2. Improvement of exisitng diagnostic techniques and methods	2. To improve the exisiting diagnostic methods in simplification, specificity and sensitivity.	2. NIAH and RVRDC staff studied diagnostic knowledge and technologies on the guidance by Japanese experts, and on the lectures, workshops and seminars concerned.	2. Using serological and antigenical diagnostic technologies are improved in specificity and sensitivity The technology transfer in some field are delayed and obliged to stop due to vacancies of the C/P	2. Need to continue more the technology transfer to RVRDCs. Utilization of improved diagnostic methods are expected.
	3. Development of new diagnostic methods	3. To develop new methods and technologies on immunological diagnosis as ELISA, IHA, R-PHA, LA and so on.	3. Gene manipulation, several protein blotting and PCR methods as gene and molecular immunological diagnostic methods are transfered. ELISA techniques for antigen and antisera detection on bacterial and protozoan diseases are transfered. As biochemistry techniques, determination of sulfonamides and soluble vitamins by HPLC are transfered.	3. Diagnostic methods are improved in simplification, rapidity, specificity and sensitivity Delayed the development of ELISA due to the technical difficulties	3. Need to continue the development of ELISA and other advanced technologies.
	4. Standardization of diagnostic methods	4. To standardize the diagnostic methods microbiologically, immunologically, pathologically and biochemically among NIAH and RVRDCs.	4. Using diagnostic techniques will summarize, and the manual on standard diagnostic techniques are planed to publish.	4. This subject are planned to start from 4th year of the Project	4. Standardization of diagnostic methods and publication of standard diagnostic manual is expected

Annex 12

Training courses on Five Major Diseases

No.	Date	Subject	No.of participants	Budget
1	Feb. 12-16, 1996	Arthropod-borne Diseases	Regional,provincial 49 veterinarians of RVRDCs	JICA & DLD
2	Feb. 26- Mar.1, 1996	Arthropod-borne Diseases	Regional,provinicial 40 veterinarians of RVRDCs	JICA & DLD

Training course on Standardization of Diagnostic Methods (Budget : DLD)

No.	Date	Disease	Diagnostic Method	No.of Participants
1.	April. 24 - 28, 1995	Brucellosis	a. Rapid plate agglutination test b. Rose bengal plate agglutination test c. EDTA-serum agglutination test (EDTA-SAT) d. CF-test e. ELISA f. Isolation	10 3 RVRDCs
2.	April. 25 - 28, 1995	Trypanosomiasis	a. Blood smear (thick smear,thin smear and woos method b. Mouse inoculation c. IFA d. ELISA	10 3 RVRDCs
3.	May. 1 - 4, 1995	Bovine leukosis	AGID	12 3 RVRDCs
4.	May. 22 - 26, 1995	Tuberculosis	a. Tuberculin test b. Isolation/Acid fast staining	10 3 RVRDCs
5.	May. 23-26, 1995	Anthrax	Isolation, blood smear , Mice inoculation Ascoli test, Pearl test γ-phage test	10 3 RVRDCs
6.	May. 13 - 25, 1996	Babesiosis	a. Blook smear (thick blood smear and thin blood smear) b. IFA	12 3 RVRDCs
7.	May. 20 - 24, 1996	Paratuberculosis	a. ELISA b. Complement fixation test	14 3 RVRDCs

No.	Date	Disease	Diagnostic Method	No.of Participants
8.	June. 3-7, 1996	Mycoplasmosis in chicken	a. Bacterial isolation b. Slide aggluination	8 3 RVRDCs
9.	July. 15-24, 1996	IBR	a. Virus isolation b. SN	10 3 RVRDCs
10.	July. 15-24, 1996	Newcastle	a. Virus isolation b. HA-HI c. Pathogenicity test	10 3 RVRDCs

Seminar

No.	Date	Subject	No.of Participants	Budget
1	March 2-3,1995	Tuberculosis	Verterinarians,Techicians, Scientists from Government, University and Private sectors 150	JICA & DLD
2	May 30, 1995	PRRS in swine	Verterinarians,Techicians, Scientists from Government, University and Private sectors 146	DLD
3	July 25, 1995	Singificance, Definition and Methods in Diagnosis	Verterinarians,Techicians, Scientists from Government, University and Private sectors 122	DLD

Special lecture by expert

No.	Date	Topic	Lecturer
1.	Nov. 15, 1994	Establishment of cloning method of Protozoan; genus Theileria; order Piroplasmosis using single cell cloning technique.	Dr. S.Furuuchi Japanese expert
2.	Nov. 15 , 1994	A new immunodiagnosis dipstick celloidal dye immunoassay with special reference to trypanosomiasis.	Dr. Y.Kashiwazaki Japanese expert
3.	Jan. 13 , 1995	The structure and activity of livestock infectious diseases control in Japan	Dr. H. Ogura Japaneses expert
4.	Mar. 1, 1995	Campylobacteriosis in domestic animals	Dr. Hashimoto Japaneses expert
5.	Apr. 25, 1995	Animal quarantine services in Japan	Dr. T.Moriwaki Japaneses expert

No.	Date	Topic	Lecturer
6.	Apr. 25, 1995	Recent topics in swine fever and PRRS researches in NIAH of Japan	Dr.M.Shimizu Japaneses expert
7.	Jun. 15, 1995	Ultrastructure of Sarcocysts in animal	Dr.M.Kubo Japaneses expert
8.	Jul. 7, 1995	Ultrastructure of viral particles	Dr. M.Kubo Japaneses expert
9.	Jul. 18, 1995	Simple identification methods of chicken viruses and avian nephritis virus	Dr.T. Imada Japaneses expert
10.	Jul. 31, 1995	Molecular virology and Polymerase Chain Reaction (PCR) Technique	Dr. Richard F.Meyer
11.	Dec. 4 1995	Genetic variability of protozoal diseases based on RFLP and attempts to immunize with vaccine	Dr.Onuma Japanese professor
12.	Dec. 11, 1995	T-cell Immunosuppression in chicken infected with Marek's disease virus	Dr.Onuma Japanese professor
13.	Dec. 15, 1995	Arthropod-borne virus infectious diseases in Japan Disease surveillance	Dr. Y. Goto Japanese expert
14.	Dec. 15, 1995	Arthropod-borne protozoan diseases immunological and genetical analysis of Trypanosomiasis	Dr.T.Urakawa Japanese expert
15.	Dec. 15, 1995	Importance of internet and its construction	Dr. T. Inoue Japanese expert
16.	Jan. 12, 1996	Development of tick-borne disease vaccine	Dr.Y.Honda Japanese expert
17.	Jan. 19, 1996	Swine mycoplasmosis	Dr.K.Hashimoto Japanese expert
18.	Apr. 24, 1996	A Japanese scientist fighting against sleeping sickness	Dr. Hirumi Japanese expert
19.	May. 2, 1996	Glutathione peroxidase in domestic animal	Dr.S.Miyazaki Japanese expert
20.	Jun. 2, 1996	Animal disease control	Dr.A.J.Forman
21.	Jun. 7, 1996	Contagious bovine plueuropneumonia	Dr.K.Hashimoto Japanese expert
22.	Jul. 21, 1996	BSE and Scrapie	Dr.S.Furuuchi Japanese expert

Annex 13

Achievement of the activities in each objective

Annex:13

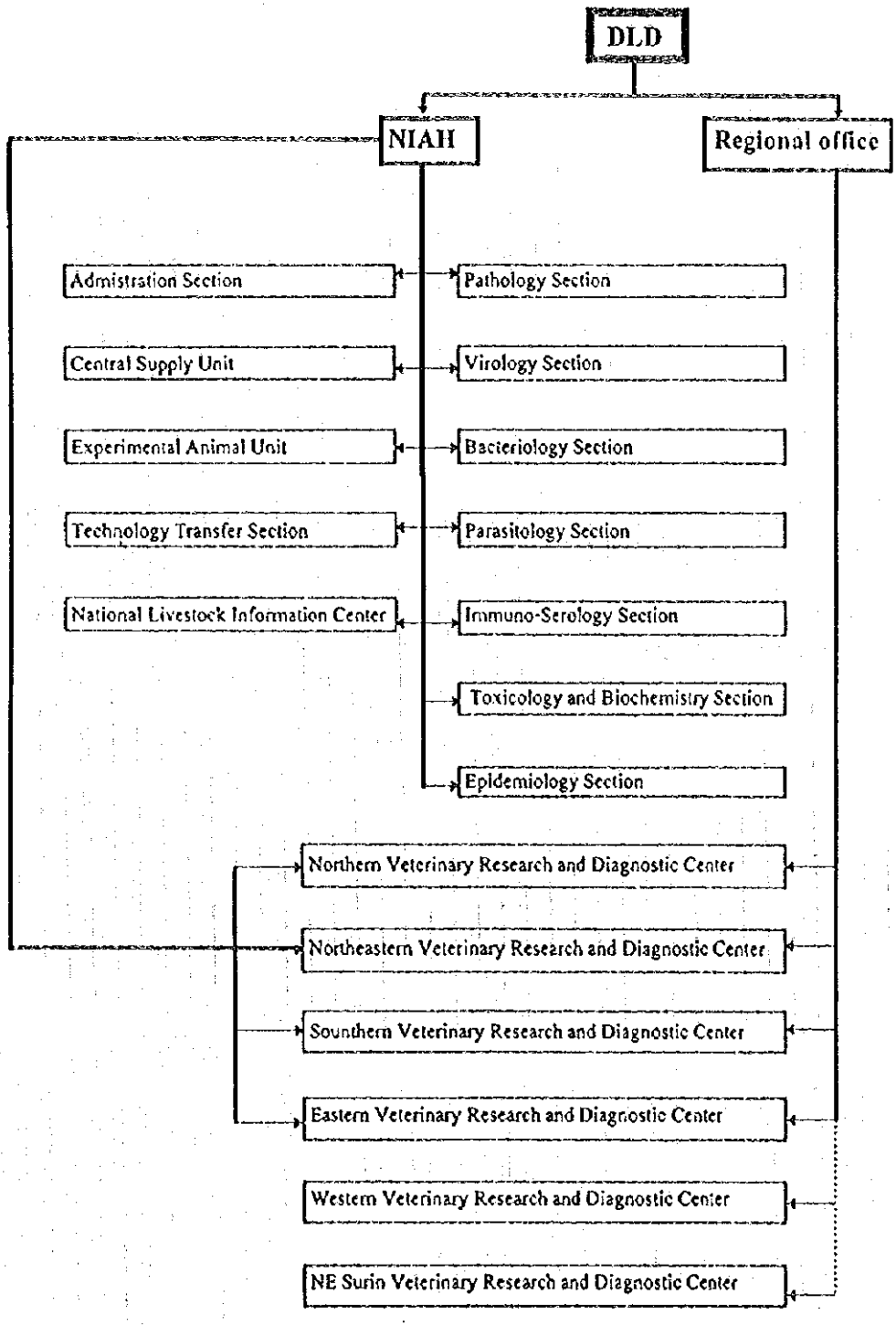
Objectives and planning of activities	Progress and achievement of activities	AM	PG
I.Epidemiological survey and research activities for the development of control program for major diseases			
1. Swine fever			
(1) Epidemiological survey			
a. Collecting of information and questionaire survey in the farms	-Epidemiological investigation and data analysis in IIC suspected farms	5	Comp.
b. Field survey	-Continuing observe and material collection	5	Cont.
(2) Study of chronic swine fever			
a. Pathgogenicity of field isolates	-Pathogenicity in young pigs and pregnant sows	4	Cont.
b. Pathological analysis	-Pathological analysis in above experimental pigs	3	Cont.
c. Examine of other complications	-Bacterial and biochemistry analysis in above pigs	2	Cont.
(3) Characterization of field isolates			
a. Biol. and physiol. properties	-Cloned 10 strains of 20 field isolates	2	Cont.
b. Antigenical analysis	- idem -	2	Cont.
(4) Monitor and dis. contr.in key farm			
a. Investigate incidence and antibody	-Start from 1997	-	NS
b. Evaluate disease control methods	-Start from 1997	-	NS
2. Brucellosis			
(1) Apply new diagnostic methods			
a. Compare ELISA and existing methods	-Analysis ELISA antigen for their possible use	3	Cont.
b. Apply ELISA for serological diag.	-Not start yet	1	Start
(2) Field investigation of the disease			
a. Investigation of sero-prevalence	-Assessed in 35,188 cattle sera	4	Cont.
b. Bacterial isolation	-Identified 23 isolates from positive cattle	5	Cont.
c. Pathological examine	-3 typical lesions were found in 10 sample cases	4	Cont.
(3) Monitoring and control method in key farms			
a. To select key farms	-3 infected and 6 clean farms selected	5	Comp.
b. To monitor and survey the disease	-Regularly monitored and serologicaly serveyed	3	Cont.
c. Disease control by various methods	-Recommend for possible control measure	3	Cont.
(4) Evaluate & disease control measure			
a. Evaluation of monitoring result	-Start from 1998	-	NS
b. Disease control measure	-Start from 1998	-	NS
3. Tuberculosis			
(1) Apply new diagnostic methods			
a. Compare ELISA and existing methods	-Applied ELISA in the field	4	Cont.
b. Apply ELISA for serological diag.	-Assessed in 30,278 sera by ELISA	5	Cont.
(2) Field investigation of the disease			
a. Investigation of sero-prevalence	-Assessed positive rate by SID test	4	Cont.
b. Bacterial isolation	-Isolated the agents from SID positive cattle	4	Cont.
c. Pathological examine	-None visible lesions in 5 SID(+) autopsied cattle	3	Cont.
(3) Monitoring and control method in key farms			
a. To select key farms	-6 clean herds were selected	4	Cont.
b. To monitor and survey the disease	-Regularly monitored	3	Cont.
c. Disease control by various methods	-Recommend for maintenance of disease free	3	Cont.
(4) Evaluate & disease control measure			
a. Evaluation of monitoring result	-Start from 1998	-	NS
b. Disease control measure	-Start from 1998	-	NS
4. Paratuberculosis			
(1) Apply new diagnostic methods			
a. Compare ELISA and existing methods	-Prepared ELISA antigens	2	Cont.
b. Apply ELISA for serological diag.	-Tested reliability of commercial ELISA kit	3	Cont.
(2) Field investigation of the disease			
a. Investigation of sero-prevalence	-Assessed in 30,436 cattle sera	5	Cont.
b. Bacterial isolation	-Isolated the agents from the positive cattle	4	Cont.
c. Pathological examine	-Disease confirmed in 3 of 5 autopsied cattle	4	Cont.
(3) Monitoring and control method in key farms			
a. To select key farms	-3 infected and 6 clean farms selected	5	Comp.
b. To monitor and survey the disease	-Regularly monitored and serologicaly surveyed	3	Cont.
c. Disease control by various methods	-Recommend for possible control measure	3	Cont.
(4) Evaluate & disease control measure			
a. Evaluation of monitoring result	-Start from 1998	-	NS
b. Disease control measure	-Start from 1998	-	NS

Objectives and planning of activities	Progress and achievement of activities	AM	PG
5. Arthroped borne diseases			
(1) Development of ELISA technique			
a. To prepare Bb. and Ap. ELISA Ag.	-Evaluated the reliability of Ap. & Bb. ELISA Ag.	4	Cont.
b. To develop Ab. ELISA technique	-Evaluated the ELISA system	3	Cont.
c. To develop Tp. Ag ELISA technique	-Developed Tp. ELISA. Developing ELISA with MoAb.	4	Cont.
(2) Sero-epidemiological survey			
a. Sero-epidemi. for protozoan dis.	-Finished in temporal investigations	2	Cont.
b. Sero-epidemi. for viral dis.	-Surveyed BL,BEF,BT. antibodies in > 1,000 cattle	3	Cont.
(3) Geographical(Cg) survey of vectors			
a. Cg. survey and identify the ticks	-Classified in 5 genera, 8 species in 22 provinces	5	Comp.
b. Cg. and seasonal distribution of tabanid flies	-Classified in 3 genera, 40 species in 26 province	5	Comp.
(4) Field experiment of Bb. vaccine			
a. Efficacy and safety of Bb. vaccine	-Analysed from antibody & challenge response	3	Cont.
b. Evaluation of the vaccine	-Start from 1997	-	NS
II. Training and guidance for RVRDCs			
1. Training on disease control and diagnostic techniques			
(1) Training on diseases	-Group training, seminars, lectures, study meeting	4	Cont.
(2) Training on diagnostic techniques	-Group & individual training, study meeting	5	Cont.
(3) Training on advanced technologies	-Group training, lectures, workshop, study meeting	3	Cont.
2. Technical guidance at RVRDCs			
(1) Guidance by Japanese experts	-Implemented lecture and technical guidance	4	Cont.
3. Seminars			
(1) For important livestock diseases	-Opened seminars, lectures, workshop	4	Cont.
(2) For animal health & dis. control	-Opened seminars, lectures, workshop	3	Cont.
III. Improvement of daiagnostic techniques			
1. To evaluate exisiting diagnostic methods in NIAH and RVRDCs	-Investigated and clarified the existing methods	5	Comp.
2. To improve exisiting diagnostic techniques and methods	-By technical guidance, seminars,study meeting	4	Cont.
3. To develop new diagnostic methods	-By group training, seminars, study meeting C/P training in Japan	3	Cont.
4. To standardize diagnostic methods	-Start from 1997	-	NS

An abbreviation:
AM: Achievement degree
5=100%, 4=75%, 3=50%, 2=25%
PG: Progress
Comp.: Completed (Finished)
Cont.: Continue
NS : Not start

NIAH : National Institute of Animal Health
RVRDC: Regional Veterinary Research and Diagnostic Center
Biol : Biological
Physiol.: Physiological
Epidemi.: Epidemiological
Dis. : Disease
Contr.: Control
Diag. : Diagnosis
SID : Single intradermal test
Bb. : Babesiosis
Ap. : Anaplasmosis
Tp. : Trypanosomiasis
Ag. : Antigen
Ab. : Antibody
MoAb: Monoclonal antibody
HC : Hog cholera
BL : Bovine leukosis
BEF : Bovine ephemeral fever
BT : Bluetongue
C/P : Counterpart

Annex 14 Organization chart



付属資料2. 分野別進捗状況および達成度

課題	実際の活動	達成度	進捗状況
I. 主要疾病防疫のための調査・研究			
1. 豚コレラ			
(1)疫学調査			
a. 発生養豚場での情報交換と疫学的解析	豚コレラを疑わせる発生養豚場での疫学調査、情報収集	5	完了
b. 野外調査	発生養豚場での材料最終および調査・観察を継続	5	継続
(2)慢性豚コレラの試験、解析			
a. ウイルスの病原性解析	慢性豚コレラの再現性、妊娠豚に対する病原性試験	4	継続
b. 病理学的検査	豚コレラの病理学的解析	3	継続
c. 他の病原体の関与、生化学的解析	感染豚と対照豚との細菌種、ビタミンレベルの差異を検査	3	継続
(3)野外ウイルスの性状解析			
a. 生物学的・物理化学的性状の解析	20株を分離、10株をクローニング	2	継続
b. 抗原性の解析	同上	2	継続
(4)指定養豚場でのモニタリング・防疫計画の策定			
a. 疾病の発生状況、抗体消長の調査	未実施、1997年度から実施	−	未実施
b. 豚コレラの防疫計画の策定	未実施、1997年度から実施	−	未実施
2. ブルセラ病			
(1)新診断法の開発・応用			
a. ELISA法と既存診断法との比較	ELISA用抗原を作製、特性を検討中	3	継続
b. ELISA法の血清診断法への応用	未実施	1	開始
(2)野外での疾病の実態調査			
a. 血清学的調査	35,188頭の牛について疾病の発生、分布状況を調査	4	継続
b. 細菌の分離試験	感染牛、牛乳、臓器から菌の分離・同定を実施	5	継続
c. 病理学的検査	陽性牛の病理解剖、診断	4	継続
(3)指定農場でのモニタリング・防除法の策定			
a. 指定農場の選定	血清学的検査により陽性農場、陰性農場を選定	5	完了
b. 疾病の調査とモニタリング	陽性農場および陰性農場の定期的追跡モニター	3	継続
c. 疾病の防除法に関する検討	陽性農場に対する指導、助言	3	継続
(4)疾病調査の評価と防除計画の策定			
a. モニタリングの評価	未実施、1988年度から実施	−	未実施
b. 疾病防除計画の策定	未実施、1998年度から実施	−	未実施
3. 結核			
(1)新診断法の開発・応用			
a. ELISA法と既存診断法との比較	ELISA法を野外に応用	4	継続
b. ELISA法の血清診断法への応用	30,278頭の牛、水牛の抗体調査に応用	5	継続
(2)野外での疾病の実態調査			
a. 血清−疫学的調査	SIDにより疾病の分布状態を調査	4	継続
b. 細菌の分離試験	SID陽性牛のの解剖、菌分離を実施	4	継続
c. 病理学的検査	確定診断のため陽性牛の病理解剖を実施	3	継続
(3)指定農場でのモニタリング・防除法の策定			
a. 指定農場の選定	SIDにより陰性農場を選定、中央地域で陽性農場未確認	4	完了
b. 疾病の調査とモニタリング	陰性農場の定期的追跡モニター	3	継続
c. 疾病の防除法に関する検討	清浄維持のための助言・指導	3	継続
(4)疾病調査の評価と防除計画の策定			
a. モニタリングの評価	未実施、1998年度から実施	−	未実施
b. 疾病防除計画の策定	未実施、1998年度から実施	−	未実施

課　　題	実　際　の　活　動	達成度	進捗状況
4. ヨーネ病			
(1)新診断法の開発・応用			
a. ELISA用抗原の作製・性状検査	ELISA法抗原の検討	2	継続
b. ELISA法の血清学的調査への応用	市販ELISAキットと他血清診断法との特異性の比較検討	3	継続
(2)野外での疾病の実態調査			
a. 血清一疫学的調査	30,436頭の牛についての疾病の発生、分布を調査	5	継続
b. 細菌の分離試験	陽性牛の糞便、臓器からの菌分離を実施	4	継続
c. 病理学的検査	病勢、確定診断のための陽性牛を病理解剖	4	継続
(3)指定農場でのモニタリング・防除法の策定			
a. 指定農場の選定	血清学的検査により陽性農場、陰性農場を選定	5	完了
b. 疾病の調査とモニタリング	陽性農場および陰性農場の定期的追跡モニター	3	継続
c. 疾病の防除法に関する検討	陽性農場に対する指導、助言	3	継続
(4)疾病調査の評価と防除計画の策定			
a. モニタリングの評価	未実施、1998年度から実施	−	未実施
b. 疾病防除計画の策定	未実施、1998年度から実施	−	未実施
5. 節足動物媒介疾病			
(1)原虫病に関するELISA法の開発			
a. バベシアおよびタイレリア用ELISA抗原の作出	抗原を作製、特異性等を実験室、野外で検討中	4	継続
b. バベシアおよびタイレリア用ELISA血清診断法の開発	ELISAシステムを検討中	3	継続
c. トリパノソーマ用ELISA抗原診断法の開発	ｷﾘﾛﾄｰﾑ抗体による診断法を開発、MoAb法を検討中	4	継続
(2)血清一疫学的調査			
a. 節足動物媒介原虫病の血清疫学的調査	断片的な調査に終始	2	継続
b. 節足動物媒介ウイルス病の血清疫学的調査	1,000頭以上の牛でBL、BEF、BTの抗体調査を実施	3	継続
(3)タイ国におけるベクターの地理的分布			
a. ダニの分類と地理的分布活動の調査	22県の牛、水牛、植物類からダニを採集、分類	5	完了
b. アブの地理的・季節的分布活動の調査	26県およびキーファームでアブを採集、分類	5	完了
(4)バベシア生ワクチンの野外応用試験			
a. バベシア生ワクチンの効力と安全性試験	ワクチン効果を抗体消長、強毒血攻撃で測定	3	継続
b. バベシア生ワクチンの評価	未実施、1997年度から実施	−	未実施
II. 地域診断ｾﾝﾀｰに対する研修および技術指導			
1. 疾病と技術に関する研修			
(1)疾病研修	集団研修およびセミナー、講演会、勉強会等を実施	4	継続
(2)診断技術研修	集団研修、個別研修、勉強会等を実施	5	継続
(3)新技術の研修	集団研修、ワークショップ、講義、勉強会を実施	3	継続
2. 地域診断センターにおける技術指導			
(1)専門家による技術指導	専門家による講義、技術指導を実施	4	継続
3. 各種セミナーの開催			
(1)主要疾病に関するセミナー等	セミナー、講演会、ワークショップを開催	4	継続
(2)衛生・防疫等に関するセミナー等	セミナー、講演会、ワークショップを開催	3	継続
III. 診断システム確立のための診断技術の改良			
1. 既存診断法の比較、解析	NIAHおよびRVRDCsで使用の診断法および診断項目の調	5	完了
2. 既存診断技術の改良	査	4	継続
3. 新しい診断技術の開発	技術指導、セミナー、勉強会等の実施	3	継続
4. 診断技術および手法の標準化	セミナー、集団研修、勉強会、C／P研修を実施	−	未実施

略語説明
達成度　：5＝100％、4＝75％、3＝50％、2＝25％
NIAH　：National Institute of Animal Health
RVRDC：Regional Veterinary Research and Diagnostic Center
ELISA　：Enzyme－linked immunoadsorbent assay
SID　：Single intradermal test
MoAb　：Monoclonal antibody
BL　：Bovine leukosis
BEF　：Bovine ephemeral fever
BT　：Bluetogue
C／P　：Counterpart

付属資料3. プロジェクトの活動状況

課題	活動	活動目標	活動成果	評価（進捗状況）	今後の計画・提言
I. 主要疾病の防疫計画策定のための疫学調査と研究活動					
1. 豚コレラ 1）疫学調査	a. 発生養豚場における情報の収集と疫学的解析	豚コレラの発生養豚場から情報収集し、発生状況、被害状況等について疫学的に解析	4地域、381カ所の豚コレラの発生を疑わせる養豚場を調査	4地域の疫学担当獣医師により調査資料を解析	調査終了
	b. 野外における疫学的調査	養豚場の聞取り、観察、材料採集および継続調査・観察のための養豚場の選択	10養豚場のうち継続調査に協力の2養豚場で2カ月ごとに調査・観察を継続	2カ所の養豚場で調査・観察を継続	継続
2）慢性豚コレラに関する試験	a. 病理学的検査	－子豚による感染実験を行い、慢性豚コレラの性状についてウイルス学的、病理学的に検査	－子豚18頭を用い、野外分離ウイルスを投与し、その病原性について経日的に調査	経過が長く、症状が後半に現れ慢性豚コレラが実験的に再現	終了
	b. 野外ウイスルの病原性の解析	－妊娠豚を用い、慢性豚コレラウイルスの胎児に対する病原性をウイルス学的、病理学的に検査、解析	－妊娠初期の母豚に野外分離ウイルスを投与し、胎児24頭について病原性を調査	24頭が生産。現在産出された新生豚を経時的に試験殺、ウイルス学的、病理学的に検査	妊娠中期および後期の妊娠豚について実施
	c. 他の病原体の関与、生化学的解析	－上記試験において細菌増殖の関与、生化学的変化の解析	－感染豚についてビタミンレベルの調査と細菌の分離を実施	感染豚と対照豚間にビタミンレベルに差異なし、非病原性の細菌数種のみ分離	調査の継続
3）野外ウイルスの諸性状の比較解析	a. 抗原性状の比較解析	野外ウイルスの抗原性を比較検討	1988年から1995年までの20株の野外ウイルスを分離	現在、10株についてクローニング終了	クロンウイルスについて実施
	b. 生物学的および物理化学的性状の比較解析	野外分離ウイルスについて生物学的および物理学的性状の比較と、その差異を解析	同上	同上	クロンウイルスについて順次実施
4）指定養豚場における疾病のモニタリングと防疫計画の策定	a. 疾病の発生状況、病性および抗体消長の調査	特定の発生養豚場において発生状況について定期的に調査を行うとともに、抗体の動き、ワクチンの効果等について清浄養豚場を対象に比較調査	1997年度から実施予定		特定養豚場の選定
	b. 豚コレラ防疫計画の策定	上記の成績から、指定・選択養豚場において本病の防疫計画を策定	同上		同上

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2. ブルセラ病 1）新しい診断法の開発と応用	a. ELISA法と既存の診断法との比較	ELISA法と既存の診断法との特異性、感受性を比較	数種類のELISA用抗原を作製し、その特性について検討	可溶性LPSが間接ELISA診断用抗原として使用の可能性が判明	ELISA用抗原の評価
	b. ELISA法の血清診断への応用	ELISA法を野外に応用し、その診断基準を確立	未実施	抗原の作製が遅れ、未だ野外への応用は未実施	ELISA診断の野外応用、評価
2）野外における疾病の実態調査	a. 血清学的調査	凝集反応と補体結合反応により疾病の分布状況を調査	1996年7月までに35,188頭の牛および水牛について検査	304（0.9％）例に陽性が判明	タイ全地域の分布状況の把握
	b. 細菌の分離試験	患畜からの細菌の分離と同定の試み	感染牛ののミルクおよび臓器から菌の分離、同定を実施	ブルセラ菌23株を分離	分離株の生物学的性状の決定
	c. 病理学的検査	病理学的観察により疾病の同定とその病原性の検査	陽性牛10例の臓器（うち3例は解剖）について病理検査を実施	検査材料のうち、6例に典型的な病変を確認	ABC法の応用
3）指定牧場における疾病のモニタリングと防除法の策定	a. 指定牧場の選定	感染農場と清浄農場のうちから調査用の指定農場を選定	主として血清学的検査により指定農場を選定	陽性農場3カ所、陰性農場6カ所を選定	終了
	b. 疾病の調査とモニクリング	臨床症状、血清学的、細菌学的および病理学的検査により疾病の発生状況と程度を調査	陽性農場における疾病の性状、形態について調査	陽性農場では陽性の追跡モニター、陰性農場では月ごとに定期調査を実施	定期的検査の続行
	c. 疾病の防除法に関する検討	感染牧場での生菌ワクチンの効果を調査。また感染牛の淘汰、隔離や衛生管理指導等による疾病防圧の試み	陽性農場についての疾病の防除法について調査	畜主に対し陽性牛の殺処分、清浄牛の導入、定期検査を指導、助言	農場主への指導の継続
4）疾病調査の評価と防除計画の策定	a. モニタリングの評価	モニタリング結果の評価と、疾病の効果的な防御法の策定	1998年度から開始予定		
	b. 疾病防除計画の策定	適切な防御法の策定	同上		

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3.結核 1）新しい診断法の開発と応用	a. ELISA法と既存の診断法との比較	ELISA法と皮内テスト（SID）、γ－IFN法との特異性、利用性の比較	間接ELISAを野外に応用し、比較検討	SID、間接ELISA法間で特異性、感受性に差異あり	的確検査のため閉鎖系農場での実施が必要
	b. ELISA法の血清学的調査への応用	ELISA法の野外における血清疫学調査への応用	1996年7月までに30,278頭の牛、水牛の血清について間接ELISA法で調査	ELISAに対する高い陽性反応が64例（2.2%）で確認	ELISA法の評価
2）野外における疾病の実態調査	a. 疾病の血清－疫学的調査	ELISA法、SIDによる疾病分布状態の調査	計7県においてSIDで疾病の分布状況を調査	調査県の年間陽性率は0%（1994年）、約2%（1995年）、約0.4%（1996年）	SIDの標準化と野外への応用
	b. 細菌の分離試験	診断材料からの菌の分離培養と同定	SID陽性牛5とを解剖し、菌分離を実施	陽性牛および非定型牛から計2株の菌を分離	菌分離培養地検討の必要
	c. 病理学的検査	病理学的検査と他の成績との比較。免疫組織化学的手法による診断	上記5頭を確定診断のため病理解剖を実施	4例では明瞭な病変は認められず	感受性、特異性の高いABC法の応用
3）指定牧場における疾病のモニタリングと防除法の策定	a. 指定牧場の選定	感染農場と非感染農場からの指定農場の選定	6カ所の陽性農場をSID法で調査・選定。中央地域で陽性農場は未確認	中央地域で感染農場の選定は困難	疾病防除のため陽性農場の選定を継続
	b. 疾病の調査とモニタリング	種々の診断法による疾病の実態調査	陰性農場を毎月定期的に調査	6戸の陰性農場は現在まで清浄状態を継続	定期的な追跡調査の継続
	c. 疾病防除法の検討	種々の方法による感染農場の疾病防除の試み	陽性農場を確認、選定のため血清学的調査を継続実施	現在まで陽性農場は未確認	陽性農場の調査・継続
4）疾病調査の評価と防除計画の策定	a. モニタリングの評価	モニタリングの評価と疾病の効果的な防除法の策定	未実施		1988年度から実施予定
	b. 疾病計画防除計画の策定	モニタリングに基づく適切な防除計画の立案	未実施		1988年度から実施予定

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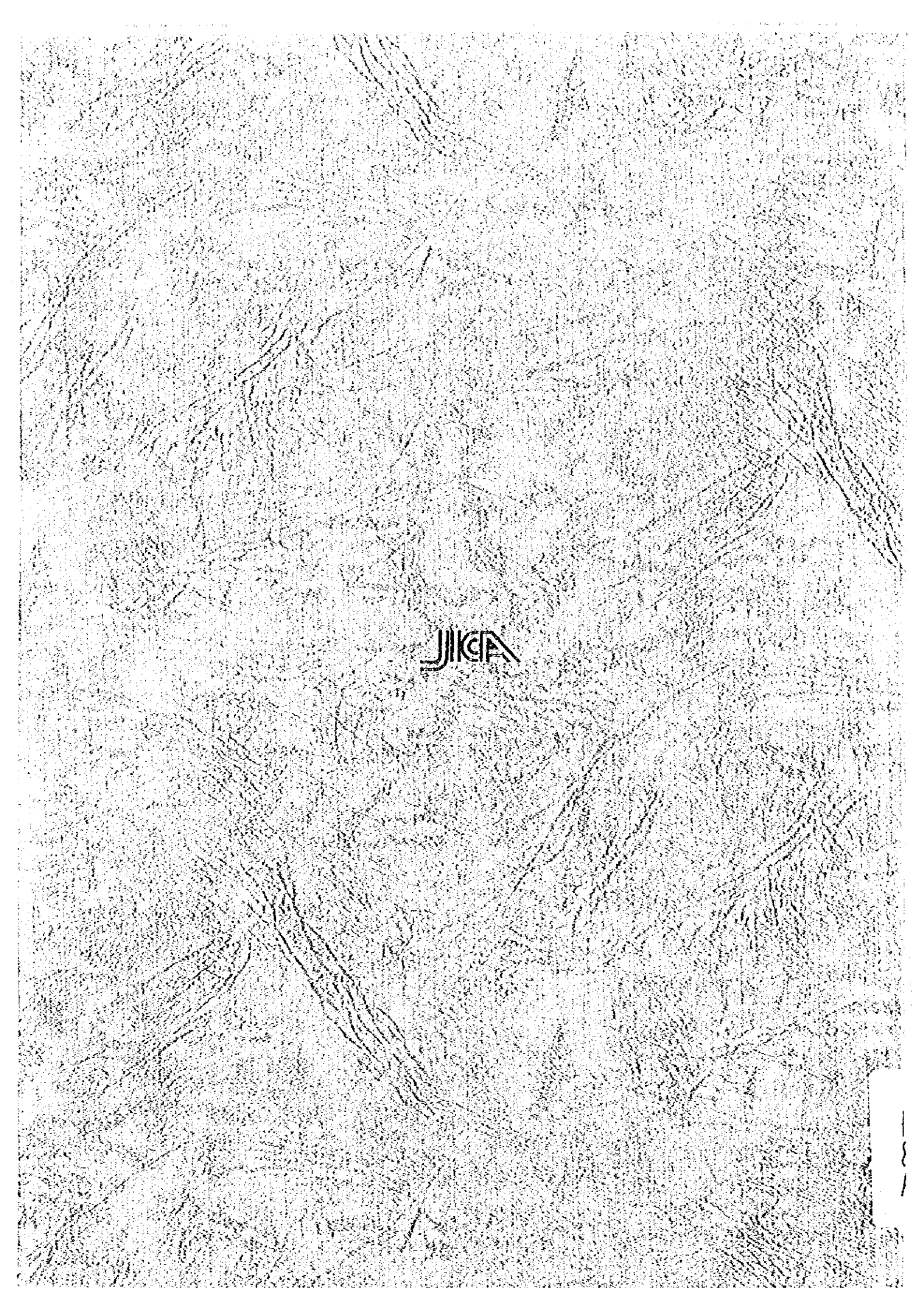
4. ヨーネ病 1）新しい診断法の開発と応用	a. ELISA用抗原の作製と性状検査	ELISA用抗原を作製し、その特性等を調査	ELISA抗原用作製培地の検討を実施	抗原の大量培養法および抽出処理法を検討	ELISA抗原の作製
	b. ELISA法の血清学的調査への応用	ELISA法を野外の血清診断法として応用	市販のELISAキットを用い、血清学的調査を実施	従来ののCFTと特異性、感受性について比較検討の必要性あり	ELISA診断キットの評価
2）野外における疾病の実態調査	a. 疾病の血清一疫学的調査	血清一疫学的調査により疾病の発生・分布を調査	1996年7月までに計30,436頭の牛、水牛についてCFTで調査し、陽性血清をELISA、CFTで再確認	122例（0.4％）で陽性を確認	全国的な発生・分布状況の把握
	b. 細菌の分離試験	材料を採取し、菌の分離・同定を実施	糞便および臓器から特性培地で菌分離の試みを実施	9例のヨーネ菌を分離	菌の分離・同定作業の継続
	c. 病理学的検査	病理学的検査を行い、他の検査成績と比較。また診断に免疫組織学的手法を応用	陽性牛5頭を解剖し、病理検査を実施	病理組織学的検査で5頭中3頭をヨーネ病と診断	ABC法を応用し、診断の特異性の向上
3）指定牧場における疾病のモニタリングと防除法の策定	a. 指定牧場の選定	調査のため陽性農場と陰性農場を選定	血清調査および他の検査による指定農場を選定	陽性農場を3カ所と陰性農場6カ所を選定	終了
	b. 疾病の調査とモニクリング	血清学的、細菌学的および病理学的検査により、疾病の発生状況・病態を調査	陽性農場について疾病の発生状況および病態を調査	陽性農場では感染牛を淘汰後モニターを継続、陰性農場では毎月調査を実施	定期的調査および検査の継続
	c. 疾病の防除法に関する検討	種々の方法による疾病防除、軽減の試み	陽性農場において疾病防御方法について調査・検討	感染牛の淘汰、清浄牛の導入、定期的な検査を指導・助言	農場主への指導の継続
4）疾病調査の評価と防除計画の策定	a. モニタリングの評価	モニクリングの結果を評価し、疾病の効果的な防御法を策定	未実施		1988年度から開始予定
	b. 疾病計画防除計画の策定	モニクリングの結果から適切な防除計画を策定	未実施		1988年度から開始予定

課題	活動	活動目標	活動成果	評価（進捗状況）	今後の計画・提言
5. 節足動物媒介疾病 1）原虫病に関するELISA法の開発	a. バベシアおよびアナプラズマ用ELISA抗原の作出	脾摘出牛を持ち、バベシア、アナプラズマ病のELISA用抗原および抗免疫血清の作出	バベシア・ビゲミアおよびアナプラズマ・マージナーレの抗原を作製	抗原の純度、特異性、感受性を評価中	バベシア・ボビスの抗原作製
	b. バベシアおよびアナプラズマ用ELISA血清診断法の開発	バベシアおよびアナプラズマ用ELISA血清診断法の開発と評価	ELISAシステムの評価を実施中	ELISAシステムの確立	ELISA法の野外での特性評価
	c. トリパノゾーマ用ELISA抗原診断法の開発	モノクロナール抗体を用いたトリパノゾーマ用ELISA抗原診断法の開発と野外での評価	ポリクロナールの抗体を用い、トリパノゾーマ抗原検出ELISA診断法を作製。現在、数種のMoAbを作製し、その特性を検討中	抗原検出ELISA診断法が他の寄生虫診断および抗体検出ELISA診断より信頼性の高いことが判明	MoAbによる特異性の高いELISAの開発
2）血清疫学的調査	a. 節足動物媒介原虫病の血清疫学的調査	アナプラズマ病、トリパノゾーマ病、タイレリア病の地理的分布に関する血清学的調査	1997年度から開始予定	抗原作製の遅れから1997年度から実施予定	計画的な活動の実施
	b. 節足動物媒介ウイルス病の血清疫学的調査	牛白血病、ブルータング、牛流行熱、馬の日本脳炎の地理的分布に関する血清学的調査	1,000頭以上の牛、羊、山羊について、BL、BEF、BTの抗体を、700頭の馬についてJEの抗体を調査	56／800例（7％）でBL陽性、540／600例（90％）でBEF陽性。BTとJEの抗原作製中	広域な血清学的調査の実施
3）タイ国におけるベクターの地理的分布	a. ダニの分類と地理的分布に関する調査	ベクターとして重要なダニの分類とその地理的分布に関する調査	22県において、牛、水牛および植物類から5属8種のダニを採集、分類	バベシアのベクターである牛ダニ；Boophilus microplusが21県で確認	主要ダニ分布地図の作製
	b. アブの地理的・季節的分布と活動に関する調査	原虫病やウイルス病のベクターとして重要なアブの分類と季節的分布に関する調査	地域診断センターの協力の下、26県において3属40種のアブを採集。季節的調査をAIセンターをキーファームとして実施	タイ全地域を通じTabanus rubidusが最も優占種で、キーファームは7種を確認	主要アブ分布地図の作製
4）バベシア生ワクチンの野外応用試験	a. バベシア生ワクチンの効力と安全試験	輸入および試作生ワクチンの効力と安全性の比較検討	ワクチン接種牛の抗体消長を間接蛍光抗体法で測定	ワクチン接種牛で僅かな抗体上昇が見られ、強毒血攻撃後無症状で経過	試作ワクチンの改良
	b. バベシア生ワクチンの評価	バベシア生ワクチンの有効性についての評価	未実施		1997年度から開始予定

課題	活動	活動目標	活動成果	評価（進捗状況）	今後の計画・提言
Ⅱ．地域診断センターに対する研修および技術指導 1．疾病と技術に関する研修	1）疾病研修	疾病の発生、原因、特徴、病性：診断の理論、解析等について講習し、診断知識の向上を図る	1）毎年、主要疾病5課題を選定し、約1週間の予定で集団研修を実施。研修は分野別に研究室が担当し、疾病の性状および診断法に関する技術指導を伝達	診断センターの診断技術の改善、向上に有効利用	活動の継続
	2）診断技術研修	主要疾病の診断技術および方法について研修し、診断技術の向上を図る	2）集団研修および特定技術の個別研修により、診断センターへの職員への診断技術の伝達、改善を指導	診断センターにおける日常の診断活動に有効活用	活動の継続
	3）新技術の研修	疾病解析および診断に関する新技術を講習、診断知識および技術の向上と改善を図る	3）セミナー、講演および集団研修により新技術についての理論、講習を実施	実際の技術としては特定分野のELISA法以外伝達されておらず、他は講義による理論のみ	伝達・指導の必要な新技術を限定する必要あり
2．地域獣医調査診断センターにおける技術指導	1）専門家による技術指導	地域獣医調査診断センターにおいて、長期および短期専門家が診断技術を指導し、診断技術の改善・向上を図る	1）主として、細菌学、免疫学および生化学の分野の長期専門家による診断技術の指導と：ベクター、寄生虫病、細菌性疾病の野外調査等で実地指導	地域診断センターの疾病解析、診断技術の改善、向上に寄与。疾病の野外診断および調査法の改善に寄与	今後、ウイルス学、病理学および生化学分野の指導を強化する必要あり
3．各種セミナーの開催	1）主要家畜疾病について	家畜の主要疾病および診断に関するセミナー等を開催	－主要疾病、診断・防除技術等に関するセミナー、講演、勉強会を実施	－各種セミナー、講演、勉強会等により疾病の性状、防疫技術および診断の重要性が認識され、日常の活動に有効利用	各地域診断診断センターでの勉強会、ワークショップ等の開催を積極的に進める必要あり
	2）家畜衛生と家畜防疫について	家畜衛生、家畜防疫等に関するセミナー等を開催	－同上	－同　上	－同　上

課題	活動	活動目標	活動成果	評価（進捗状況）	今後の計画・提言
Ⅲ．適切な診断システム確立のための診断技術および手法の改良	1. 既存診断法の比較、解析	HIAHおよびRVRDCsで用いられている診断法の種類、方法等を比較、解析し、改良点を探る	1. NIAHおよびRVRDCsにおける既存の主要ウイルス病、細菌性疾病、寄生虫病、非感染病の診断法および診断項目について調査	1. NIAHおよびRVRDCsで用いられている診断法、診断項目が明確化 各疾病について現在使用している診断法および診断項目のリストを作成	1. 終了
	2. 既存診断技術および方法の改良	現在使用している診断法について、その技術および手法を改善し、迅速性、簡便性、感受性および特異性の向上を図る	2. 専門家による指導、セミナー、勉強会等により診断知識の向上、診断技術の改善	2. 主として感染病の血清学的、抗原学的、病原学的診断技術、生化学的診断技術を指導 C／Pの欠員、都合により技術伝達に支障を生じることあり、改善の要あり	2. 今後、RVRDCsへの技術伝達を強め、伝達された技術の利用度、ニーズを調査
	3. 新しい診断技術の開発	主として血清学的および抗原学的診断技術について新しい技術ならびに手法の開発を図る	3. 遺伝子の抽出、蛋白質検出技術、PCR法等遺伝子診断、分子生物学的診断の基礎を伝達、指導 主として、細菌性疾病、原虫病の抗原および抗体ELISA法を指導 生化学面では、HPLCの操作および機器による微量成分の検出・同定技術を伝達	3. 新技術の指導は講義および演習が主体。基礎的知識および技術を習得 ELISAの開発が全体に遅延。開発技術の難しさ、研究への集中度が原因として考えられる。ニーズの再考も必要	3. ELISAおよび他の新技術の伝達を開始 新技術のニーズを極め、集約的に指導、伝達を進める必要あり
	4. 診断技術および診断手法の標準化	NIAHとRVRDCsにおける病理学的、血清学的、抗原学的および生化学的診断基準の標準化を図る	4. 主要疾病について現在NIAH、RVRDCsで使用中の診断法、診断項目を調査・集約	4. 今後、技術技術指導を続けるとともに、標準診断法作成委員会を作成し、標準診断マニュアルの作成を開始	4. 今年度中に委員会を設立し、作業を開始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