

② インドネシア政府による本プロジェクト要請書 (写)

# **PROJECT PROPOSAL**

## **DAIRY TECHNOLOGY IMPROVEMENT AT FARMERS' LEVEL**

**MINISTRY OF AGRICULTURE  
DIRECTORATE GENERAL OF LIVESTOCK SERVICES  
JULY 1993**

**DEPARTEMEN PERTANIAN**  
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Perihal : Usulan Proyek "Dairy  
Technology Improvement  
At Farmers Level"

Jakarta, 2 Juli 1993

Kepada Yth.  
Sdr. Kepala Biro KLN  
Departemen Pertanian  
di -  
J a k a r t a

Bersama ini kami informasikan bahwa salah satu kegiatan "The Strengthening of Artificial Insemination Centre Project, Singosari, East Java, (ATA-233)" bantuan pemerintah Jepang di Indonesia adalah progeny testing pada sapi perah.

Sesuai pembahasan Team Evaluasi Proyek BIB Singosari beberapa waktu yang lalu, disarankan agar kegiatan tersebut dilanjutkan dengan kegiatan baru "Dairy Technology Improvement at Farmers Level".

Tujuan proyek tersebut antara lain untuk meningkatkan kualitas susu dan menambah keuntungan bagi peternak sapi perah.

Sehubungan dengan hal tersebut dimohon bantuan Saudara untuk memproses lebih lanjut kepada instansi terkait sesuai prosedur yang berlaku.

Sebagai bahan pertimbangan bersama ini disampaikan usulan "Dairy Technology Improvement at Farmers Level".

Demikian kami sampaikan kepada Saudara, atas perhatian dan kerjasamanya diucapkan terima kasih.



DIREKTUR BINA PROGRAM

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Perternakan  
2

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Tembusan kepada Yth.

1. Bpk. Direktur Jenderal Peternakan  
( sebagai laporan )
2. Sdr. Kepala Biro Perencanaan Departemen  
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3. Sdr. Kepala Biro Pertanian, Pangan dan  
Kehutanan, Bappenas.
4. Sdr. Kepala Biro KELN, Bappenas

DAIRY TECHNOLOGY IMPROVEMENT  
AT FARMERS' LEVEL

I. GENERAL.

1. Background.

- 1) Milk is an important national diet particularly for infants and its demand is steady increasing in Indonesia.
- 2) Dairy farming is rather new industry for Indonesia and considered one of the promising sectors of agriculture in future.
- 3) Dairy cattle is highly sophisticated animal like precise machines which will need detailed care and proper management.
- 4) Increase of productivity (genetic performance) always associates with additional problems to be solved (intensive dairy needs well balanced technology).
- 5) Strengthening of AI Center Singosari Project has been successfully implemented since 1986 contributing dairy population increase and genetic improvement of dairy cattle. Improvement of feeding and management is duly recognized as the successive step of this project.
- 6) The milk recording survey conducted by the said project revealed that the milking performance of farmers cows in the East Java Province is inferior than that of in the West Java Province, in general.

2. Present Situation.

- 1) Farmers' knowledge and experiences for dairy farming is still insufficient, and far behind for sound dairy farming practise.
- 2) Farmers are normally conservative, and reluctant to absorb and introduce new technology.
- 3) The knowledge and skill of field officers who guide and instruct dairy farming at local level are insufficient to obtain farmers' confidence.
- 4) Extension services in the field on dairy husbandry seems to be not efficient enough in the view point of appropriate technology.
- 5) Improvement trials of feeding and management introduced into the model farmers has demonstrated significant increase of milk production at farmer's level.
- 6) Improvement of milk hygiene and ensuring milk quality is recognized as one of the social attention from the view point of consumers protection.

3. Goal .

Quality milk supply to consumers and more profit to dairy farmers.

II. DESIGN OF THE PROJECT.

1. Executing Agencies.

Directorate General of Livestock Services, Department of Agriculture with the collaboration with GKSI, Union of Dairy Cooperatives Indonesia to be implemented by:

- 1) Provincial Livestock Services, and
- 2) Local KUD organizations.

2. Project Sites and Areas.

- 1) The core of the project (project site) is located in West Java.
- 2) The Project areas are principally focussed to the selected areas of West Java Province. The confined activities are concurrently undertaken at the limited areas of West, Central and East Java Provinces where the progeny testing programme is under operation.

3. Duration of the Project.

Five years from April 1994.

4. Project Objectives.

- 1) Through introduction and intensification of efficient extension activities of appropriate dairy technology and milk hygiene,
- 2) Improving feeding and management practice of dairy cattle at farmers' level,
- 3) Ensuring quality milk production for consumers and high productivity of dairy farming for farmers, and thus
- 4) Contributing improvement of human nutrition (national diet) and farmers economy in Indonesia.

5. Project Activities.

- 1) To establish appropriate technology of dairy farming (feeding and management of dairy cows) to be applicable to dairy farmers.
- 2) To develop and prepare teaching tools and materials to be used for extension and training of staffs.
- 3) To train technical staffs who will engage in guidance and extension activities of dairy technology to farmers.
- 4) To arrange and conduct field application of dairy technology through the model farmers and pilot areas scheme by trained technical staffs of related institutions.
- 5) To provide technical guidance on milk hygiene and introduce necessary equipment and apparatus for milk quality improvement at selected KUDs.
- 6) To arrange and conduct quality improvement scheme of raw milk (producers milk) at the said selected KUDs level.
- 7) To formulate consultative organization consisting of related institutions for effective implementation of extension activities and milk quality improvement.

6. Input.

A. Javanese Side.

- (1) Long and short-term experts on dairy farming, dairy technology, milk hygiene and extension specialists.
- (2) Receiving counterpart training in Japan.
- (3) Provision of equipment for extension activities, training and milk quality improvement.
- (4) Others.

B. Indonesia Side:

- (1) Counterparts officials in various fields.
- (2) Training facilities and holding of trainings.
- (3) Provision of model farmers and pilot areas at selected areas.
- (4) Man power and local budget for extension activities in the field.
- (5) Others.

Other References:

1. The growth and development of the Indonesian dairy development.
2. Outline of livestock extension services.
3. Objectives and activities of GKSI.
4. Skeleton of National dairy development.
5. Project design summary logical framework.
6. Outline of organization and project activities.
7. Associated Projects and other donors.

THE GROWTH AND DEVELOPMENT OF THE INDONESIAN DAIRY

Indonesia has the biggest dairy industry in ASEAN at present as shown in the separate table. Moreover, the dairy development has undeniably very fast. Dairy cattle were introduced by the Dutch at the end of the 19th century but the environment of dairy development had been very unfavourable until around 1978 when The 3rd Five Years Development Plan was launched.

The 3rd Five Year Plan positively created growth and development of dairy cooperatives of Indonesia through the policy packages of:

1. Harmonious relationship between the dairy cooperatives as milk producers and the private dairy processing industries as the milk processor/dairy factory through market guarantee and reasonable milk price.
2. Importing dairy cattle, which up to 1992 reached amount of 125 thousand head from New Zealand, Australia and the United States of America. This activity is in stimulating and increasing the population and milk production, and also increasing the quality of dairy cattle.
3. Providing loan for post-harvest handling equipment and working capitals.
4. Development of artificial insemination programme to improve dairy breed and to increase population.

At present, more than 90% of dairy population which consist mainly Holstein Friesian totaling 306,000 heads in 1991, located in Java island. More than 72% of them are kept in highlands, 16% in intermediate elevated areas and 12% in lowlands. FH cattle is considered the preferred dairy cattle available farm income, some households are rely on dairying as the sole means of living.

The production development approach of dairy farming have been carried out through 3 patterns:

- a. Dairy farming as a family business (smallholder). The farmers are organized in village cooperative unit.
- b. Extensification of dairy cattle farming through Dairy Nucleus Plasm Schem (NPS). In this pattern, the private company act as a nucleus and provide production inputs such as dairy cattle breed (3-4 heads), animal health care, medicines/drugs for the farmers who are organized in dairy cooperative (called plasm). The plasm have to maintain the cattle and feed c.
- c. The development of dairy farming through private investment as independent enterprises. The number

of this pattern is relatively small and especially established for city consumers.

As the results of last 15 years of hard efforts in dairy development, the domestic milk production shows a bright increase of 24.8 thousand tons in 1979 to 345.6 thousand tons in 1990. This will make a "milk ratio" of domestic product and imported products became smaller (1:20 in 1979 to 1:2 in 1990). The success of milk ratio policy is supported by dairy cattle importation policy, increasing AI services, improving dairy cattle management and guarantee of milk marketing.

However, there are some problems of smallholder dairy productivity, efficiency and farm management. The Indonesia dairy still have to be faced such as;

- 1) Feeding management, particularly in feed quality.
- 2) Reproduction problems and longer calving interval (15-16 months).
- 3) Mastitis, particularly sub-clinical symptom.
- 4) Quality of milk attribute to the less production and income (caused by inadequate animal feed in term of quality and quantity as well as less of hygiene and sanitation).
- 5) Farm management.

To overcome the problems, following fields of technologies shall be focussed and emphasized.

- a. Five efforts for production technology such as;
  - (1) supply of high quality breed,
  - (2) feed improvement,
  - (3) animal health services improvement,
  - (4) improvement of farm business administration,
  - (5) improvement of reproduction,
- b. Two efforts for economic technology such as;
  - (6) post production improvement,
  - (7) marketing, and
- c. One efforts for social technology such as;
  - (8) farmers organizaiton in the form of farmer group/cooperatives.

The basic data are summarized in the separate tables.

(Extracted from Livestock Development in Indonesia, 1992 DGLS)



## DAIRY SITUATION IN BRIEF

### 1. Dairy Cattle Population by Year (1,000 heads)

Year	1984	1985	1986	1987	1988	1989	1990
Dairy cattle	203	208	222	233	263	288	294
Index *	102.5	102.5	106.7	105.0	112.9	109.5	102.1

\* comparison against the preceding year.

### 2. Milk Production, Import and Export (1,000 tons)

Year	1984	1985	1986	1987	1988	1989	1990
Production A	179.0	191.9	220.2	234.9	264.9	338.2	345.6
Index *	102.5	107.2	114.7	106.7	112.8	127.7	102.2
Import							
Milk	16.8	45.4	40.6	39.6	42.3	32.9	
Butter	9.4	11.0	9.0	6.6	9.0	6.4	
Cheese	1.7	1.6	1.8	1.8	2.4	2.3	
Export (Milk)	-	-	-	8.5	12.0	10.2	

### 3. Milk Consumption by Year (1,000 tons)

Year	1984	1985	1986	1987	1988	1989	1990
Production B	160.6	188.6	179.2	205.5	231.8	295.9	302.4
Importation C	462.2	353.1	392.7	452.7	497.8	365.2	334.0
Ratio A:C	1:2.6	1:1.8	1:1.8	1:1.9	1:1.9	1:1.1	1:1.0
Total	622.8	541.7	571.9	658.2	729.6	661.1	
Per Capita <sup>1)</sup>	3.90/kg	3.31	3.43	3.38	4.20	3.72	

C: Imported milk and milk products converted to whole milk volume.

Ratio A:C Ratio of importation against gross milk production.

1) Consumption of milk (converted) per person per year by kg.

### 4. Milk Production in ASEAN Countries (1,000 tons)

Years	Indonesia	Malaysia	Philipins	S'pore	Thailand
1970	29	26	12	1	7
1975	51	20	13	1	4
1980	78	22	12	1	5
1985	132	23	15	-	58
1986	220	24	15	-	69
1987	235	24	15	-	79
1988	265	24	15	-	108
1989	338	24	15	-	125

## OUTLINE OF LIVESTOCK EXTENSION SERVICES

## 1. Organization:

Principally two institutions of the Ministry of Agriculture, namely Agricultural Education and Training Agency and Directorate General of Livestock Services (DGLS), are involved into livestock extension services at national level.

1) The former Agency conducts training of extension officers and other livestock officers at training centers of BLPP which are specialized into particular fields of agriculture such as food crops, livestock, fisheries, and estate crops, respectively.

Among them, BLPP in Batu, Province of East Java is a sole center for the training of dairy farming to be given to livestock officers, livestock extension workers, AI technicians and as well as dairy farmers. Training of poultry is conducted at the BLPP Ciawi and some other centers also conduct limited extent of livestock trainings such as farm management and other subjects.

On the other hand, training to dairy farmers in the field is not a due job of the BLPP, but has been conducted at limited extent by the request of relevant institutions.

2) DGLS has responsibility of general administration of livestock services including extension service by providing, directing, or guiding technical aspects to provincial authorities concerned. Livestock Breeding & Forage Centers of the DGLS also provides and disseminates their technical achievements and know-how.

3) Extension service in the field is directly responsible by Provincial government, namely Provincial Livestock Office and his district and sub-district offices. Livestock extension officers, in cooperation with livestock officers, inseminators, reproduction technical assistant and veterinary assistants, made regular visit to livestock farmers to give necessary information and techniques on dairy.

Provincial government also has Livestock Breeding Center, Livestock Training Center and Livestock Rural Extension Centers for the training of the staffs as well as farmers.

## 2. Activities

The extension activities can be summarized three aspects, namely 1) training for extension officials and other technical staffs who conduct extension works to farmers, 2) extension works to rural farmers in field, and 3) development of tools and methods for the training of extension officials and also for extension works to farmers.

1) BLPP have conducted following training since 1984/85 to 1992/93 on dairy and related fields. Total participants have reached to 4,632 persons for 9 years of operation.

Table 1 Training Courses Conducted at BLPP (1984-1993)

Training subjects	Number of trained		
	a	b	c
1. Management/reproduction of dairy cattle	78	867	547
2. Cow management and milking technique	27	234	-
3. Calf management	-	310	560
4. Dairy/milk technology	88	810	295
5. Milk testing	137	30	-
6. Farm management	2	293	-
7. Dairy/extension	-	30	-
8. Recording	-	60	-
9. Fattening of calf	-	30	-
10. Foot treatment of dairy cattle	-	120	-
11. Health management of dairy cattle	-	30	-
12. Dairy development & dairy technology	47	27	-
13. Dairy husbandry/milk quality control	24	-	-
Total	424	2,806	1,402

Note; a Livestock services personnels excluding extension workers.  
 b Field extension workers and subject matter specialist.  
 c Livestock farmers.

In the provincial level, there are also such training for livestock officers and extension workers but figure was not available.

2) Extension/training to farmers at provincial training centers and Livestock Rural Extension Center is not available in number. Visit to livestock farmers by extension officers is also not surveyed.

3) Development of tools and methods for efficient extension is conducted by respective training centers and institutions. However, detail is not available.

### 3. Conclusion

Since last 2 years, livestock extension has been specialized from agricultural extension in general and directly involved by livestock services of national and provincial levels.

Training of extension officers and other livestock officers on dairy has been mainly conducted at BLPP under the Agricultural Education & Training Agency but also partly conducted by provincial institutions with limited extent. Particularly in the latter case, facility and tools for

training are not sufficient which will be resulted theoretical and lecture based training.

Training of technical staffs shall be focussed to feeding and management practice of dairy which will ready to guide and instruct respective farmers in different circumstances with full confidence.

Training of/extension to farmers at provincial level shall be emphasized by strengthening Livestock Rural Extension Centers. Furthermore, extension service by farm visit shall be efficiently arranged.

Table 2. Institutional Aspects of Livestock Extension

Province	Number of				
	District	Sub Dist.	Village	Rural Cent.	Ani.H'th Pos
West Java	24	469	7,063	30	25
Central Java	35	504	8,467	9	32
Yogya	5	73	438	3	7
East Java	37	579	8,378	17	43
Total	101	1,555	24,346	59	107

Table 3. Livestock Officers and Livestock Extension Officers

Province	Sub-Dis	AI	KUD	AHP	ParaVet	Ext.worker	Spe
West Java	373	93	18	15	30	388	17
Central Java	489	182	86	22	22	557	28
Yogya	52	-	7	3	2	97	13
East Java	469	646	130	32	20	479	15
Total	1,383	921	241	72	74	1,521	73

Note: Sub-Dis: Sub District livestock officer

AI: Artificial Inseminator

KUD: Technical staffs of dairy cooperatives

AHP: Officers of Animal Health Post

ParaVet: Paramedical, veterinary assistant

Ext.worker: Livestock extension officers

Spe: Subject matter specialists.

OBJECTIVES AND ACTIVITIES OF G K S I

G K S I (Gabungan Koperasi Susu Indonesia) or Union Dairy Cooperatives of Indonesia has established in March 1979 as a dairy cooperative organization of national basis succeeded by the Indian Dairy Cooperatives Coordination Board (BKCSI).

The GKSI's objectives are:

- a. To provide services to members in order to improve members' welfare.
- b. To maximize profit in order to provide better services to members and develop GKSI business. Better service means better in fulfilling members' need (both fulfilling daily necessities and developing their own dairy business) and higher profits' for members.
- c. To strengthen relations between members and between members and others (other cooperatives, private companies, state-owned companies and government).

Activities conducted are:

1. To increase milk production, importation of dairy cattle from Australia, New Zealand and USA, and distribution to farmers through Primary Dairy Cooperatives and KUD in the provinces.
2. Provision of milk cooling tanks for primary dairy cooperatives, and establishment and expansion of milk treatment plants to meet increase of milk production.
3. Production of final products of milk to be sold to the consumers.
4. Establishment of feed mills.
5. Cooperation with overseas are:
  - 1) Indonesia-New Zealand Dairy Development Project, 1983 by the form of fellowship and handling equipment.
  - 2) FAO for milk quality test kits and milk quality control training.
  - 3) ASEAN for small milk cooling units.

The progress of the GKSI is summarized as in the table below:

	1980	1983	1987	1989
Number of primary coop.	50	183	173	190
Number of dairy farmers	12,807	41,730	67,000	74,000
Number of dairy cows	50,635	141,037	205,000	250,000
Milk sales (thousand ton)	22.8	79.2	151.2	250
Imported dairy cattle (cumulative)	10,365	56,239	62,622	83,896

Extracted from GKSI document

## SKELETON OF NATIONAL DAIRY DEVELOPMENT

with reference to technology improvement at farmers' level

TARGETS AND OBJECTIVESIMPLEMENTATION

## TARGET I Increase of Dairy Cattle Population

- |   |  |
|---|--|
| 1. Increase of fertilization                  | <ol style="list-style-type: none"> <li>1) Improvement of feeding and management to ensure clear and regular heating of cows.</li> <li>2) Production, distribution, storage of quality semen.</li> <li>3) Technical improvement of AI technicians in order to decrease insemination per pregnancy, obtaining high conception rate.</li> <li>4) Improvement of farmers skill for observation and reporting of heating (estrous).</li> <li>5) Elimination of reproductive disorders.</li> </ol> |
| 2. Increase of calving rate                   | <ol style="list-style-type: none"> <li>1) Prevention of abortion and stillbirth by better management.</li> <li>2) Prevention of slaughtering of pregnant cows.</li> <li>3) Assisting parturition difficulties.</li> </ol>  |
| 3. Prevention of pre- and post-natal diseases | <ol style="list-style-type: none"> <li>1) Management improvement for pre- and post-natal period by improving care and nursing.</li> <li>2) Improvement of handling and nursing of new born calves.</li> <li>3) Prevention of losses of suckling calves by preventing diarrhea better feeding arrangement, isolation etc.</li> <li>4) Establishing communal calf rearing units to secure healthy calves.</li> </ol>   |
| 4. Importation of dairy stock from abroad     | <ol style="list-style-type: none"> <li>1) Importation of live dairy cows.</li> <li>2) Importation of frozen semen for AI.</li> <li>3) Importation of Embryos.</li> </ol>   |

## TARGET II Increase of Milking Ability.

- |                                 |  |
|---------------------------------|--|
| 1. Effective use of AI networks | <ol style="list-style-type: none"> <li>1) Institutional arrangement by coordination of respective institutions.</li> </ol>                     |
| 2. Approach from bull side      | <ol style="list-style-type: none"> <li>1) Progeny testing, selection of excellent bulls.</li> <li>2) Effective use of proven sires.</li> </ol> |

3. Approach from cow side

- 1) Improvement of management and milking practise.
- 2) Secure roughage and concentrates in quality and quantity.
- 3) Milk recording scheme for better management and selection of excellent cows.
- 4) Development of registration for genetic improvement.
- 5) Application of ET technology for efficient use of genetically superior stocks.
- 6) Show or contest of dairy cows.

TARGET III Strengthening of Efficient Dairy Farming.

1. Decrease of production costs
  - 1) Stable supply of quality and cheap feeds.
  - 2) Increase of productivity by overall approach.
  - 3) Business administration analysis of farmers.
  - 4) Provision of replacement stocks by reasonable costs.
  - 5) Prevention of diseases and losses.
2. Reasonable price of farmers milk
  - 1) Provision of bargaining power by farmers.
  - 2) Production of quality milk by improvement of management and milking.
  - 3) Cost analysis of milk production.
3. Establishing milk collection channel
  - 1) Minimize costs of transportation.
  - 2) Facility improvement such as cooling and transportation, etc.
4. Utilization of by-products
  - 1) Dairy male calf for meat production use.
  - 2) Manure preparation for vegetable, etc.
5. Prevention of environmental pollution
  - 1) Dung and urine disposal.
  - 2) Control of waste water, insects, odor, etc.

TARGET IV Marketing Promotion for Increased Consumption.

1. Quality assurance
  - 1) Assisting sanitary milking and handling.
  - 2) Checking of possible residues.
  - 3) Official monitoring or inspection surveillance.
2. Competitive power against other drinks or foods
  - 1) Rationalize processing costs to minimum.
  - 2) Ensure nutritional value and economic value.
  - 3) Public guidance as ideal healthy food.

Ref. 5  
 PROJECT TITLE: DAIRY TECHNOLOGY IMPROVEMENT AT FARMERS LEVEL  
 LOGICAL FRAMEWORK MATRIX TABLE 1

NARRATIVE SUMMARY	OBJECTIVELY IDENTIFIABLE INDICATORS	MEANS AND METHOD OF VERIFICATION	ASSUMPTIONS
<p><u>GOAL</u>                      To supply quality milk to consumers and provide more profit to dairy farmers by introducing appropriate dairy technology.</p>	<ul style="list-style-type: none"> <li>- Increased milk production per cow as well as in regions.</li> <li>- Increased farmers income.</li> <li>- Increased milk consumption.</li> </ul>	<ul style="list-style-type: none"> <li>- Statistical reports</li> <li>- Statistical and economic reports</li> <li>- Statistical reports</li> </ul>	<p>Better feeding and management will improve productivity of dairy cow and resulted cost-effective production as well as milk quality improvement.</p>
<p><u>OBJECTIVES</u>                      1. To improve dairy farming through introduction of appropriate technology.                      2. To increase quality milk production at farmers level.                      3. Effective and efficient operational and management support for technical diffusion.</p>	<ul style="list-style-type: none"> <li>- Increased milk production and improved farm management.</li> <li>- Decreased bacterial counts of raw milk and milk rejection at plants.</li> <li>- Improved strategic programs of extension activities.</li> </ul>	<ul style="list-style-type: none"> <li>- Assessment of KUD activity.</li> <li>- Reports of KUD and milk plants.</li> <li>- Project reports.</li> </ul>	<ul style="list-style-type: none"> <li>- Establishing appropriate dairy technology.</li> <li>- Arrangement of facility and equipment available.</li> <li>- Trained staff and extension tools available.</li> </ul>
<p><u>OUTPUT/ACHIEVEMENT</u>                      1. Establishing appropriate technology of dairy feeding and management to be applicable to farmers.                      2. Development and preparation of teaching tools and materials used for technical diffusion and training of staffs.                      3. Training of field officers who engage in farmers' guidance.</p>	<ul style="list-style-type: none"> <li>- Preparation of technical manuals.</li> <li>- Publication of technical informations.</li> <li>- Production and distribution of video, slides and others.</li> </ul>	<ul style="list-style-type: none"> <li>- Kinds and number of documents produced and distributed as well as quality evaluation.</li> <li>- Availability and frequency of utilization of such documents.</li> </ul>	<ul style="list-style-type: none"> <li>- Points for improvement will be elucidated by survey.</li> <li>- Improvement of feeding and management will be proven as profitable to farmers.</li> <li>- Model farmers will encourage to share know-how to other farmers.</li> </ul>

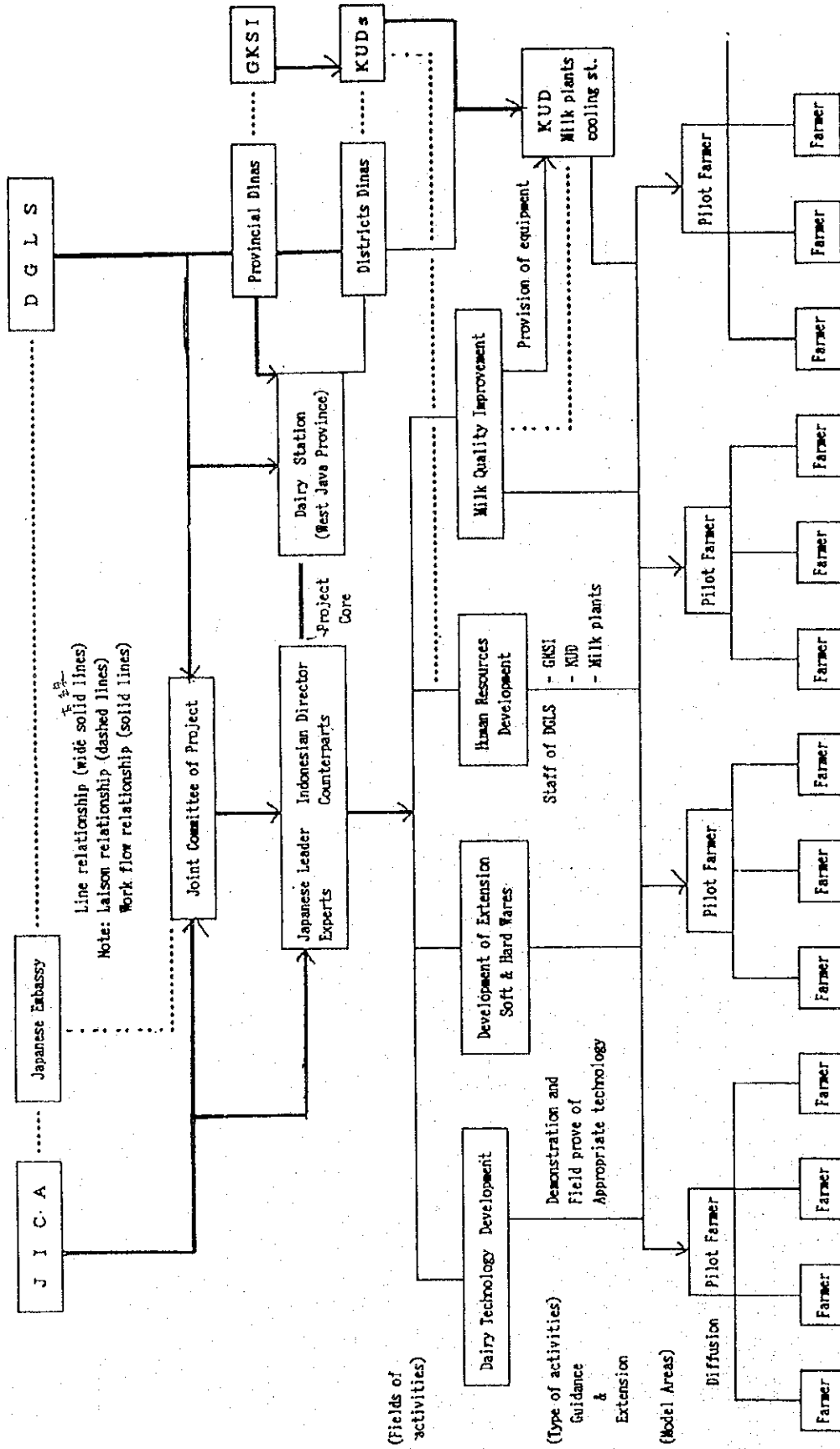
*Continued*



LOGICAL FRAMEWORK MATRIX TABLE 2

<p><u>OUTPUT/ACHIEVEMENT</u> (Continued)</p> <p>4. Implementing on-the-spots extension works in selected farmers and areas.</p> <p>5. Improvement of milk quality and milk hygiene at farm level.</p> <p>6. Provision of equipment and tools for milk quality improvement at selected KUDs.</p>	<p>- Numbers of participants by institutions.</p> <p>- Number of farmers participated, and farmers involved.</p> <p>- Number of visits.</p> <p>- Alcohol test, bacterial count of raw milk, and milk rejected at receiving plants.</p> <p>- Routine practise of milk quality control at KUDs.</p>	<p>- Project reports.</p> <p>- Participation to field guidance</p> <p>- Project reports.</p> <p>- Reports of KUD and milk plants.</p> <p>- Project reports for quality assessment.</p>	<p>- A range of field staff will attend.</p> <p>- Consumers needs shall be well accepted by farmers.</p> <p>- Economic aspects of quality control will be analysed.</p>
<p><u>ACTIVITIES</u></p> <p>1. Fact finding study and survey on feeding and management practise in the field.</p> <p>2. To prepare teaching manuals and materials for technical guidance.</p> <p>3. To demonstrate technical guidance to selected farmers and prove practical values.</p> <p>4. To conduct and guide milk hygiene practise including provision of equipment.</p> <p>5. To conduct and evaluate milk quality control at certain areas.</p> <p>6. To formulate consultative institutions for effective implementation of technical guidance.</p>	<p><u>INPUT OF INDONESIAN SIDE</u></p> <p>1. Providing technical staffs who engaged in technology development. (counterparts)</p> <p>2. Providing technical staffs who engaged in guidance and demonstration from related institutions.</p> <p>3. Providing working expenses of such technical staffs.</p> <p>4. Providing a office and administrative tools for the project.</p> <p>5. Other local expenses.</p> <p><u>INPUT OF JAPAN SIDE</u></p> <p>1. Long and short term experts.</p> <p>2. Provision of equipment and vehicles.</p> <p>3. Counterpart training in Japan</p> <p>4. Part of the project operation costs.</p>	<p>- Dinas and Project reports.</p> <p>- Dinas and Project reports.</p> <p>- Dinas and Project reports.</p> <p>- Project reports.</p> <p>- Project reports.</p> <p>- Project reports.</p> <p>- JICA report.</p>	<p>- R/D be signed in due course.</p> <p>- JICA and GOI will provide funding for full budget.</p> <p>- Collaboration of related institutions favorably anticipated.</p> <p>- Existing infrastructure can be built on.</p>

Ref. 6 OUTLINE OF ORGANIZATION AND PROJECT ACTIVITIES



### ③ 要請書 (和訳)

#### [1] 総論

##### 1. 要請の背景

- (1) インドネシアにおける牛乳消費量は堅実に増加している。また牛乳は特に乳幼児の栄養改善上、重要な位置を占めている。
- (2) インドネシアでは酪農業はかなり新しい産業で、将来的に発展が見込まれる農業分野の一つであると考えられている。
- (3) 乳牛はきめ細やかな世話と適切な管理を必要とする高度に改良された精密機械のような動物である。遺伝的な生産性の向上も酪農技術として望まれる。
- (4) 1986年から9年間に亘る家畜人工授精センター強化計画（東ジャワ州シンゴサリを中心に実施）の実施を通じ、酪農家数の増加、乳牛の遺伝能力の向上等の成果を得た。今後は飼養管理技術の改善が必須課題であると考えられる。
- (5) 前述のプロジェクトでの乳量記録調査で東ジャワ州の記録は西ジャワ州に比べ全般的に劣っていることが示された。

##### 2. 現 状

- (1) 農民の酪農における知識・経験は不十分であり、適切な技術にはほど遠い。
- (2) 農民は多くは保守的で、新しい技術の導入には前向きでない。
- (3) 農家の指導者（普及者）の知識・技術力が低いため、農民の信頼を得るには至っていない。
- (4) 酪農分野での適切な技術の普及活動は不十分である。
- (5) 飼養管理改善を図ったモデル農家では乳量の増加を示している。
- (6) 生産された生乳の衛生・品質管理が不十分で、このことは消費者保護の観点から、社会的問題となっている。

##### 3. 目 標

消費者には良質な牛乳を供給し、酪農民には所得の向上を図る。

#### [2] プロジェクトの概要

##### 1. 実施機関

州畜産局と地方 KUD 組織

窓口（責任機関）として農業省畜産総局 (DGLS) に、インドネシア酪農協同組合連合 (GKSI) が協力。

## 2. プロジェクトサイトと地域

- (1) プロジェクトの中心は西ジャワ州におく。
- (2) プロジェクト対象地域は原則として西ジャワ州の限定地区とする。後代検定プログラムが実施されている西、中央、東ジャワ州の特定地域でも同時に限定された活動が実施される。

## 3. 期 間

5 年 間

## 4. 目 的

- (1) 適切な酪農技術と牛乳衛生の効果的な普及活動を導入し強化する。
- (2) 農家レベルでの乳牛の飼養管理技術を改善する。
- (3) 消費者には良質の牛乳製品を、農民には高い生産性の酪農技術を保証する。
- (4) インドネシアの国民の栄養改善と農家の経済に寄与する。

## 5. 活 動

- (1) 酪農家が応用できる適切な酪農技術（乳牛の飼養管理）を確立する。
- (2) 普及員、研修担当者のために用いる教材、手段の開発と準備。
- (3) 農民に酪農技術を指導、普及させる技術職員の研修。
- (4) 研修を受けた関連機関の技術職員によって、モデル農家とパイロット地区において実施される適切な酪農技術の普及の企画と指導。
- (5) 特定の KUD において牛乳衛生に関する技術指導をし、乳質改善のために必要な設備・機材を導入する。
- (6) 特定の KUD レベルで生乳（生産者乳）の品質改善計画を準備し指導する。
- (7) 効果的な普及活動と乳質改善のため、関連機関からなる諮問組織を作る。

## 6. 投 入

### A. 日 本

- (1) 長期、短期専門家。酪農経営、酪農技術、牛乳衛生、普及分野。
- (2) 日本での C/P 研修受入。
- (3) 普及活動、研修、乳質改善のための機材供与。
- (4) その他

### B. インドネシア

- (1) 様々な分野の C/P 職員。
- (2) 研修施設、研修の開催。

- (3) 限定した地域でのモデル農家、パイロット地区の準備。
- (4) 現場での普及活動のための人員とローカルコスト。
- (5) その他。

## 1. インドネシアにおける酪農業の成長と発展

別紙表に示すとおりインドネシアの酪農業は近年著しい発展を遂げ、現在ではアセアンで最も牛乳生産量が多くなっている。乳牛は19世紀末にオランダから導入されたが、第3次5か年計画が打ち出された1978年頃までの本国の酪農業開発は恵まれた環境にはなかった。第3次5か年計画では次の政策を打ち出し、積極的にインドネシア酪農協同組合の成長と発展をもたらした。

- (1) 牛乳生産者としての酪農協同組合と、牛乳加工者としての民間乳業メーカーとの間の市場の保証及び適正乳価格の設定による協調関係。
- (2) 1992年までにニュージーランド、オーストラリア、アメリカから125,000頭の乳牛の輸入。これは乳牛頭数及び牛乳生産の増加と乳牛の質の向上をもたらした。
- (3) 牛乳集荷後の設備や運転資金のための貸付金の準備。
- (4) 育種改良と繁殖のための人工授精プログラムの開発。

現在では、主にホルスタイン・フリージアン種からなる306,000頭（1991年）の乳牛のうち、90%以上がジャワ島に分布する。そのうち72%が高地、16%が中間地、12%が低地に分布する。ホルスタイン・フリージアン種は農家の増収のために推奨される品種と考えられ、酪農専業農家も存在する。

酪農業の発展は次の3パターンがある。

- (1) 個人酪農家。小農家農民たちは村で農協組合を組織している。
- (2) 中間農家計画（NPS）を通しての酪農業の発展。このパターンでは企業が核となり、酪農協同組合（プラズマとなる）の農民たちのために3～4頭の乳牛と衛生サービスや医薬品といった家畜衛生などの生産資材を供与する。酪農協同組合では乳牛を飼養管理する。
- (3) 独立企業として民間投資を通じての酪農業の開発。このパターンは比較的少なく、特別に都市消費者のために制定されている。

最近15年間の酪農業発展の努力の結果、国産牛乳の生産量は1979年の24.8千トンから1990年の345.6千トンと顕著な増加を示している。これにより、生乳生産に占める国産と輸入の牛乳比率は小さくなった（1979年1：20、1990年1：2）。「牛乳比」政策の成功は乳牛輸入政策やAIサービスの強化、乳牛の飼養管理の改善、牛乳市場の保証によって支えられている。しかしながら、小規模酪農家レベルでは、酪農生産性、効率性及び農場経営面での問題がある。インドネシア酪農は依然、次のような問題と直面している。

- (1) 飼養管理、特に飼料の質。
- (2) 繁殖障害と、長い分娩間隔（15～16か月）
- (3) 乳房炎、特に潜在性乳房炎。

- (4) 生産と収入の減少につながる乳質（質、量及び、衛生面においても不十分な飼養に起因している。）
- (5) 農場経営。

これらの問題を克服するために次の技術分野に焦点を絞り、強化すべきである。

1. 生産技術の 5 要素

- (1) 高能力品種の供給
- (2) 飼料の改善
- (3) 家畜衛生サービスの改善
- (4) 農場経営管理の改善
- (5) 繁殖改善

2. 経済制度の 2 要素

- (6) 流通の改善
- (7) マーケティング

3. 社会制度の 1 要素

- (8) 農民組織／組合という形での農業の組織化

基礎資料は別紙のとおり。

(「インドネシアの畜産開発」1992DGLS 抜粋)

酪農状況の要約

1. 乳牛頭数

(千頭)

年	1984	1985	1986	1987	1988	1989	1990
乳牛頭数	203	208	222	233	263	288	294
指数*	102.5	102.5	106.7	105.0	112.9	109.5	102.1

\*前年比

2. 生乳生産、輸入と輸出

(千トン)

年	1984	1985	1986	1987	1988	1989	1990
生産量 A	179.0	191.9	220.2	234.9	264.9	338.2	345.6
指数*	102.5	107.2	114.7	106.7	112.8	127.7	102.2
輸入牛乳	16.8	45.4	40.6	39.6	42.3	32.9	
バター	9.4	11.0	9.0	6.6	9.0	6.4	
チーズ	1.7	1.6	1.8	1.8	2.4	2.3	
輸出牛乳	—	—	—	8.5	12.0	10.2	

3. 飲用乳消費量

(千トン)

年	1984	1985	1986	1987	1988	1989	1990
生産量 B	160.6	188.6	179.2	205.5	231.6	295.9	302.4
輸入量 C	462.2	353.1	392.7	452.7	497.8	365.2	334.0
A : C	1 : 2.6	1 : 1.8	1 : 1.8	1 : 1.9	1 : 1.9	1 : 1.1	1 : 1.0
総量	622.8	541.7	571.9	658.2	729.6	661.1	
消費量 <sup>1)</sup>	3.90/kg	3.31	3.43	3.38	4.20	3.72	

C 輸入牛乳及び乳製品は全乳量に換算

A : C 総生乳生産量に占める国産と輸入の比率

1) 年間一人当たりの消費量(kg) (生乳換算)

4. アセアンにおける生乳生産量

(千トン)

年	インドネシア	マレーシア	フィリピン	シンガポール	タイ
1970	29	26	12	1	7
1975	51	20	13	1	4
1980	76	22	12	1	5
1985	132	23	15	—	58
1986	220	24	15	—	69
1987	235	24	15	—	79
1988	265	24	15	—	108
1989	338	24	15	—	125



## 2. 畜産普及の現状

### (1) 組 織

農業省の2部署、農業教育訓練庁（BLPP）と畜産総局（DGLS）が国レベルでの畜産振興事業に関与している。

農業教育訓練庁は研修センターにおいて畜産普及員及び、他の畜産関連職員の教育を担当している。BLPPは食糧生産、畜産、漁業、エステート作物等の分野を統括している。東ジャワ州パツのBLPPは唯一酪農業関連の研修だけを行っている。養鶏に関する研修はチアウイで、その他の研修センターでは農場経営等の限定された研修が行われているにすぎない。一方、酪農家に対する実地研修はBLPPに義務づけられた業務ではないが、関連当局の要請に応じて小規模に行われている。

DGLSは畜産事業全般を統括し、地方当局に対しての技術供与、指導により畜産振興事業を行っている。DGLS傘下の種畜飼料センターも技術指導を行っている。

普及事業は、州政府とその支所において行われ、普及事業担当官は畜産事業担当官、人工授精師、繁殖技術助手、獣医師、獣医助手らと協力し定期的に酪農家を訪問し必要な情報、技術を提供する。州政府も独自の畜産改良センター、畜産研修センター、畜産普及センターを持ち、職員及び農民の研修を行っている。

### (2) 活 動

普及事業は次の3項目に要約できる。普及事業担当官、技術者らの職員研修、現場の酪農家に対する普及活動、上記2項目に必要な技術・方法の開発。

- 1) BLPPは1984年度から1992年度に酪農関連の別添の研修を行ってきた。延べ参加者数は9年間で4632人に達している。
- 2) 州の研修センターにおける酪農家向け研修についての数は明らかでなく、酪農家訪問についても調査されていない。
- 3) 効果的な普及活動のための技術・方法の開発は各々のセンターで行われているが、詳細なデータはない。

表1 BLPPにおける研修実績 (1984年度～1993年度累計)

研 修 科 目	研修員数		
	a	b	c
1. 乳牛の管理と繁殖	78	867	547
2. 雌牛の飼養管理と搾乳技術	27	234	—
3. 子牛育成	—	310	560
4. 酪農・搾乳技術	88	810	295
5. 乳質検査	137	30	—
6. 農場経営	2	293	—
7. 酪農・普及	—	30	—
8. 記録 (能力検査)	—	60	—
9. 子牛肥育	—	30	—
10. 乳牛の蹄の管理	—	120	—
11. 乳牛の衛生管理	—	30	—
12. 酪農発展と酪農技術	47	27	—
13. 乳質管理・乳牛管理	24	—	—
合 計	424	2806	1402

注) a 畜産事業担当者 (普及員を除く)、b 普及員、技術専門家、c 酪農家

表2 畜産普及機関の数

州	県	郡	村	地方センター	家畜衛生ポスト
西ジャワ	24	469	7063	30	25
中央ジャワ	35	504	8467	9	32
ジョグジャカルタ	5	73	438	3	7
東ジャワ	37	579	8378	17	43
合 計	101	1555	24346	59	107

表3 畜産局職員と畜産普及員の数 (地方レベル)

州	Sub-Dis	AI	KUD	AHP	Para Vet	Ext. worker	Spe
西ジャワ	373	93	18	15	30	388	17
中央ジャワ	489	182	86	22	22	557	28
ジョグジャカルタ	52	—	7	3	2	97	13
東ジャワ	469	646	130	32	20	479	15
合 計	1383	921	241	72	74	1521	73

注) Sub-Dis 郡畜産局職員、AI 人工授精師  
 KUD 酪農組合技師、AHP 家畜衛生担当職員  
 Para Vet 獣医助手、Ext. worker 畜産普及員  
 Spe 専門技術者

### (3) 結 論

2年前より、畜産普及事業は農業一般振興事業から分離され、より専門化してきた。国レベル、州レベルで政府が直接関与している。普及事業担当官及び他の畜産関連担当官に対する研修は、主に農業教育訓練庁の監督下に BLPP によって行われているが、州政府レベルでも小規模にはあるが行われている。州のセンターには十分な設備がなく、研修は理論、講義が主である。技術職員の研修は様々な環境下で酪農家を十分に指導するために飼養管理に集中すべきである。

地方の畜産振興センター強化による酪農家の州レベルでの研修の充実、酪農家訪問の効率化が必要とされる。

### 3. インドネシア酪農協同組合連合 (GKSI) の目的と活動

GKSI は、1979年3月、インドネシア酪農協同組合統一委員会 (BKCSI) を引き継いだ全国規模の酪農協同組合として創設された。

#### <目 的>

- (1) 組合員の福祉の改善のためのサービスの提供。
- (2) 組合員にサービスを提供し、GKSI 事業の発展のために利益を追求する。
- (3) 組合員相互及び組合と他の機関 (他の組合や民間企業、政府企業、政府) との連携を強化する。

#### <活 動>

- (1) 牛乳増産のため乳牛をオーストラリア、ニュージーランド、アメリカ合衆国から輸入し、村落協同組合 (KUD) を通じて酪農家に供給する。
- (2) 牛乳冷却タンクの KUD への供給と、牛乳増産に向けて牛乳処理工場の設立、拡張を行う。
- (3) 乳製品の製造と販売。
- (4) 飼料工場の設立。
- (5) 海外との協力。
  - 1) インドネシアーニュージーランド酪農開発プロジェクト：  
1983年協力提携、設備供与
  - 2) FAO：乳質検査キットの供与と乳質管理研修
  - 3) アセアン：小規模牛乳冷却装置の供与

GKSI の発展は以下の表に要約される。

	1980	1983	1987	1989
村落協同組合数	50	183	173	190
酪農家数	12,807	41,730	67,000	74,000
乳牛頭数	50,635	141,037	205,000	250,000
牛乳販売量 (千トン)	22.8	79.2	151.2	250
輸入乳牛頭数 (累積頭数)	10,365	56,239	62,622	83,896

(GKSI 記録より抜粋)

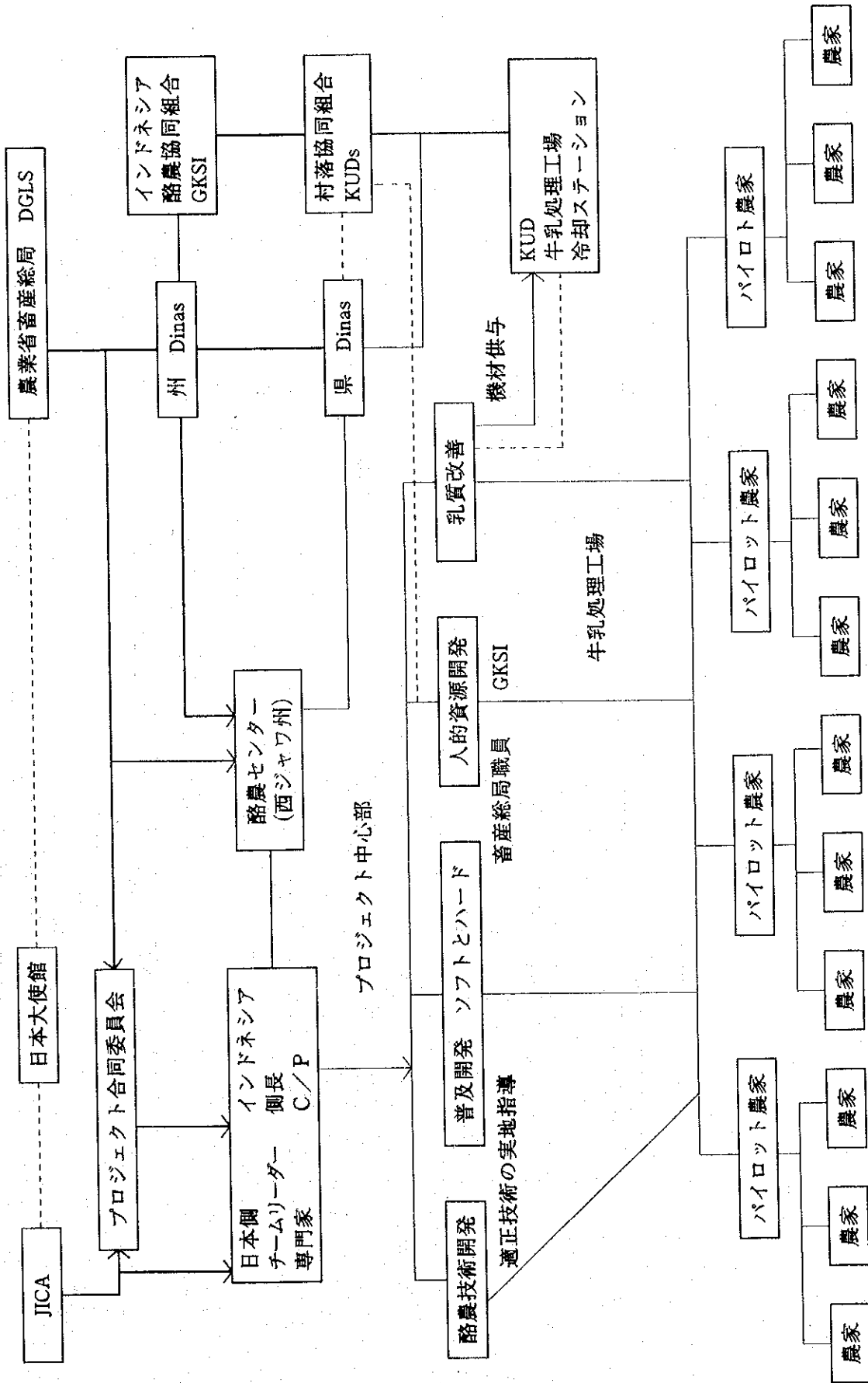
#### 4. 酪農開発計画の概要（酪農家レベルでの技術開発との関係）

目標と目的	実行内容
<b>目標1 乳牛頭数の増加</b>	
1. 受胎率の向上	1) 雌牛の明瞭で規則的な発情を確実にする飼養管理の改善 2) 高品質な精液の生産、供給、貯蔵 3) 受胎率を高めるためのAI技術の改善 4) 酪農家が発情を的確に捉える技術の改善 5) 繁殖障害の除去
2. 分娩率の向上	1) 適切な管理による流産・死産の防止 2) 妊娠牛のと殺の防止 3) 難産の介助
3. 周産期疾病の防止	1) 周産期管理の改善 2) 新生子牛管理の改善 3) 下痢症の防止、飼料改善、隔離等による幼牛死亡の減少 4) 健康な子牛育成用の共用子牛専用舎の建設
4. 海外畜産資源の輸入	1) 生体乳用雌牛の輸入 2) AI用凍結精液の輸入 3) 受精卵の輸入
<b>目標2 泌乳能力の向上</b>	
1. AIネットワークの有効利用	1) 施設間協力に基づく制度整備
2. 雄牛からの対策	1) 後代検定・優秀な雄牛の選抜 2) 検定済み種雄牛の効果的な利用
3. 雌牛からの対策	1) 管理、搾乳技術の改善 2) 粗飼料及び濃厚飼料の質・量の保持 3) 管理と優秀な雌牛選抜のための乳量記録計画 4) 遺伝改良のための登録事業の開発 5) 優秀な種畜の効果的利用のためのET技術の導入 6) 乳牛共進会
<b>目標3 効率的酪農経営の強化</b>	
1. 生産コストの削減	1) 高品質で安価な飼料安定供給 2) 生産性の向上 3) 酪農家の経営分析 4) 安価な後継牛の供給 5) 疾病・死亡の防止
2. 牛乳の適正価格	1) 酪農家の契約交渉能力を高める 2) 管理、搾乳技術改善による高品質牛乳の生産 3) 牛乳生産にかかるコスト分析
3. 集乳システムの確立	1) 運搬コストの削減 2) 冷却、運搬等技術の改善
4. 副生産物の利用	1) 乳用雄子牛の肉利用 2) 野菜栽培用等の堆肥製造
5. 環境公害の防止	1) 糞・尿溜め 2) 排水、昆虫、臭気等のコントロール
<b>目標4 消費拡大のための経営戦略</b>	
1. 品質保証	1) 衛生的な搾乳・処理の助言 2) 異物の検査 3) 公的な監視又は抜き打ち検査
2. 他の飲食物との競合	1) コストの最小化 2) 栄養価と経済価値 3) 理想的な健康食品としての普及

5. 要請プロジェクトの概念図

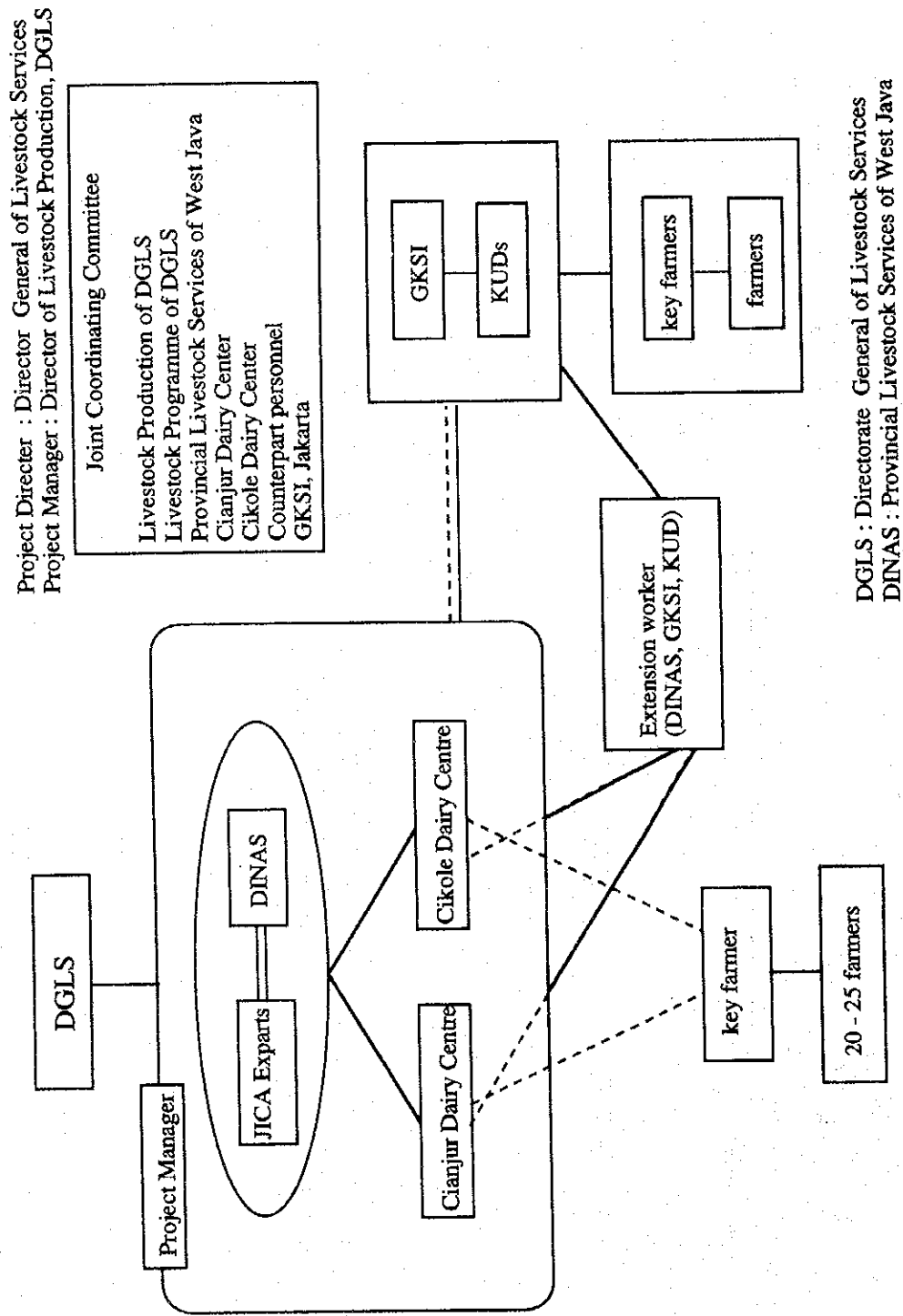
プロジェクトの要約	指 標	指標データ入手手段	仮 定
<p>上位目標 適切な酪農技術の導入により消費者には良質の牛乳を供給し、酪農家には所得の向上を実現する。</p> <p>プロジェクト目標 1. 適切な技術を導入し、酪農技術を改善する。 2. 農家レベルで良質の牛乳生産量を増加する。 3. 技術普及のために効果的効率的な経営管理を援助する。</p>	<p>1-1 頭あたりの乳量及び地域の乳生産量が増加。 - 農民所得が増加。 - 牛乳消費量が増加。</p> <p>1- 牛乳生産量が増加し、農場経営が改善される。 1- 生乳の細菌数が減少し、工場での受入拒否牛乳が減少。 1- 普及活動のための改善された戦略プログラム。</p>	<p>- 統計報告。 - 統計と経済報告。 - 統計報告。</p> <p>- KUD活動の評価。 - KUDと牛乳工場の報告。 - プロジェクト報告。</p>	<p>飼養管理の改善により乳牛の生産性が向上し、乳質が改善されるとともに、効率的生産が行われる。</p> <p>- 適切な酪農技術の確立。 - 施設・機材の準備完了。 - 研修を受けた職員や普及員資材の準備完了。</p>
<p>成 果 1. 農民が適用できる適切な飼養管理の酪農技術を確立する。 2. 技術普及員と研修担当職員が使用する指導書、道具の開発と準備。 3. 農民指導に当たる現場職員の研修。 4. 特定の農家、地域で普及活動を果たす。 5. 農家レベルで乳質、衛生状態を改善する。 6. 特定のKUDで乳質改善のための設備と道具を用意する。</p>	<p>1- 技術手引き書の準備。 1- 技術情報出版。 1- ビデオやスライド等の作成と配布。 1- 機関ごとの参加者数。 1- 参加農民、関係農家。 1- 訪問者の数。 1- アルコールテスト、生乳中の細菌数、工場での受入拒否牛乳。 1- KUDでの日常的乳質管理規定。</p>	<p>1- 質の評価とともに製作配布された出版物の種類と使用頻度。 1- プロジェクト報告。 1- 現場指導の参加。 1- プロジェクト報告。 1- KUDと生乳工場の報告。 1- 品質評価のためのプロジェクト報告。</p>	<p>- 調査により改善点が指摘される。 - 飼養管理の改善が農家の利益向上のかたちとなって証明される。 - モデル農家が他の農家にノウハウを普及する。 - 関係の現場職員の参加。 - 農民によって消費者のニーズが受け入れられる。 - 品質管理による経済効果について調査される。</p>
<p>活 動 1. 現場での飼養管理の実態を調査する。 2. 技術指導のための教材を準備する。 3. 特定の農民に模範技術指導をし、実証する。 4. 機材供与を含めた牛乳衛生の実態について指揮、指導する。 5. 特定の地域で乳質管理について指揮、評価する。 6. 技術指導の効果的な実行のために公的な相談機関を設ける。</p>	<p>インドネシア側の投入 1. 技術職員の確保(C/P)。 2. 関係機関で指導に当たる技術職員の確保。 3. 上記技術職員の活動費の確保。 4. プロジェクトの事務所と設備の確保。 5. その他現場活動費。 日本側の投入 1. 長・短期専門家。 2. 機材・車両の用意。 3. 日本でのC/P研修。 4. プロジェクト運営費の一部。</p>	<p>- Dinasとプロジェクト報告。 - Dinasとプロジェクト報告。 - Dinasとプロジェクト報告。 - プロジェクト報告。 - JICA報告。</p>	<p>- 規定に従いR/Dが結ばれる。 - JICAとインドネシア政府が全費用の負担について保証する。 - 関係機関が友好的に協同する。 - 基盤整備が実現する。</p>

6. 組織とプロジェクト活動の概略



④ 本プロジェクト組織図

IMPLEMENTING PLAN OF THE PROJECT





⑤ 要請プロジェクトの概念図(案)

プロジェクトの要約	指標	指標データ入手手段	仮定
<p>上位目標 農業所得の向上</p>	<p>牛乳生産量が増加し農業経営が改善 受入拒否乳が減少し、高品質乳として 有利に取引される。</p>	<p>統計と経済報告 KUD活動の評価 KUDと牛乳工場の報告</p>	<p>飼養管理の改善により生産性が向上、 乳質が改善、効率的生産が行われる</p>
<p>プロジェクト目標 農民レベルの酪農技術の改善</p>	<p>1 頭あたりの牛乳生産量が増加 乳質改善の実現</p>	<p>KUD活動の評価 KUDと牛乳工場の報告</p>	<p>適切な酪農技術の確立 研修を受けた職員や普及用資材が 準備される</p>
<p>成果 農民レベルの酪農技術(飼養管理技術等)の 改善 酪農技術に係る指導者の養成 特にモデル農家及びKUDにおける乳質管理技 術の改善</p>	<p>マニユアル、パンフレット、ビデオや スライド等の作成と配布 参加農民、関係農家数 アルコテラスト、細菌数 KUDでの日常的乳質管理規定</p>	<p>製作配布された出版物の種類 と数、使用頻度 プロジェクト報告 現場指導の参加状況 KUDと牛乳工場の報告</p>	<p>調査により問題点が指摘される 飼養管理の改善が農家の利益向上 のかたちとなって証明される モデル農家が他の農家に普及する 関係の現場職員の参加 品質管理による経済効果の調査</p>
<p>活動 (1)実態調査 1) 乳牛の飼養管理 2) 繁殖衛生管理 3) 粗飼料の生産・利用 4) 生乳の品質管理 (2)技術移転 1) 乳牛の飼養管理 乳牛の一般管理及び飼養管理 2) 繁殖衛生管理 繁殖衛生の診断及び防除技術 3) 粗飼料の生産・利用 飼料作物の生産・利用及び農場副産物等 の利用 4) 牛乳の品質管理 牛乳の乳質検査技術及び品質管理技術と 品質改善のための検査結果を用いた モデル農家に対する指導 (3)酪農センターでの普及員及びモデル農家に 対する上記関連技術に係る研修の内容及び 手法の指導</p>	<p>インドネシア側の投入 1. C/P職員の確保 2. 関係機関で指導に当たたる技術員の 確保 3. 上記職員の活動費の確保 4. プロジェクトの事務所と設備の確 保 5. その他現場活動費  日本側の投入 1. 長・短期専門家 2. 機材・車両の用意 3. 日本でのC/P研修 4. プロジェクト運営費の一部</p>	<p>インドネシア政府報告 プロジェクト報告 JICA報告</p>	<p>規定に従いR/Dが結ばれる JICAとインドネシア政府が全費用 の負担について保証する 関係機関が友好的に協同する</p>

⑥ 第6次国家開発計画における農林水産業開発計画

インドネシア農村水産業開発計画 (第6次5か年開発計画)

第2次25か年開発計画における位置付け	第6次5か年計画農業セクターの目標	目標達成に向けてのコンセプト	基本戦略	成功の鍵
(1) 資源の質的改善 (2) 農業関連産業の発展	(1) 農業民の福祉の向上 (2) 十分な栄養の供給 (3) 雇用機会の創出 (4) 輸出の拡大	経済の民主化の継続 (1) 農民社会の積極的参加 (2) 農民グループ、協同組合、公社、私企業のパートナーシップ改善 (3) 農業の促進に焦点を絞った政策の実施	持続的・総合的アグリビジネスシステムの確立による国内及び国際競争力の強化	(1) アグリビジネスサブシステムのセクター、地域間の連携 (2) 人的資源の開発 (3) 進んだ技術の導入 (4) 環境の維持・管理

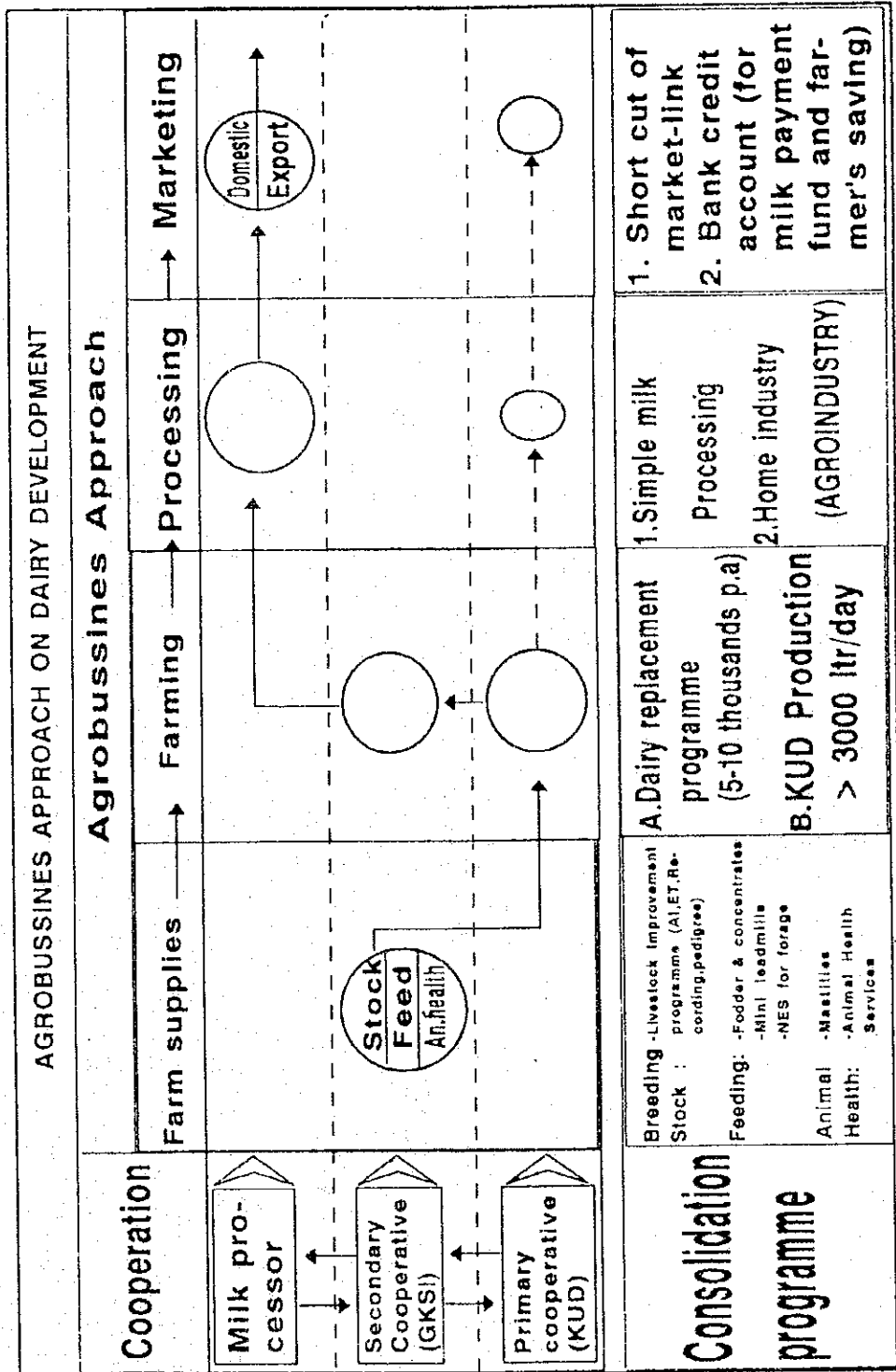
農業の多角化の推進		農業資源の修復		農業セクターの経済の民主化
① 資源 エネルギー、労働力、技術、就業機会、所得、市場、生産の多角化 ② 外領への農業拡大	農業の集約化の推進	資源施設の修復 農業限界地の回復	① 人的資源の質的向上 ② 地域開発計画策定と地域社会の積極的参加を支援 ③ 市場メカニズム・アグリビジネスの発展を通じた農業生産の拡大 ④ ビジネスパートナーシップの改善 ⑤ 法律や規則の整備 ⑥ 地域農業組織の運営	

農業開発のための一般方針	
1 人的資源開発	2 天然資源の持続的利用
農業世帯の所得・購入力の向上 食料消費の質的改善 社会の栄養状態改善を目的として 農業科学技術向上 労働意欲・責任感の強化 技術的能力の強化 教育・訓練の改善 技術パッケージの開発・普及 機械の利用拡大	農業が環境に与える影響のモニタリング 環境の保護に関する農民の意識の向上 天然資源のもつポテンシャルの最適利用 総合的害虫防除と肥料・水の効率的利用
3 地域農業開発	
農業開発の地方分散化 地域における家計所得の向上と地域間格差の是正を目標にして 開発の対象となる作物の移行 環境配慮型農業バターンへの移行 地域農業組織の強化 農業資源能力開発 農業技術の推進とその適用 インフラ整備	

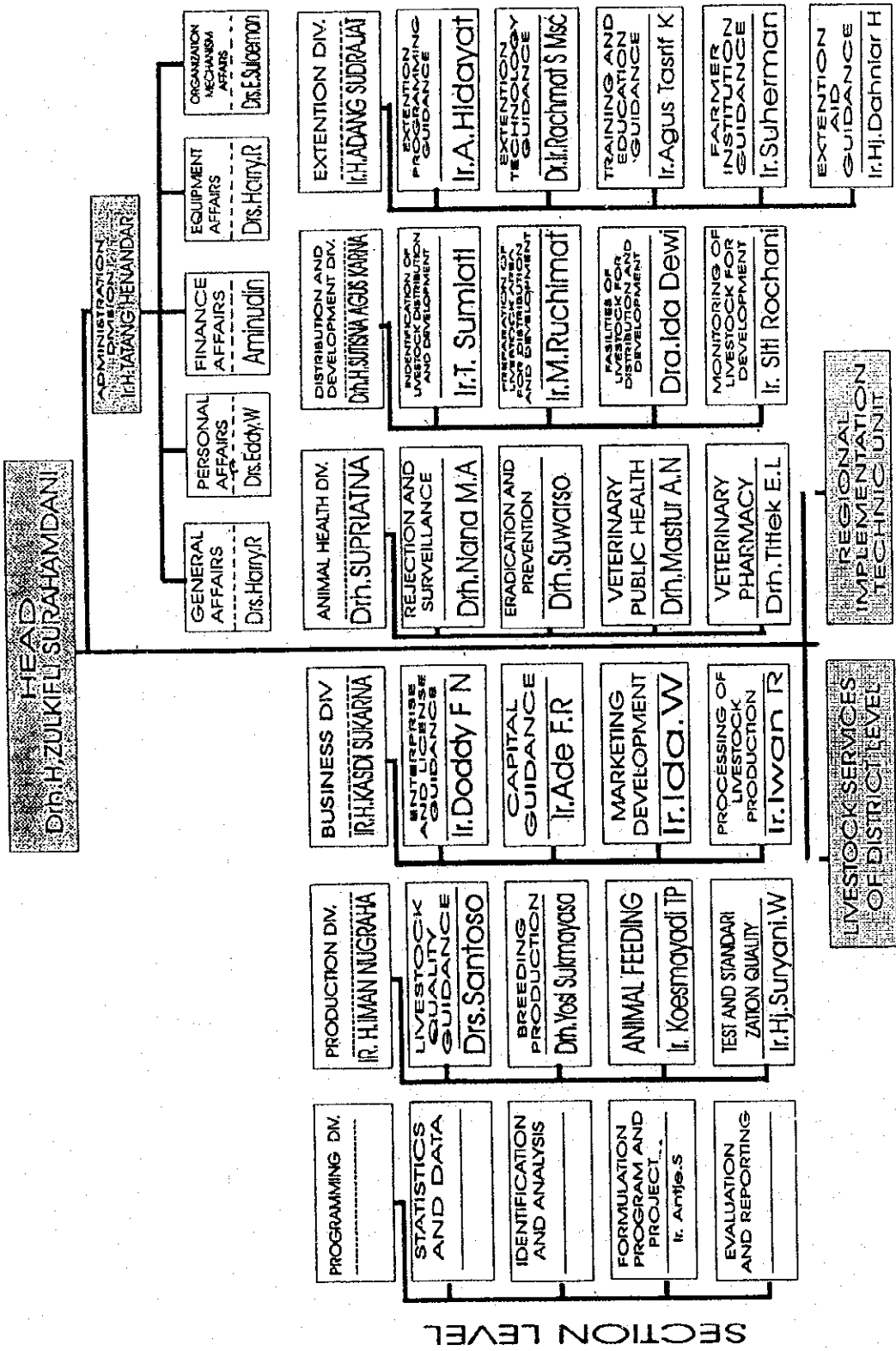
農業開発のための実施方針				
農業資源の開発と利用 (人的資源・天然資源)	研究開発と農業技術の適用	持続的・総合的農業システムの開発	農産物加工とマーケティングの開発	農業インフラと民間投資
農民の生産・経営面で農業組織関係者の質的改善 天然資源の利用の最適化	省資源的・環境運存的な技術パッケージの開発 市場動向、加工、経営に関する研究 ポストハーベストロスの減少 バイオテクノロジー、機械化 東インドネシアの情報	農産物加工の開発促進 農産物の品質・標準規格 情報と販売促進センター (農産物市場情報センター) 農産物市場の開拓 流通システムの改善 価格政策 (市場原理と価格政策の組み合わせ)	民間(含海外)投資促進のため規制緩和、関連施設等の整備 参入民間企業への融資 公正な競争の促進	関係機関の育成 農民組織の強化 普及組織の強化 村落協同組合(KUD)の構造的改善
				行政機関の強化 資源の開発、計画策定 技術の開発、適用 持続的・総合的農業システムの推進 加工・流通の促進 行政機構の質的向上
				農業公社の開発支援 業務の効率化 (人的資源の改善) 農業活動の多角化

注、農業省(案)を基に構成したものである。

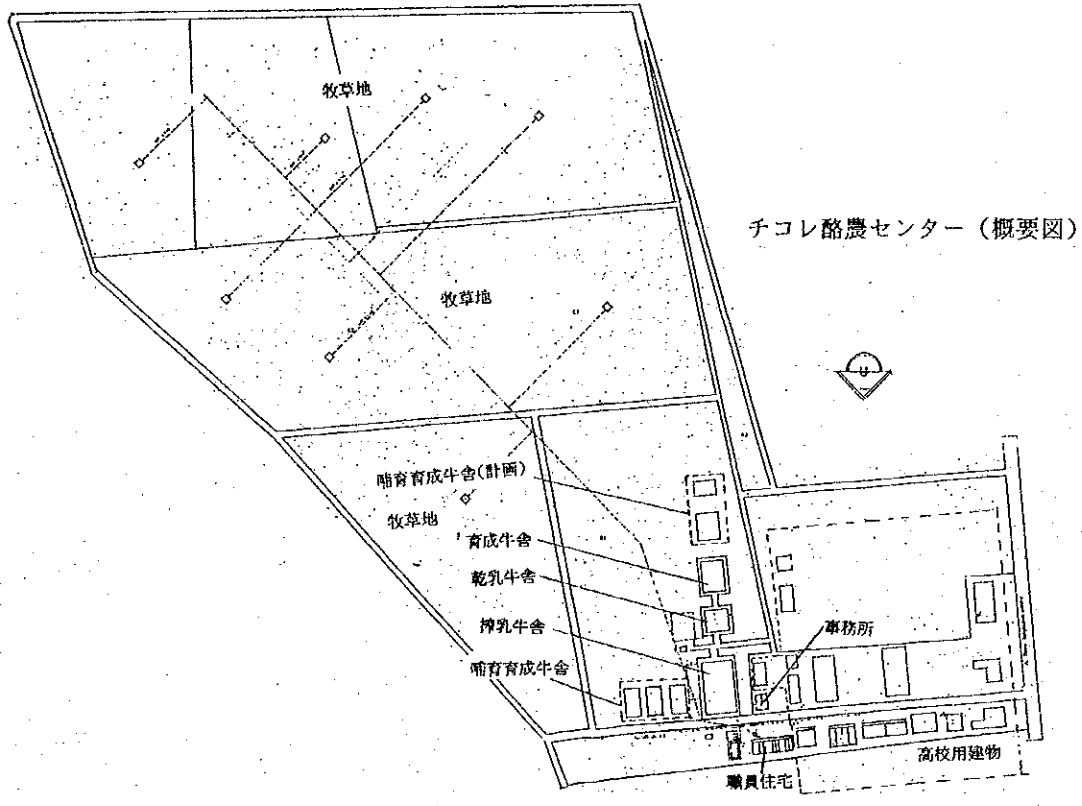
⑦ 酪農振興政策概念圖



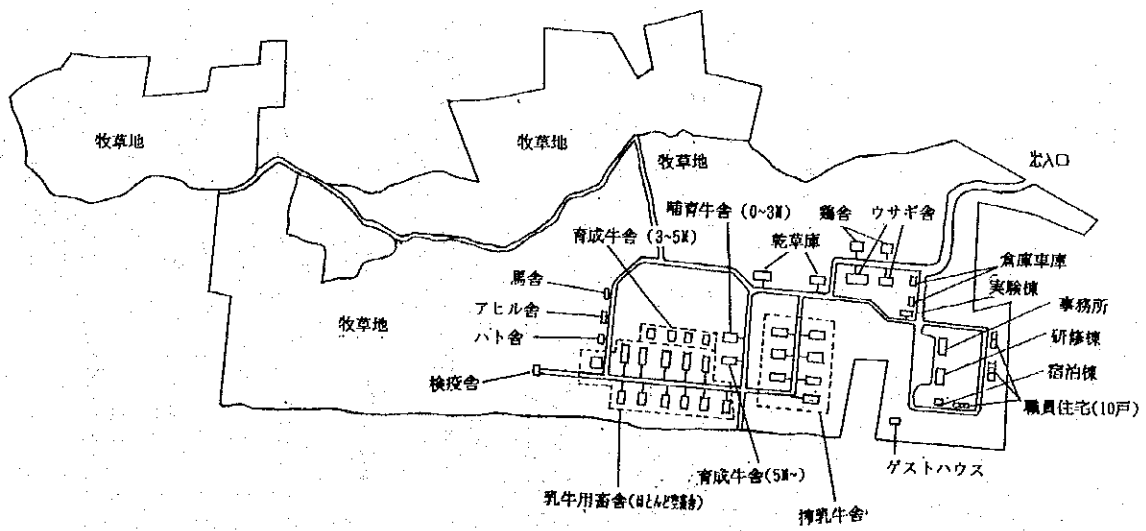
# ORGANIZATION CHART OF LIVESTOCK SERVICES OF WEST JAVA PROVINCE



⑨ プロジェクトサイト概要図



チアンジュール酪農センター (概要図)



⑩ 西ジャワ州畜産局実施研修プログラム

西ジャワの PPS/PPL 並びに乳牛飼育者が必要としている教育・研修・講義の計画 (プログラム)

番号	研修の名称	予想成果	研修期間		目的	計画実行に必要なもの		予算	摘要(補足的説明)	
			PPS	PPL		飼育者(農業者)	機 具			使用数
I	乳牛繁殖の促進 (繁殖の管理)									
1.	種の選択	SPK の指導員並びに乳牛飼育者の種の選択力の向上	1 か月間	15 日間	7 日間	PPS 並びに PPL 班責任者との接触	1. 記録装置 - 測定機器 一式 - ATK 一式	一式 (1 台)	2,000 万	支援器具 1. 梁並びにその設備 2. 訓練機具 (一式) 3. 輸送手段 - 四輪車 - 二輪車 4. 視聴覚機器 (一式)
2.	記録	SPK の指導員並びに乳牛飼育者の記憶能力の向上	1 か月間	15 日間	7 日間	同上	2. コンピューター 1 台			
3.	繁殖技術	SPK の指導員並びに乳牛飼育者の乳牛繁殖能力の向上	1 か月間	15 日間	7 日間	同上				
II	家畜飼料の管理 (飼料並びに給飼の管理)									
a.	HMT の管理 1. 草を種える畑の準備	SPK の指導員並びに乳牛飼育者の草畑の管理能力の向上	1 か月間	15 日間	7 日間	同上	1. トラクター 1 台 2. チョップパー 1 台 3. ミキサー 1 台 4. 農具 一式	1 台	3 億	
	2. HMT の種付け	SPK の指導員並びに乳牛飼育者の草の種付け能力の向上	1 か月間	15 日間	7 日間	同上	5. 肥料及び薬			農機具一式
	3. HMT の管理	SPK の指導員並びに乳牛飼育者の草の種付け能力の向上	1 か月間	15 日間	7 日間	同上				
	4. HMT の長期保存	SPK の指導員並びに乳牛飼育者の草の保存技術の向上	1 か月間	15 日間	7 日間	同上				
b.	ミネラルの供与 1. ミネラルの種類と量	SPK の指導員並びに乳牛飼育者がミネラルの種類並びに量の決定方法を向上させる。	1 か月間	15 日間	7 日間	同上				

番号	研修の名称	予想成果	研修期間		目的	計画実行に必要なもの		予算	摘要(補足的説明)
			PPS	PPL		機 具	使用数		
III	乳牛の管理(酪農の管理) 1. 牛舎 2. 乳牛飼育 3. 搾乳と処理 4. 乳牛事業の分析 5. 乳牛飼育者(または、農業者)のグループのダイナミック性	SPKの指導員並びに乳牛飼育者の牛舎管理技術の向上 SPKの指導員並びに乳牛飼育者の乳牛飼育方法の改善 SPKの指導員並びに乳牛飼育者の搾乳と乳の処理方法の改善 SPKの指導員並びに乳牛飼育者の経済樹定能力の向上	1か月間 1か月間 1か月間 1か月間	15日間 15日間 15日間 15日間	7日間 7日間 7日間 7日間	同上 同上 同上 同上	1.人工乳首 一式 2.畜舎1棟 一式 3.畜舎の設備 一式 4.牛乳用器具 1台 5.搾乳機 1台	4億	
IV	収穫(搾乳)後の管理	SPKの指導員並びに乳牛飼育者に対する、脂肪分と水分の分離した劣化牛乳の処理についての指導を向上させる。	1か月間	15日間	7日間	同上	1.収穫(搾乳)後の処理設備 一式	5,000万	
V	家畜の健康管理	家畜の健康管理に対するSPKの指導員並びに乳牛飼育者の指導強化	1か月間	15日間	7日間	同上	1.家畜の健康維持機材 一式		

⑪ 西ジャワ州バンドン県実施研修参加者一覧表

バンドン県 PPL (振興・研修プログラム) 参加者一覧表

番号	氏名/公務員番号/級	出生年月日 並びに出生地	最終学歴	WKPP	参加した研修	期間/時期	WKPPの可能性	県名	説明(摘要)
1	アセップ・デディ・クスナダイ 080.078.810 II級b号	1958年5月13日 バンドン	高等学校 理科コース クラッシュエ プログラム	チサルア	クラッシュエプログラム KESWAN 小型の家畜 乳牛事業 PPLの調整 高原野菜の栽培事業 KESWAN 畜産振興のオリエンテーション	乳牛 羊 アヤム	プラス	バンドン	
2	デディ・ブダイアワン 080.083.709 II級b号	1962年2月16日	SNAKMA	バンジャール	乳検査 加工(技術)用乳の検査 家禽 乳牛事業 KESWAN トウモロコシ栽培事業 基礎PPL PPLサブセクター インパクト ポイントの認定 人口と栄養に関する教育 畜産振興のオリエンテーション	アヤム アヒル 羊	プラス	バンドン	
3	ユスフ・ステイアワン 080.086.230 II級b号	1961年3月23日 ガルット	実業中学校農科	チレングラ	食肉検査員 PPLオリエンテーション 乳牛飼育事業 搾乳後の処理 アヤム プラスの飼育 乳牛飼育事業 KESWAN HMT 畜産振興のオリエンテーション 乳牛飼育の管理	乳牛 羊 アヤム	プラス	バンドン	学習の任務(勤務)
4	ウジヤン・ハリ・スナルヨ 080.087.808	1967年2月7日 バンドン	SNAKMA	イブン/チバライ	畜産振興のオリエンテーション 乳牛飼育の管理	乳牛 羊		バンドン	
5	コマラ・テイスナ・ブートラ 080.087.132 II級b号	1965年6月15日 バンドン	SNAKMA	チリ	食肉検査員 INTEK 食糧・栄養の多様化 搾乳用家畜 人口と栄養 HMT	羊 アヤム アヒル	プラス	バンドン	



番号	氏名/公務員番号/級	出生年月日 並びに出生地	最終学歴	WKPP	参加した研修	期間/時期	WKPPの可能性	県名	説明(摘要)
6	ウイダ・ムルデアイナ 080.077.641 II級b号	1963年5月25日 バンドン	高等学校	マルガハユ	乳牛のクラッシュエプログラム 牛乳の検査 UPGK 乳牛飼育事業 乳牛の馴化 稲のMINA HMT	アヤム 羊	アヤム プラス バンドン	バンドン	
7	エンテイン・スルヤテイ 080.085.613 II級b号	1962年8月7日 チアミス	SNAKMA	カタバング	KESMAVET 牛乳の加工 家禽飼育 搾乳家畜の飼育 PPL基礎 畜産振興のオリエンテーション	羊 水牛 アヒル アヤム	プラス バンドン	バンドン	
8	クルテイ 080.047.841 II級d号	1960年10月26日 クニガン	中学農業科	バセー	人工受精指導員 乳牛飼育事業 クラッシュエプログラムの調整 PHT HMT	羊 アヤム 乳牛	プラス バンドン	バンドン	
9	マハムツド・ヒダヤット 080.086.009 II級b号	1964年8月20日 スーバン	SNAKMA	クルタサリ	家禽飼育 家禽飼育技術 食肉処理 PPL基礎 家畜防疫事業と雇用 PHT チョコレートの害虫 畜産振興オリエンテーション KESMAVET	乳牛 羊	バンドン	バンドン	学習任務(聴講)
10	サエブアイン 080.089.179 II級b号	1964年2月2日 ダルマラジャ	SNAKMA	チチャレンカ ランチヤエケック	PPL基礎 PHT 食用金魚事業 調和のある施肥 大豆栽培事業 人口、食糧、栄養 卵・肉の事後処理 アヤム プラスの 飼育技術担当員 畜産オリエンテーション KESMAVET	アヤム 水牛 羊	プラス バンドン	バンドン	

番号	氏名/公務員番号/級	出生年月日 並びに出生地	最終学歴	WKPP	参加した研修	期間/時期	WKPPの可能性	県名	説明(摘要)
11	アセップ・ステイアワン 080.076.041 II級c号	1992年9月1日 バンドン	高等学校 理科コース	チャマイ	乳牛のクラッシュ PPL調整 人口と栄養に関する栄養 HMT 畜産振興オリエンテーション	アヤム アヤム	プラス ラス	バンドン	
12	バルダス・スタルヤ 080.076.148 II級b号	1959年12月31日 バンドン	高等学校 理科コース	バガレンガン	クラッシュ アヤム プラス事業 PPL 基礎そのII PHT	乳牛 羊 アヤム	プラス	バンドン	
13	クルス・イルヤンティ 080.077.744 II級c号	1963年6月25日 バンドン	高等学校 理科コース	レンバン	HMT 獣医補助要員 PPL調整 PHT 乳・肉の事後処理 高原栽培野菜 搾乳家畜飼育事業 畜産振興オリエンテーション	乳牛 アヤム	プラス	バンドン	
14	ナナ・ルクマナ 080.076.206 II級b号	1966年3月23日 クニガン	実業中学農科	チカロロ・ウエタ ン	乳牛 予防接種 畜産振興オリエンテーション	乳牛 羊 アヤム	プラス	バンドン	
15	クティン・スルヤティ 080.076.124 II級b号	1963年3月1日 バンドン	高等学校	アルジャヤリ	各種の家畜 羊の飼育 搾乳家畜の飼育 基礎訓練 養魚 インバクト ポイントの認定 クラッシュ プログラム PHT 家畜の屠殺 人口と栄養 畜産オリエンテーション HMT	羊 乳牛 アヤム	プラス	バンドン	

番号	氏名/公務員番号/級	出生年月日 並びに出生地	最終学歴	WKPP	参加した研修	期間/時期	WKPPの可能性	県名	説明(摘要)
16	ドウダイ・タルヨノ 080.095.054 II級b号	1950年3月2日 バンドン	SNAKMA	グヌン・ハル シンダン・クルタ	家禽への飼料配分 IB PKB PPL基礎 PHT 畜産振興オリエンテーション HMT	水牛 アヤム 羊	プラス	バンドン	
17	イマン・クルアイマン 080.022.010 III級a号	1950年10月19日 バンドン	D3 PET APP	バレエングー	種子比較 BIMAS普及班 PWUD-PPL 村落事業体-村落協同組合 畑作農業普及I PPL POLIPALEN PPL資格選択 PPMオリエンテーション 苗床(苗畑) PPMプロダラマ 畜産振興オリエンテーション	アヤム 羊	プラス	バンドン	
18	ウイシユヌ・ステイアワン 080.028.240 II級d号			チリュニ	PPLオリエンテーション PPL基礎研修 LPKMC PHT SLPHT 大豆 稚魚育成 P4K	羊 アヤム 肉牛	プラス	バンドン	
19	エルダン・ルヒアット 080.032.456 III級a号	1952年5月19日 バンドン	D3 PET APP	KEP BPP バガレガン	PPL基礎 穀物栽培の促進 タロイモの事業 協同組合 PHT KESWAN IB 畜産振興オリエンテーション 乳牛の管理 新規の事業開発	羊 アヤム アヒル	プラス	バンドン	

番号	氏名/公務員番号/級	出生年月日 並びに出生地	最終学歴	WKPP	参加した研修	期間/時期 WKPPの可能性	県名	説明(摘要)
20	スカルナ 080.076.145 Ⅲ級c号	1960年2月7日 バンドン	高等学校 理科コース	バジルジャンプ	持乳家畜のクラッシュプログラム PPL基礎 家畜 肉の事後処理 前クラッシュプログラムとの調整 搾乳後の処理と家畜飼育事業	羊 アヤム アヒル プラス	バンドン	
21	リナ・エミリア 080.116.680 Ⅱ級a号	1971年2月8日 バンドン	SNAKMA	チコレ	畜産振興オリエンテーション	乳牛	バンドン	
22	アゼップ・スプリアタ 080.113.631 Ⅱ級a号	1964年6月14日 バンドン	SNAKMA	チウイアイ	畜産振興オリエンテーション	乳牛 羊	バンドン	
23	イマム・ラフマン 080.118.623 Ⅱ級a号	1966年4月3日 バンドン	実業中学校農科	ソレアン	畜産振興オリエンテーション	アヒル アヤム 羊 プラス	バンドン	
24	アフリアル・アムラン 080.076.524 Ⅱ級b号	1961年1月6日 メダン	実業中学校農科	チバタクト バダララン	畜産振興オリエンテーション	羊 アヤム プラス	バンドン	
25	アア・スハラ 080.118.356 CPNS			ポジョノンアン	アヤム プラス(レグホン?)の 飼育畜産振興オリエンテーション	アヤム アヤム ラス	バンドン	
26	クルニア・イラワン 礼金待遇	1970年3月27日 バンジャラン	SNAKMA	バマンブク	畜産振興オリエンテーション	羊 アヤム プラス	バンドン	
27	ヤンテイ・リアニ・ユミアテイ 礼金待遇	1968年8月12日 タシックマラヤ	SNAKMA	チウインディ			バンドン	
28	ダダン・グナワン			チレンクラン	畜産振興オリエンテーション 食糧及び栄養の多様化	乳牛 アヤム アヤム ラス		
29	アア・コスワラ			チバライ		乳牛 アヤム アヤム ラス		

⑫ 生乳品質衛生管理と検査に関する畜産総局長通達(英訳)

ANNEX :1

FORMS OF  
CATTLE BUTCHERING REPORTS (FEMALE)

- Model: E.Kh - 1 : Investigation and producing cattle  
Model: E.Kh - 2 : Cattle Investigation/ "ss' stamped cows and rejected  
Model: E.Kh - 3 : Cattle butchering report forms/District level  
Model: E.Kh - 4 : Cattle licence/Sub District level  
Model: E.Kh - 5 : Licence of investigation result/rejection/cancellation of delivering productive cows  
Model: E.Kh - 6 : Licence of investigation result and "s" stamped  
Model: E.Kh - 7 : Record of cattle investigation

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DIRECTORATE GENERAL OF LIVESTOCK SERVICES DECREE  
NO: 17/Kpts/DJP/Deptan/83

CONDITIONS OF SUPERINTENDENT AND INVESTIGATION OF QUALITY OF LOCAL

DIRECTOR GENERAL OF LIVESTOCK SERVICES

Considering:

a. milk quality is an important factor in providing healthy milk to consumer and it will determine in getting last result of the process.

b. based on those matters mentioned above, as the follow up on Minister of Ministry of Agriculture Decree No. 751/Kpts/Um/1982, it is necessary to fixed the local quality of milk conditions, supervising and evaluation.

Regarding:

1. Regulations No. 6/1967
2. Government Regulations No. 15, 1977
3. Government Regulations No. 16, 1977
4. President Decree No. 44 & 45, 1974
5. President Decree No. 17, 1979
6. Minister Decree of Minister of Trade and Cooperatives, Minister of Industry and Minister of Agriculture  
No. 236/Kpb/VII/1982  
No. 341/M/SK/7/1982  
No. 512/Kpts/Um/1982
7. Minister of Agriculture Decree No. 453/Kpts/Org/6/1980
8. Minister of Agriculture Decree No. 751/Kpts/um/10/1982

DECIDED

Director General of Livestock Services Decree for the Conditions, Supervising and Evaluating the quality of local milk.

BAB I  
GENERAL STIPULATIONS

Article 1

In this Decree, the meaning of these points as follows:

- a) Milk is cow milk including fresh milk, unadulterated milk, pasteurized milk and sterilized milk.
- b) Unadulterated milk is liquid from health udder cows got by milking in proper way without decreasing or increasing component.
- c) Fresh milk is unadulterated milk had no heating process.
- d) Pasteurized milk is milk had completed pasterized process.
- e) Sterilized milk is milk had completed sterilized process.
- f) Milk sample is small part of milk supply to be examined as a whole part.
- g) Laboratory is milk test laboratory of Livestock Service in one area or other laboratory appointed by Director General of Livestock Services.
- h) Dairy cow enterprise is public enterprise or private enterprise.
- i) Milk collector is a person or business unit appointed to collect milk from dairy farmer.
- j) Milk collecting unit is business unit atau cooperative or corporate body conducting collecting unadulterated milk from dairy firm or milk collector.
- k) Milk storage is special room for handling and storing from milk collector or directly form dairy firm.
- l) Medical stoppage period is period counted from the time when giving medicine is stopped until the production is used for consumer.

BAB II  
CONDITIONS FOR DAIRY HEALTH AND PRODUCTION MILK QUALITY

Article 2

- 1) The health of each dairy cow must be observed and tested by veterinarian or official incharge for twice a year (minimum) or whenever needed.
- 2) Each dairy cow must get certain vaccination decided by Director General of Livestock Services and also have test for tuberculosis and brucelosis.

Article 3

- 1) Dairy cow that positively have or predicted salmonellosis, tuberculosis, brucelosis, hoof and mouth disease, mastitis, endometrius with liquid drew repeatedly, enteritis with heavy diarrhea, injury with liquid or suppuration at udder, is prohibited to get milk for consumption.
- 2) Dairy cow under antibiotic medicinal treatment, hormon and other pharmatic is prohibited to get milk for consumption until medical treatment is finished.

Article 4

- 1) Each dairy firm should have stall with such criterias (mentioned in point 2 and 3).
- 2) Stall for dairy firm should:
  - a. permanent/semi permanent with concrete floor or rough wooden floor. Slope floor to the spillway.
  - b. The floor of stall has 2 X 1,5 m sized for mature cow, excluded path and spillway.
  - c. Stall should have good ventilation.
- 3) Stall for dairy firm should have conditions based on the regulations of Director General Decree No. 776/Kpts/DJP/Deptan/1982.
- 4) Wastewater should have special container.

- 5) Each dairy firm have to prevent the pollution of environment.
- 6) Each dairy firm have to have water source that can be used for drink.

#### Article 5

Tools used for containing, collecting and carrying milk should have conditions:

- a) waterproof
- b) made from non rusty material
- c) parts do not get peeled off, do not reaction with milk and the color, smell and taste do not change.
- d) easy to be cleaned and to be sterilized.

#### Article 6

- 1) Each worker in dairy firm, milk collector has direct duty with health maintenance of dairy cow and milk must have good conditions and free from infectious disease. And they have confirmation letter from doctor that they free from those matters mentioned above.
- 2) That doctor licence as mentioned in point 1) should be renewed annually.

#### Article 7

- 1) Unadulterated milk must have conditions of quality as follows:
  - a. color, smell, taste and thick consistency : no alteration
  - b. specific gravity (27½ °C) at least : 1,0280
  - c. fat level at least : 2,8 %
  - d. dry material level without fat at least : 8,0%
  - e. acid level : 4,5 - 7° SH
  - f. alcoholic test 70% : negative
  - g. boil test : negative
  - h. catalyze (maximum) : 3 cc
  - i. frozen point : -0,520° up to -0,560° C
  - j. refraction point : 34,0
  - k. protein level at least : 2,7%
  - l. reductage point : 2 - 5 hours
  - m. rearing microorganism for each cc (max) : 3 million
- 2) Milk must be free from pathogen and other materials
- 3) Pasteurized milk must have conditions of quality as follows:
  - a. storch test : negative
  - b. phosphatage test : negative
  - c. rearing microorganism for each cc : 25.000
  - d. microorganism (coly) can be reared is not allowed to be found in 1 cc milk
- 4) Sterilized milk must have conditions of quality as follows:
  - a. storch test : negative
  - b. phosphatage test : negative
  - c. after saved for 5 days at 31 °C in original cover they will not show decaying.
  - d. after saved for 5 days at 31 °C in original cover, the microorganism can be reared maximum 100 each cc.

#### Articel 8

- 1) Milk got from dairy cow as mentioned in point (1) article 3 can be used for cattle feed by add flour or others supporting this food soon after milking.
- 2) Cattle feed as mentioned in point (1) have to be cooked.

**BAB III**  
**MILK QUALITY OBSERVATION AND TESTING SYSTEM**

**Article 9**

- 1) Milk circulated is under the supervising and the quality is tested by Livestock Services.
- 2) The supervising of milk quality by Livestock Services as mentioned in point (1) above:
  - a. checking for cow health, cow stall, milking place, milking way, cleanliness, milk storage and tools used, variety and desinfectant used are for supporting dairy cow health and milk quality.
  - b. milk sampling
  - c. milk that have bad conditions, without licence and adulterated after have consultation with instance concerned, will be pulled, seized and destroyed.
- 3) In the execution as point (2) mentioned above, officer from Livestock Services appointed by head of livestock services/District Level have authorities:
  - a. some time visit to dairy cow firm, collecting place and collector.
  - b. will take action as mentioned in point (s)
  - c. some time will stop milk agent, transportation vehicle

**Article 10**

- 1) The quality of sampling milk will be tested can be got from dairy firm, collecting firm, agent or vehicle for transportation and milk processing firm.
- 2) Getting system and sending the milk sample for testing based on the regulations listed in Annex 1, this decree.

**Article 11**

- 1) Milk quality testing based on article 9, point (1) will be held in laboratory to maintain the condition and the composition of milk and to prevent for the adulteration.
- 2) Testing for the milk condition is included:
  - a. color, smell, taste and thick consistency will be executed organoleptically.
  - b. the cleanliness will be held by filter method, using filter paper.
  - c. acid will be executed by boiled test, alcoholic test and titracy
  - d. reductage test will be executed by metilen blue or resazum
  - e. catalage test will be executed by H<sub>2</sub>O<sub>2</sub>



**Attachment I. Decree of Director General of Livestock**

**No. : 17/Kpts/DJI/Deptan/83**

**Tanggal : 19 - 1 - 1983**

**Subject : Condition, Custom and manners of Inspection and  
Quality checking of Local dairy production**

**A. Milk sample :**

1. Head, Regional Office of Livestock Service has appointed the person who has the capability and experience on his duty or had some training or course in accordance with the milk sample.
2. The owner or one of his staff act as a witness on the report about the milk sample.
3. The milk sample, after registered date, number, and delivered code should be attached with the report which ha signed with person in charge also the witness as mentioned in A-1
4. On the report as mentioned on A-2 should be listed down as:
  - a. Number, report code appropriate with the milk sample code.
  - b. Date, time and the place of milk sample
  - c. The owner name's, the milk firm with the right address.
  - d. The description of classificaton, package, label, seal transportation.
  - e. The ppurpose/ reason of milk sample
  - f. An additional preservation should be recognized easily.
5. The amount of milk sample is less than 500 cc divide into 2 and each has been sealed, the other keep at the refrigerator (4 °C) in accordance to double check or another test at least 2 days after the storage if it needed.

CHAPTER IV  
The Result of and Milk quality Test

Article 13

- (1). The result of milk quality test should be valued
- (2). The appraiser as mentioned in verse (1)

Article 14

- (1) The result of milk quality test should be monitored by Directorate General of Livestock.
- (2) The result of milk quality should tested in the laboratourium as the standar when there is no concern about the test result held by other laboratorium.

CHAPTER V  
Regulation of Transferring

Article 15

- (1) Director General of Livestock will regulate all the case which not included before in the Decree.
- (2) All regulation about the condition and the milk tested which has established as long as refer to the Decree

CHAPTER VI  
Closing

Article 16

- (1) This Decree start to valid on the deteminate date and if there is any mistake on the determination will be correction.
- (2) Controlling to the regulation which is deteminated in this Decree, executed by Directorate Animal Health and other Direcorate function.

- f. The sedimentation test is executed with the Tromsdorf tube.
  - g. Disease test is executed by Koch's method fertilizer.
  - h. Sterilization is executed with Storch/ fosfatase test.
  - i. Antibiotic test/ pesticide/hormone and other farmasetik is executes concerning the method for each test.
- (3). The structure of milk test including :
- a. Specific gravity execute by laktodensimeter which set temperature on  $27\frac{1}{2}^{\circ}\text{C}$ .
  - b. Grease content implement Gerber method.
  - c. Protein content implement by Kyelahl method
  - d. The content of dried subtansial calculated based on specific gravity and grease content according to Fleischmann formula.
  - e. Refraktion value implement with refraktometer.
  - f. Freezing point execute with the Kryoskop
- (4). Test toward to the possibility of foregery with the increasing or decreasing milk component or other substance implemented according the method for each forgery milk component or other substance.

#### Article 12

- (1). Custom and manner to milk quality test in the laboratorium as mentioned on the article 11 verse (2) (3) listed on 2nd attachment of Decree.
- (1) There are matters / cases which is needed specific test so that the Director General of Livestock could assigned the other Laboratorium indeed.

### CHAPTER IV The Result of milk quality test

#### Article 13

- (1). The result of milk quality test should be valued
- (2). The appraiser as mentioned in verse (1)

#### Article 14

- (1) The result of milk quality test should be monitored by Directorate General of Livestock.
- (2) The result of milk quality should be tested in the laboratory as the standard when there is no concern about the test result held by other laboratories.

#### CHAPTER V Regulation of Transferring

#### Article 15

- (1) Director General of Livestock will regulate all the cases which are not included before in the Decree.
- (2) All regulations about the conditions and the milk tested which have been established as long as refer to the Decree.

#### CHAPTER VI Closing

#### Article 16

- (1) This Decree starts to be valid on the determined date and if there is any mistake on the determination, it will be corrected.
- (2) Controlling the regulation which is determined in this Decree, executed by Directorate of Animal Health and other Directorate functions.

CC.

1. Minister of Agriculture
2. Minister of Industry
3. Minister of Trade and Minister of Cooperative
4. Minister of Home Affairs
5. Governor/ Head of Government provincial level I
6. Secretary General, Ministry of Agriculture
7. Inspector General, Ministry of Agriculture
8. Directors of Directorate General of Livestock
9. Head Legal Bureau, Ministry of Agriculture
10. Head, Regional Office of Agriculture
11. Head, Regional Office of Livestock Service

⑬ 生乳價格換算表

Penalty (-) per 0.1% (U.S. < 11%)

Bonus (+) per 0.1% (U.S. > 11%)

Harga dasar per Kg. 640.00

Kandungan Fresh Milk:  
 Fat : 3.3 %  
 SNF : 7.7 %  
 T/S : 11.0 %

0.1% pertama : = - Rp. 0.00  
 0.1% kedua : = - Rp. 1.00  
 0.1% ketiga : = - Rp. 1.00  
 0.1% keempat : = - Rp. 1.00  
 Selanjutnya : = - Rp. 1.00

0.1% pertama : = + Rp. 2.50  
 0.1% kedua : = + Rp. 1.00  
 0.1% ketiga : = + Rp. 1.00  
 0.1% keempat : = + Rp. 0.50  
 Selanjutnya : = + Rp. 0.50

SNF (%)	F A T (%)																									
	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	
6.2	454.43	461.69	468.95	476.21	483.47	490.73	497.99	505.25	512.51	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93
6.3	461.69	468.95	476.21	483.47	490.73	497.99	505.25	512.51	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19
6.4	468.95	476.21	483.47	490.73	497.99	505.25	512.51	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45
6.5	476.21	483.47	490.73	497.99	505.25	512.51	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71
6.6	483.47	490.73	497.99	505.25	512.51	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97
6.7	490.73	497.99	505.25	512.51	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23
6.8	497.99	505.25	512.51	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49
6.9	505.25	512.51	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75
7.0	512.51	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01
7.1	519.77	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27
7.2	527.03	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53
7.3	534.29	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79
7.4	541.55	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05
7.5	548.81	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31
7.6	556.07	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57
7.7	563.33	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83
7.8	570.59	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83	752.09
7.9	577.85	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83	752.09	759.35
8.0	585.11	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83	752.09	759.35	766.61
8.1	592.37	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83	752.09	759.35	766.61	773.87
8.2	599.63	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83	752.09	759.35	766.61	773.87	781.13
8.3	606.89	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83	752.09	759.35	766.61	773.87	781.13	788.39
8.4	614.15	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83	752.09	759.35	766.61	773.87	781.13	788.39	795.65
8.5	621.41	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83	752.09	759.35	766.61	773.87	781.13	788.39	795.65	802.91
8.6	628.67	635.93	643.19	650.45	657.71	664.97	672.23	679.49	686.75	694.01	701.27	708.53	715.79	723.05	730.31	737.57	744.83	752.09	759.35	766.61	773.87	781.13	788.39	795.65	802.91	810.17

Penalty area

⑭ 社会配慮及びWID配慮調査票

(1) グループ1と2(2ページ)の生産活動/再生産活動の状況(暫定的)

		農民男女社会グループ別					
		Legend: A=Adult, E=Eldery, C=Child, F=Female, M=Male					
生産活動/再生産活動の内容	AM	AF	EM	EF	CM	CF	Labourers
生産活動(酪農)							
酪農経営/労働者の指導等	C						L
粗飼料の確保/運搬	C						L
粗飼料の確保/購入	C						L
配合飼料の確保	C						L
餌の量を決める	C						L
餌やりのタイミング	C						L
牛舎の管理/清掃	C						L
乳牛の洗浄	C						L
乳搾り	C						L
集乳所までの生乳の運搬	C						L
水の確保	C						L
発情期の発見	C						L
etc							L
生産活動(農業)							
農業経営/労働者の指導	C						L
農地起こし							L
種蒔							L
草取り							L
施肥							L
収穫							L

農民男女社会グループ別						
生産活動／再生産活動の内容	Legend: A=Adult, E=Eldery, C=Child, F=Female, M=Male					
	AM	AF	EM	EF	CM	CF
再生産活動	L					
家政婦の指導	I					
学前期の子供の面倒を見る	I					
料理	I					
清掃	I					
生計向上活動	I					
etc						
						L L L

(1) グループ3の生産活動/再生産活動の状況：小規模酪農家（乳牛3-4頭/農地ヘクタール以下）（暫定的）

農民男女社会グループ別							
生産活動/再生産活動の内容	Legend: A=Adult, E=Eldery, C=Child, F=Female, M=Male						
	AM	AF	EM	EF	CM	CF	Labourers
生産活動（酪農）							
粗飼料の確保/運搬	C/L						
粗飼料の確保/購入	C/L						
配合飼料の確保	C/L						
餌の量を定める	C/L	C/L					
餌やりのタイミング	C/L	C/L					
牛舎の管理/清掃	C/L	C/L					
乳牛の洗浄	C/L						
乳搾り	C/L						
集乳所までの生乳の運搬	C/L						
水の確保	C/L	C/L					
発情期の発見	C/L						
etc							
生産活動（農業）							
農地起こし	C/L	C/L					
種蒔	C/L						
草取り	C/L	C/L					
施肥	C/L						
収穫	C/L	C/L					



農民男女社会グループ別							
生産活動／再生産活動の内容	Legend: A=Adult, E=Eldery, C=Child, F=Female, M=Male						
	AM	AF	EM	EF	CM	CF	Labourers
再生産活動 学前期の子供の面倒を見る 料理 清掃 生計向上活動 etc		C/L C/L C/L C/L		C/L C/L	C/L	C/L	

社会グループ別役割分担表 (季節/生活時間含む)

活動	社会グループ*							季節					生活時間				
								月/気候					時刻				
	AM	AF	CM	CF	EM	EF	1-2	3-4	5-6	7-8	9-10	11-12	12-4	4-8	8-12	4-8	8-12
再生産活動																	
食料の調達 子守り 料理 食料を買う (周辺環境) 水汲み 薪炭材集め 等																	
生産活動																	
田起こし 苗床管理 田植え 草取り 収穫 脱穀 ふるい分け 穀物貯蔵 灌漑 農業 肥料																	

社会グループ別役割分担表 (季節／生活時間含む)

活動	社会グループ*						季節						生活時間					
	月／気候						時刻											
	AM	AF	CM	CF	EM	EF	1-2	3-4	5-6	7-8	9-10	11-12	12-4	4-8	8-12	12-4	4-8	8-12
生産活動 (酪農)																		
粗飼料の買い入れ																		
粗飼料の運搬																		
粗飼料の加工																		
配合飼料の買い入れ																		
餌やり																		
水やり																		
牛舎の掃除																		
乳搾り																		
生乳の運搬																		
牛の洗浄																		
経営一般																		
労働者の指示																		
発情期の発見																		
人工受精師を呼ぶ等																		
コミュニティー活動																		
組合活動への参加等																		

Legend: A=成人, E=高齢者, C=子供, M=男性 and F=女性

社会グループ別役割分担表 (季節/生活時間含む)

活動	社会グループ*							季節				生活時間							
								月/気候				時刻							
	AM	AF	CM	CF	EM	EF		1-2	3-4	5-6	7-8	9-10	11-12	12-4	4-8	8-12	12-4	4-8	8-12
再生産活動																			
食料の調達 (周辺環境)																			
生産活動																			

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RECORD OF DISCUSSIONS  
BETWEEN  
THE JAPANESE GROUP AND THE INDONESIAN GROUP  
ON  
THE THIRD UMBRELLA COOPERATION  
FOR  
INTEGRATED AGRICULTURAL & RURAL DEVELOPMENT  
IN THE REPUBLIC OF INDONESIA

The Japanese Group headed by Mr. Zenji Kaminaga, Minister, Embassy of Japan in Indonesia, and the Indonesian Group headed by Dr. Muslimin Nasution, Deputy Chairman for Economic Affairs, National Development Planning Agency (BAPPENAS), met to discuss "The Third Umbrella Cooperation for Integrated Agricultural & Rural Development in the Republic of Indonesia," jointly sponsored by the Government of Japan and the Government of the Republic of Indonesia.

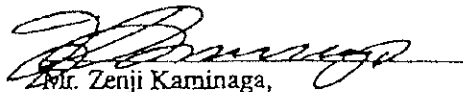
Both groups considered the results of the joint evaluation for the First Umbrella Cooperation for Increasing Rice Production which was conducted from fiscal 1981 to 1985 and the Second Umbrella Cooperation for Promotion of Major Food Crops Production which was conducted from fiscal 1986 to 1990, and concluded that both programs had successfully contributed to increasing agricultural production in Indonesia.

Both groups reconfirmed the importance of institutional development for improving the standard of living of farmers, as one of the goals to which the Sixth Five-Year Development Plan (REPELITA VI) gives high priority in the agricultural sector, and shared the view that in order to achieve this goal an integrated approach was indispensable.

Based upon the aforementioned recognition and with regard to the Minutes of Meeting for discussions between the Japanese project formulation mission and the Indonesian Group dated 16 May 1995, both groups agreed to recommend to their respective governments: the implementation of the Third Umbrella Cooperation for Integrated Agricultural & Rural Development in the Republic of Indonesia within the framework described in the Annex attached hereto.

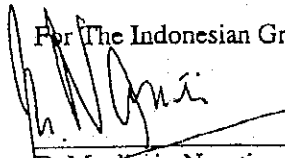
October 6, 1995, Jakarta

For The Japanese Group

  
Mr. Zenji Kaminaga,  
Minister

Embassy of Japan to Indonesia

For The Indonesian Group

  
Dr. Muslimin Nasution  
Deputy Chairman for  
Economic Affairs  
BAPPENAS

**THE FRAMEWORK  
OF  
THE THIRD UMBRELLA COOPERATION  
FOR  
INTEGRATED AGRICULTURAL & RURAL DEVELOPMENT  
IN  
THE REPUBLIC OF INDONESIA**

1. Purpose of the Cooperation

- 1.1. The Japanese and Indonesian Governments will jointly initiate the Umbrella Cooperation for Integrated Agricultural and Rural Development aiming for optimum results and efficiency in cooperation through a combination of available Japanese Official Development Assistance (hereinafter referred to as "ODA") schemes in technical and financial assistance, and in coordination with projects working towards the same goal and those currently being implemented by the Indonesian Government with or without foreign assistance.
- 1.2. The Umbrella Cooperation will be implemented with the purpose of improving the standard of living of farmers through three major objectives: improving farming productivity, efficiency and sustainability; increasing quantity and quality of farm production and diversification; and adding value to farm products according to the Program described below. Thus, it will eventually contribute to the alleviation of rural poverty. Through this process, the Third Umbrella Cooperation is expected to promote activities for building an integrated system and mechanism of agricultural development aimed at improvement in the living standard of farming communities, as a major goal of the Second Twenty-Five Year Long-Term Development Plan which begins with the Sixth Five-Year Development Plan (REPELITA VI).

2. The Program

- 2.1. The Umbrella Cooperation will be composed of the Program attached hereto as Appendix 1 which includes groups of objectives and activities sequentially listed that consequently contribute to achieving the proposed goal of improvement of income and well-being of farmers.
- 2.2. The Program may include prospective agricultural commodities such as food



crops, vegetables and fruits, tree crops, livestock and fresh water fish, and appropriate combination of these commodities in farming system development .

2.3. During the formulation and implementation of projects under the Program, consideration of their impacts on the natural and social environment, especially on the fair distribution of income, as well as their effects on women should be given.

2.4. For the effective and efficient execution , the Program will be composed of projects both at central and regional levels, and the linkage and coordination among projects will be firmly secured.

2.5. The Central Projects may include the following components such as:

- (1) Studies, policy making and master plan formulation
- (2) Research for the development of basic and applied technologies
- (3) Development of training and extension strategies and techniques
- (4) Development and strengthening of cooperatives and other farmers' organization
- (5) Capability and institution development

2.6. The Regional Projects may include projects meeting the particular local needs such as ;

- (1) Production . processing and marketing of prospective agricultural commodities
- (2) Appropriate technology development to suit the local environment
- (3) Demonstration and extension of farming technologies and management
- (4) Agricultural support system for integrated rural development
- (5) Capacity and institutional development of agricultural services of the local government.

2.7. The Model Areas where activities of the Regional Projects will be mainly implemented are South Sulawesi, West Java, West Nusa Tenggara, and South Kalimantan which respectively represent four major types of agro-ecosystems: irrigated area, highland area, lowland(Rain-fed) area and swamp area.

The objectives of the development for each agro-ecosystem are as follows;

(1) Irrigated area

To improve the productivity of paddy fields, in accordance with the rice demand increase, through such projects as improvement of infrastructure for agricultural production including irrigation and drainage facilities and water management, promotion of farmers' cooperative activities and promotion of utilization of agricultural



machinery

To promote the diversification in agricultural crops through such projects as improvement of technology and dissemination.

(2) Highland Area

To promote diversification in agricultural production, especially horticulture and the livestock management, through such projects as quality improvement of seedlings and propagation, dissemination of production technology, improvement of post-harvest and processing technology, and promotion of farmers' organization.

(3) Lowland (Rain-fed) area

To promote appropriate production system in the region through such projects as selection of appropriate crop and development of production technology and its extension, development of small scale water resources.

(4) Swamp Area

To achieve comprehensive agricultural development program through such projects as improvement of drainage and introduction of appropriate cropping system.

Specific activities which will be implemented in each model area are to be selected from the list of activities. (See appendix 1)

### 3. Japanese Assistance

- 3.1. Japanese ODA will be allocated only to the projects proposed by the Government of Indonesia which the Government of Japan considers possible and when and where the resources are available, and not to all projects defined under the Program.
- 3.2. Japanese ODA will support the Indonesian Government in building a model system to implement the Program and for successful implementation of some projects, but will not cover all activities of the Program. The other activities under the Program are expected to be implemented by the Indonesian Government with or without other foreign assistance according to necessity.

- 3.3. The consistent networking between planning and technology development by ministries concerned and related agencies, and project administration and extension activities for farmers at the model areas will be the most important consideration during the project formulation. The dynamics and replicability of the cooperation projects are important considerations in making development institutionally and economically sustainable.
- 3.4. Japanese ODA schemes may include technical cooperation such as the dispatch of advisors, experts and junior experts, project-type technical cooperation, mini-projects, development studies and training in Japan; and financial assistance such as loans, grants. These cooperation schemes may be effectively combined when and where resources are available.
- 3.5. Considering the items listed above in this section, the project proposals for Japanese Assistance will be formulated with the assistance of the Secretariat Office, endorsed by the Joint Coordinating Committee prior to the ordinary procedures required for each particular scheme. Under the Third Umbrella Cooperation, the specific plan for Japanese Assistance will be discussed and coordinated by the Secretariat Office and reviewed by the Joint Coordinating Committee.

#### 4. Inputs and Responsibility of the Indonesian Government

- 4.1 The Indonesian implementing agencies of the Program will include:
  - Ministry of Agriculture (Lead Agency)
  - Ministry of Cooperatives and Small Enterprise Development
  - Ministry of Public Works
  - Ministry of Transmigration & Forest Squatter Resettlement
  - The local governments of the Model Area.
- 4.2. BAPPENAS is expected to take the responsibility of coordinating among concerned governmental agencies, including central and local government organizations, and the private sector if necessary, for the successful implementation of the Program.
- 4.3. The Indonesian Government is expected to secure the budget for local running costs, personnel and facilities necessary for the implementation of the projects supported by Japanese assistance.
- 4.4. Through her own efforts and/or through the support of other donors, the Indonesian Government is expected to undertake projects not supported by the Government of Japan, yet which are part of the Program.



## 5. Management Mechanism

5.1. The Joint Coordinating Committee (hereinafter referred to as "JCC") will be responsible for the overall planning, management and coordination of the Umbrella Cooperation and will meet once a year in principle.

5.2. The Chairman of the JCC will be the Deputy for Economic Affairs, BAPPENAS.

5.3. The members of the Joint Coordinating Committee will be:

Indonesia:

- 1) Bureau chief, Agriculture, Food and Forestry, BAPPENAS
- 2) Bureau chief, Bilateral Economic Cooperation, BAPPENAS
- 3) Bureau chief, Trade, Cooperatives and Business Development, BAPPENAS
- 4) Bureau chief, Water Resources and Irrigation, BAPPENAS
- 5) Bureau chief, Regional Development and Transmigration, BAPPENAS
- 6) Director, Planning Bureau, Ministry of Agriculture
- 7) Director, International Cooperation Bureau, Ministry of Agriculture
- 8) Director, Planning Bureau, Ministry of Cooperatives and Small Enterprise Development
- 9) Director of Planning and programming, Directorate General of Water Resource Development, Ministry of Public Works
- 10) Director, Planning Bureau, Ministry of Transmigration & Forest Squatter Resettlement
- 11) Representatives from the local governments of the Model Areas.

Japan:

- 1) Representative from the Embassy of Japan
- 2) Representative from JICA Indonesia Office
- 3) Representative from OECF Indonesia Office
- 4) The JICA Advisory Experts for the Umbrella Cooperation.

5.4. The Secretariat will undertake administrative work, coordination and monitoring of the Umbrella Cooperation, facilitate formulation and the coordination among project proposals from implementing agencies prior to the Technical Group meeting and the JCC meeting.

5.5. Secretariat office will be established at Bureau of International Cooperation, Ministry of Agriculture.

5.6. The Secretariat will be composed of :



- 1) Head: Director, Bureau of International Cooperation, MOA
- 2) Deputy Head: Japanese Chief Advisor for the Umbrella Cooperation  
(a JICA expert)
- 3) Assistant Head: Senior Officer from Ministry of Agriculture
- 4) Assistant Head: Japanese Assistant Advisor for the Umbrella Cooperation  
(a JICA expert)
- 5) Staff Officers & Clerks: Ministry of Agriculture

5.7 The Technical Group will assist JCC and meet quarterly at BAPPENAS.

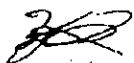
5.8 The Technical Group will be composed of;

- 1) Chairperson: Bureau chief, Agriculture, Food and Forestry, BAPPENAS
- 2) Japanese Chief Advisor for the Umbrella Cooperation (a JICA expert)
- 3) Japanese Assistant Advisor for the Umbrella Cooperation (a JICA expert)
- 4) Representative of Ministry of Agriculture
- 5) Representative of Ministry of Public Works
- 6) Representative of Ministry of Cooperatives and Small Enterprise Development
- 7) Representative of Ministry of Transmigration & Forest Squatter Resettlement

## 6. Monitoring & Evaluation

6.1. The Secretariat will monitor and review regularly the progress of each project and the technical coordination of all the projects under the Umbrella Cooperation, highlighting the following aspects, and report to the JCC.

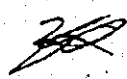
- (1) Effects of the activities on three major objectives: improving farming productivity, efficiency and sustainability; increasing quantity and quality of farm production and diversification; and adding value to farm products in the Model Areas
- (2) Improvement of the living standard of the farming communities in the Model Areas with statistical data.
- (3) Impacts of the Umbrella Cooperation on agricultural and rural development in Indonesia
- (4) Contribution to the re-orientation of the Indonesian Government activities to build an integrated system and mechanism of agricultural and rural development directed towards improvement of the living standard of the farming communities




- 6.2. The JCC will annually review the progress and integrated effects of the Umbrella Cooperation, recommend and advise necessary actions to both Governments and the implementing agencies.
- 6.3. A joint evaluation of both Governments' representatives will be conducted on the impacts of the Cooperation highlighting the effects listed in 6.1. above at the date agreed upon and a few years after the completion of the Umbrella Cooperation.

## 7. Cooperation Period

- 7.1. The period of the Umbrella Cooperation will be five years from the date of signing the Record of Discussions.



The Program of the Umbrella Cooperation  
for Integrated Agriculture & Rural Development in Indonesia

Objectives	Major Activities	Activities	Lead Agency	Related Agency					
				MPW	MCSED	MTFSR	MOA	others	
1. Human resources and system development of central and local government to improve planning and administrative capabilities	11. Improvement of information collection and analysis capability	111. Improvement of systems and technologies for information collection and analysis on agricultural statistics	MOA		SG		AQC		
	12. Improvement of capability on economic analysis and planning	121. Improvement of the capability on analysis for the development of agriculture	MOA						
	13. Strengthening of the capability of development plan formulation on agricultural sub-sectors	131. Improvement of capability on crop development plan		DGFCH				DGE	
		132. Improvement of capability on livestock development plan		DGLS					
133. Improvement of capability of fresh water fish development plan			DGF						
14. Strengthening of capacity for plan formulation of regional agricultural development	141. Improvement of planning capability for regional agricultural development		MOA		DGRCD	DGSE			
2. Improvement of the capability in research to support development of appropriate production technologies	21. Improvement of breeding and multiplication technologies for superior seed and seedlings	211. Improvement of multiplication technology for chicken	AARD				DGLS		
		212. Development of biotechnology for increased livestock production	DGLS				AARD		
		213. Improvement of seedling culture technology for fresh water fish	DGF				AARD		
	22. Development of production technologies	221. Strengthening of research on crop production		AARD					
		222. Strengthening of research on livestock production		AARD					
		223. Strengthening of research on fresh water fish production		AARD					
	23. Development of farming technologies	231. Strengthening of research on appropriate agricultural machinery		AARD					
	24. Development of technologies for irrigation and drainage	241. Improvement of irrigation and drainage technologies		DGWRD			DGFCH	IESC	
	3. Development of agricultural extension systems in order to improve farm management and to promote diversification in agricultural production	31. Modernization of extension materials	311. Training and extension of seed production technologies	DGFCH				AATE AEC DGE	
			312. Inspection of animal quarantine, medicines and feeds, and their stable supply	AQC				AEC DGF DGLS	
313. Extension of dairy farming technologies at farm level			DGLS				AEC		
32. Improvement of extension teaching capacity		321. Strengthening and promotion of extension activities		AAET				DGFCH AEC AARD DGE	
		322. Extension of integrated technology for agriculture		AEC				AAET AARD DGE	
33. Development of farmers' capability		331. Strengthening of training for youth farmers and women		AAET			SG	AEC	
		332. Training on operation & maintenance of irrigation facilities by farmers' organization		DGWRD				AAET DGFCH AEC	LG
34. Provision of agricultural materials and equipment & farm machinery		341. Provision of supply of farm input		DGFCH		DGRCD		DGE	
		342. Provision of farm machinery		DGFCH		DGRCD	SG	AARD AAET DGE	

Objectives	Major Activities	Activities	Lead Agency	Related Agency				
				MPW	MCSED	MTFSR	MOA	others
1. Development of irrigation and drainage facilities and improvement of water resources management systems	41. Irrigation and drainage development and land development	411. Expansion of irrigation field	DGWRD				DGFCH	
		412. Development of small scale irrigation and drainage systems	DGWRD				DGFCH	
	42. Improvement of operation and maintenance of irrigation and drainage facilities	421. Rehabilitation and improvement of existing irrigation and drainage facilities	DGWRD				DGFCH	
5. Development of system for effective promotion of agricultural credits	51. System development and fund preparation for agricultural credits	551. Strengthening of agricultural credit system	DGRCD		DIF DGUCD		DGF DGE BIMAS	LG
		552. Preparation of fund for agricultural credit	DGRCD		DIF		DGE	
6. Development and strengthening of the activities of farmers' organizations	61. Development and strengthening of agricultural cooperatives	611. Expansion and strengthening of activities of agricultural cooperatives	DGRCD		DGUCD		DGLS DGE DGF	
		612. Establishment of model agricultural cooperatives	DGRCD			SG	AAB DGE DGF	
	62. Development and strengthening of farmers' group	621. Development of farmers' group	AAET		DGAC		AEC DGE DGF DGFCH DGLS	
7. Development of post-harvest activities including handling, processing and marketing of agricultural products to improve and add value to farm products	71. Promotion of post-harvest, processing and marketing activities according to the needs	711. Promotion of post-harvest processing and marketing of agricultural products based on the consumers' needs	AAB		DGFCD DGSED	DGMD	AARD DGE DGFS DGL AAET	
		712. Development of post-harvest processing and marketing facilities	DGRCH		DGRCD		AAET AARD DGE DGF DGLS	
	72. Increase of value of marketed agricultural products through total quality management	721. Development of standardization	AAB		DGSED DGRCD		AAET AARD DGE DGLS DGF	
8. Improvement of rural infrastructure	81. Improvement of rural infrastructure	811. Improvement of rural water supply	DGRPHS			DGSE	DGF	LG
		812. Improvement of rural road	DGR			DGSE		LG
	82. Improvement of sub-district level infrastructure	821. Improvement of sub-district road	DGR					LG

Note:

MoA: Ministry of Agriculture  
 MPU: Ministry of Public Works  
 MCSED: Ministry of Cooperatives and Small Enterprises Development  
 MTFSR: Ministry of Transmigration and Forest Squatters Resettlement  
 AAB: Agency for Agri-business  
 AAET: Agency for Agricultural Education and Training  
 AARD: Agency for Agricultural Research and Development  
 DGE: Directorate General of Estate Crops  
 DGF: Directorate General of Fishery  
 DGFCH: Directorate General of Food Crops and Horticulture  
 DGLS: Directorate General of Livestock  
 SG: Secretariat General  
 DGR: Directorate General of Road  
 DGRPHS: Directorate General of Regional Plan and Human Settlement  
 DGWRD: Directorate General of Water Resources Development  
 DGRCD: Directorate General of Rural Cooperatives Development  
 DGSE: Directorate General of Settlement and Environment

DGMD: Directorate General of Mobilization and Development  
 DGUCD: Directorate General of Urban Cooperative Development  
 LC: Local Government  
 IESC: Irrigation Engineering Service Center  
 ADC: Agricultural Data Center  
 AEC: Agricultural Extension Center  
 AQC: Agricultural Quarantine Center  
 DGSED: Directorate General of Small Enterprises Development

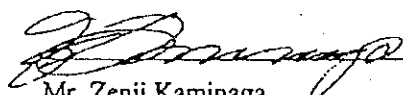
**MINUTES OF MEETING  
ON  
THE RECORD OF DISCUSSIONS  
ON  
THE THIRD UMBRELLA COOPERATION  
FOR  
INTEGRATED AGRICULTURAL & RURAL DEVELOPMENT  
IN THE REPUBLIC OF INDONESIA**

The Japanese Group headed by Mr. Zenji Kaminaga, Minister, Embassy of Japan in Indonesia, and the Indonesian Group headed by Dr. Muslimin Nasution, Deputy Chairman for Economic Affairs, National Development Planning Agency (BAPPENAS) signed the Record of Discussions on The Third Umbrella Cooperation for Integrated Agricultural & Rural Development in the Republic of Indonesia (hereinafter referred to as "the Umbrella Cooperation"). After the series of discussions on the implementation of the Umbrella Cooperation, both sides wished to record the following:

- (1) The on-going projects implemented with the Japanese official development assistance listed in the annex were included under the Umbrella Cooperation.
- (2) Development study should be conducted in the light of importance to formulate the Master Program for the Umbrella Cooperation.

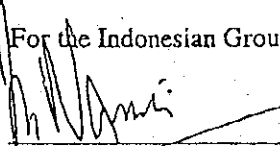
October 6, 1995, Jakarta

For the Japanese Group

  
Mr. Zenji Kaminaga  
Minister

Embassy of Japan to Indonesia

For the Indonesian Group

  
Dr. Muslimin Nasution  
Deputy Chairman for  
Economic Affairs  
BAPPENAS



THE THIRD UMBRELLA COOPERATION PROJECT LIST
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PROJECT TITLE	PERIOD	AGENCY
(Development Study)		
Integral Development Project for Rural Cooperatives	95~98	MCSSED
(Project type cooperation)		
Veterinary Drug Control Project (A/C)	94.7.1~96.6.30	MOA
The Seed Potato Multiplication and Training Project	92.10.1~97.9.30	MOA
Irrigation Engineering Service Center Project	94.6.10~99.6.9	MPW
Agricultural Statistical Technology Implement and Training Project	94.10.1~99.9.30	MOA
(Mini-Project)		
Biotechnology Development for Animal Production	94.10.1~97.9.30	MOA
(Expert)		
Agricultural Engineering (Agrocivil Engineering)	93.10.16~95.10.15	MOA
Strengthening of Planning Capability for Cooperatives	92.11.24~95.11.23	MCSSED
Irrigation Water Management Engineer	92.3.1~96.2.29	MOA
Planning and Management on Food Crop Agricultural Development	94.5.14~96.5.13	MOA
Livestock Development Advisor	94.4.7~96.4.6	MOA
Rural Development Planning for the Transmigration Program	93.5.17~96.5.16	MTFSR
Ground Water Engineering	94.5.16~96.5.15	MOA
Water Management Especially on Rice Cultivation	95.5.18~96.5.17	MOA
Irrigation Planning	92.5.25~96.5.24	MPW
Plant Pathology	94.5.20~96.7.19	MOA
Seed Production, Processing and Distribution	92.9.7~96.9.6	MOA
Multiplication and Distribution of High Quality Soybean Seed	92.9.30~96.9.29	MOA
Fisheries Development Planning	95.2.22~97.2.21	MOA
Farm Water Management	91.10.1~97.5.15	MPW
Senior Advisor for Integrated Agricultural and Rural Development	95.8.1~97.7.31	MOA

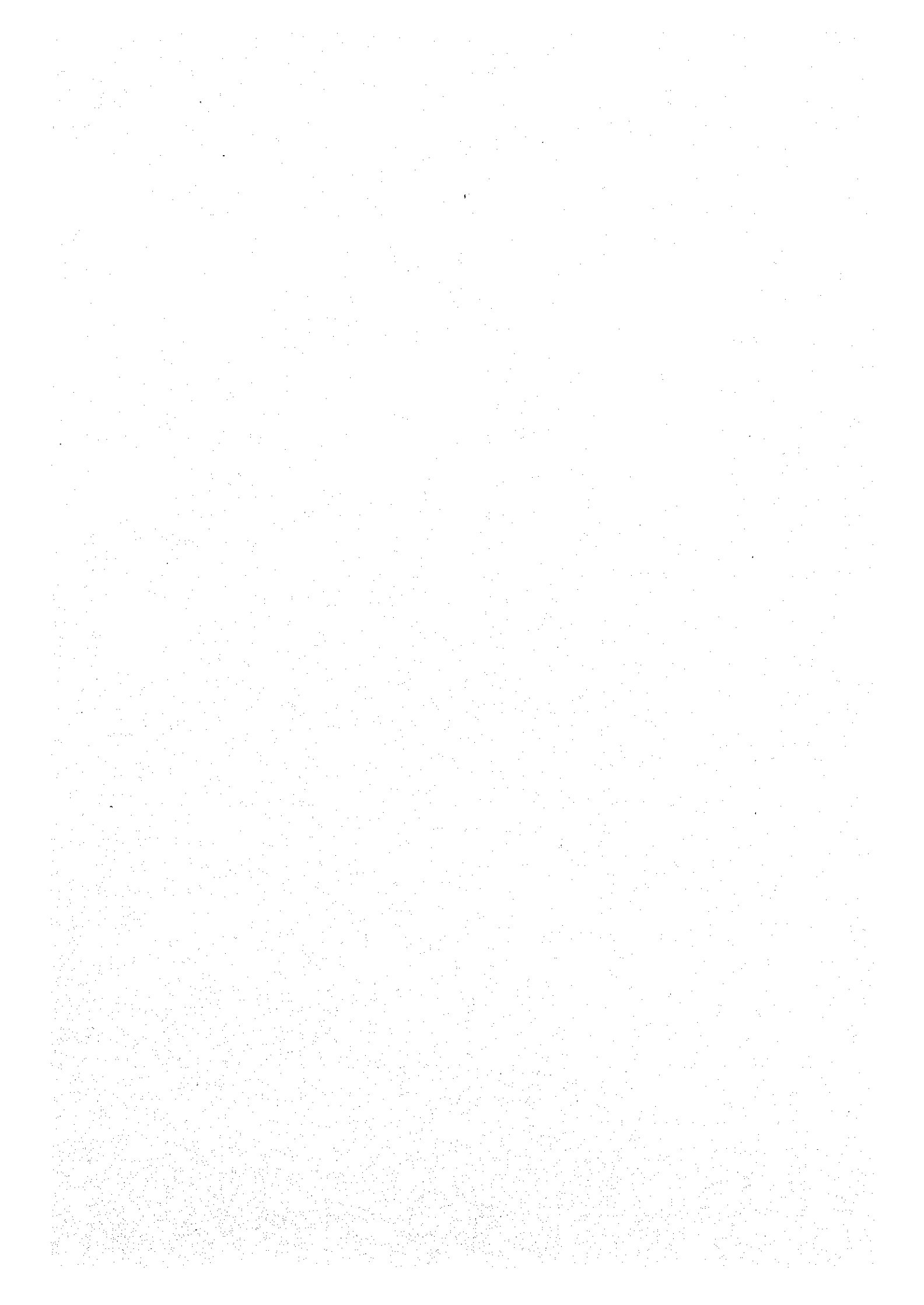
PROJECT TITLE	PERIOD	AGENCY
(Training Courses)	(Fiscal Year)	
Statistical Information System for Agriculture	94~95	
Embryo Transfer for Cattle	94~95	
Twinning and Invitro Fertilization Technology for Cattle	94~95	
Farm Machinery Testing	94~95	
General Agriculture (OISCA Special Training Course)	94~95	
Women Leaders of Farm Household Development	94~95	
Integrated Pest Management for Plant Protection	94~95	
Agricultural Land and Water Resources Development	94~95	
Distribution of Fresh Fruits and Vegetables	94~95	
Effective Utilization of Tropical Agriculture and Forestry Resources	94~95	
Post-Harvest Rice Processing	94~95	
Agricultural and Rural Development with Environment Conservation	95	
Gene Manipulation for Agriculture	95	
Soil Analysis and Improvement	95	
Farm Machinery Design	95	
Seed Production of Upland Crops	95	
Farm Mechanization II	95	
Agricultural Machinery Management	95	
Agricultural Cooperatives II	95	
Health Hazzards in the Modernizing process of Agriculture and Rural Area	95	
Agricultural Extention Service for Leader II	95	
Application of Symbiotic Microorganisms in Tropical Agriculture and Forestry	95	
Automation of Agricultural Machinery (Agri-Mation )	95	
(Junior Experts)		
Implementaion Support for Integrated Area Development Project in Barru District	95.1.1~99.12.31	MOHA/GoSouth Sulawesi
(Grant Aid)		
Increased Food production Aid (kr-2)	95	MOA
Multiplication and Distribution of Soybean High Quality Seed Project	95	MOA
(Loan Aid)		
Bila Irrigation Project	L/A90.6~98.11	MPW
Rural Areas Infrastructure Development Project	L/A94.11~98.12	MPW/MOI
Agricultural Development Project	L/A93.11~99.12	MPW/MOA
Small Scale Irrigation Management Project	L/A89.12~2000.12	MPW

MOA:Ministry of Agriculture  
MOCSED:Ministry of Cooperatives and Small Enterprise Development  
MTFSR:Ministry of Transmigration and Forest Squatter Resettlement  
MOHA:Ministry of Home Affairs  
MPW:Ministry of Public Works

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