CHAPTER VIII TRANSFER OF POSTHARVEST TECHNOLOGY

CHAPTER VIII TRANSFER OF POSTHARVEST TECHNOLOGY

The Government of Indonesia is requested to continue further studies even after the completion of this survey, in order to assess losses in the postharvest practices according to regions more realistic and effective. Technological transference was carried out during the survey period, as explained in the following.

8-1 Guidance during the Survey

The starting point of the survey was to measure or estimate qualitative and quantitative losses in each stage of postharvest practices by applying a certain survey procedure. The regions surveyed by the team were limited due to various limitations. It will be necessary to conduct surveys of the regions which were not covered in the survey. For this purpose, the experts in the survey team performed technology transference on a man-to-man basis during the survey period over extensive areas on the actual situation of postharvest practices, the ways of making improvements. The technology was transfered to the concerned persons who were connected for this survey; counterparts, assistants, government staff, KUD/cooperative officers and BULOG/DOLOG staff, private rice mill personnel, and farmers.

8-2 Course in Postharvest Technology

In the first-phase survey, the team surveyed 4 provinces. Technology transference to those concerned in the other provinces was necessary, and 27 representatives from 15 provinces were invited from postharvest specialists in the agricultural departments of the provinces, from DOLOGs, and from KUDs, to attend a lecture meeting.

The lecture was held for 8 days from November 13 to 20, 1981 in Cisarua, Bogor, West Java. Field training was given in Special Province of Jogyakarta. The course centered on loss measurement (harvesting, threshing, cleaning, drying, milling, transportation and storage) in every stage of postharvest handlings. During the training, all the participants made experiments in the field and operated milling machines, using loss assessment methods acquired from the course. Upon completion of the course, an examination was given. In spite of the difficulty of the examination,

those who took it recorded excellent scores. Therefore, the lecture was considered successful.

The curriculum, names of those who attended the course, part of the teaching materials, and test questions are provided on the attached sheet.

8-3 Seminar in Postharvest Technology

A seminar on loss assessment in the stages of postharvesting practices and improvements recommended for them was held with cooperation of authorities in Indonesia in that field. The seminar was held in Cisarua, Bogor, West Java for 3 days from May 25 to 27, 1982. The authorities, professors and experts who attended the seminar were from the Bogor Agricultural University, Gajamada University, University of Indonesia, Central Bureau of Statistics, the Ministry of Agriculture, the Ministry of Trade and Cooperative, and the National Logistics Agency.

APPENDIX

REFERENCE

1. Scope of Works
2. Map of Rice Production in Survey Area
3. Data of Lecture and Seminer

RELEVANT DATA

Table 1	Status of the Farmer and Population of Indonesia
Table 2	Rice Production in Indonesia (1975-1980)
Table 3	Rice Cultivation Area and its production in Indonesia, 1981
Table 4	Paddy Production and Harvested in Indonesia, 1980
Table 5-1	Statistics of Agriculture in Indonesia (1)
Table 5-2	Statistics of Agriculture in Indonesia (2)
Table 6	Average Annual Per Capita Available and Apparent Consumption (Disappearance) of Milled Rice in Indonesia, 1954-1980
Table 7	Indonesian Domestic Purchases and Sales of Paddy and Milled Rice 1980-1981
Table 8	Rice Imports, Domestic Procurement, Stocks and Distribution 1967-1980
Table 9	Floor Price - Absolute and Index 1969/70 - 1981
Table 10	BULOG Ceiling Price of Milled Rice 1969/70 - April 1979
Table 11	Average Monthly Retail Prices of Rice (Medium Quality) 1968-1980 in Jakarta
Table 12	Average Retail Prices of Rice (medium quality) for Low (Jawa) and High Ceiling Price Regions 1974 to 1981
Table 13	Price and Variety of Medium Quality Rice in Jakarta 1976-1980
Table 14	Price Indices of 9 Essential Commodities in the Rural Markets of Jawa and Madura 1971/1978
Table 15	Annual Percentage of Food Prices to Rice Prices in Jawa and Madure 1970-1980
Table 16	Marketing Margins for Domestic Paddy and Rice through Government Channels
Table 17	Estimates of Typical Charges in Marketing Paddy and Rice in Indonesia 1979

SCOPE OF WORKS

SUMMARY OF DISCUSSION ON THE SCOPE OF WORKS FOR THE STUDY ON POST-HARVEST LOSSES IN THE REPUBLIC OF INDONESIA

Japanese Mission for the Scope of Works of the Study
Post-harvest Losses (hereafter referred to as "the
y"), headed by Mr.Seiji Sato, Deputy Director of
rchase Division,The Food Agency, Ministry of Agriculture,
restry and Fisheries, and The Indonesian Working Group on
st-harvest Losses, consists of officers of Ministry of
riculture, Ministry of Trade and Cooperatives, and BULOG,
reafter referred to as "the Indonesian Authorities")
rdinated by Mr. Wardoyo, Director General for Food Crop
riculture, Ministry of Agriculture, as Chairman of the
mittee on Post-Harvest of Food Crop Commodities,
scussed and exchanged their views on the Scope of Works
r the Study.

discussion on the Minutes of Discussion on the Study on
st-Harvest Losses, March 17, 1981 has been held during
visit of the Mission in The Republic of Indonesia from
th to 30th June, 1981 in the friendly and cordial atmosphere.

th sides agreed on the Scope of Works attached herewith,
t Indonesian side stated that the Item 3 of Minutes of
scussion of 17 March 1981 "general and comprehensive plan"
uld include the understanding of the recommendation for
implementation to reduce post-harvest losses, and
anese side stated to try to include that understanding of
neral and comprehensive plan" in II-2 of Scope of Works.

arta, 30 June, 1981

. SEIJI SATO
der of The Mission for
Scope of Works of the
dy

Mr. WARDOYO
Director General of Food
Crop Agriculture as Chairm
of the Committee on Post-H
of Food Crop Commodities

SCOPE OF WORKS
FOR
THE STUDY
ON
POST-HARVEST LOSSES IN
THE REPUBLIC OF INDONESIA

I. INTRODUCTION

In response to the request of the Government of the Republic of Indonesia (hereafter referred to as "the Government"), the Government of Japan dispatched a survey team to Indonesia in March 1981 to carry out a preliminary survey on the Study of the Post-harvest Losses. As a result of the preliminary survey, the Government of Japan decided to conduct the study as part of the technical cooperation under the developmental survey program of the Government of Japan, in close cooperation with the Indonesian Authorities.

The Japan International Cooperation Agency (hereafter referred to as "JICA"), the governmental agency responsible for the implementation of the above mentioned technical cooperation program, will be the executing agency, and carry out the study under the cooperation with the Government.

II. OBJECTIVES OF THE STUDY

The objectives of the study will be as follows:

1. to assess the post-harvest losses of rice.
2. to prepare a general and comprehensive plan to reduce the post-harvest losses.
3. to undertake training of the Indonesian counterpart personnel and transfer of the technology in the course of the study.

III. OUTLINE OF THE STUDY

1. Contents of the study

(1) to formulate a methodology of the study

(2) to carry out field surveys and experiments

(3) to collect data and information relevant to the post-harvest losses and to analyze them

(4) to prepare a general and comprehensive plan to reduce the post harvest losses

(5) to give on-the-job training to the counterpart personnel to transfer the technology.

2. Areas to be surveyed

(1) Two areas each in following four (4) provinces

1. West Java
2. South Kalimantan
3. South Sulawesi
4. Aceh (in case it is difficult to conduct survey in Aceh due to off season of harvesting, it will be changed to Central Java)

(2) In each area the lingkage of BULOG-KUD-FARMERS, to which rice of one Kecamatan in the area flows, would be studied.

(3) The area to be studied will be decided within the stage of Preparation Works.

3. Operations to be studied

(1) Farmers' level: Harvesing, Threshing, Drying, Transportation, Storage and Milling

(2) Cooperatives' level: Drying, Milling, Storage and Transportation

(3) BULOG level(including private warehouse): Storage and Transportation.

IV. WORK SCHEDULE

The work schedule is shown in the attached sheet

V. REPORT

JICA will prepare and submit the following reports (in English) to the Authorities concerned.

1. Inception Report (20 copies)
   At the beginning of the study.
2. Interim Report (20 copies)
   At the end of the study of the dry season.
3. Draft Final Report (20 copies)
   Within two and a half (2.5) months after the end of the field survey in rainy season.
4. Final Report (30 copies)
   Within one and a half (1.5) months after the receipt of the comments of the Authorities concerned on the Draft Final Report.

VI. UNDERTAKING OF THE GOVERNMENT OF JAPAN

For the purpose of the study, the Government of Japan will assist to the extent possible.

1. to send the Japanese study team to conduct the study.
2. to transfer the knowledge and technology to the Indonesian counterparts during the period of the study.

3. to bear the charge of accommodation for the team.

4. to bear the charge for the assistants.

5. to bear the charge for the vehicles.

6. to receive a few Indonesian counterpart personnel to attend the Works in Japan (Study in rainy season).

III. UNDERTAKING OF THE GOVERNMENT

To facilitate smooth performance of the field work, the Government is required.

1. to provide the necessary data and information for the study and permit to bring them back to Japan for the home office work.

2. to arrange quick and smooth clearance of custom for the survey equipment and materials which the team memebers will bring from Japan, and to exempt from any taxes and duties imposed on those survey equipment and materials brought by the team members.

3. to request the ministries and other governmental organizations concerned to cooperate with the team in smooth execution of the survey.

4. to provide for the team suitable office space with equipment and utensils in Jakarta during the survey and study.

5. to arrange the lodging facilities to accommodate team members during the survey.

6. to arrange for the team four (4) vehicles.

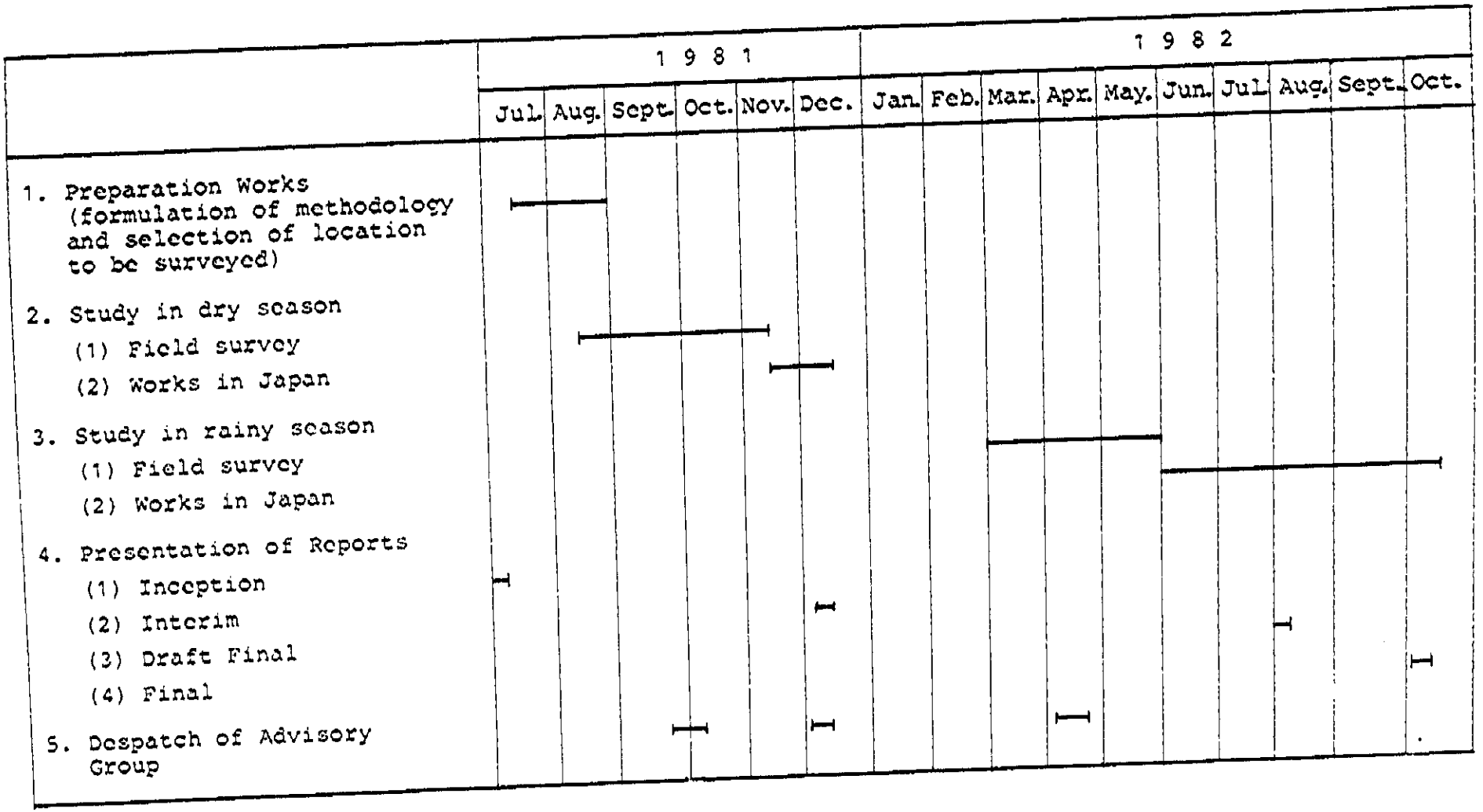
7. to provide counterpart personnel to cooperate and assist the team during the survey and study without charging any cost to the team.

8. to arrange necessary number of assistants for carrying out the field works.

9. to arrange the medical services for the team member during their stay in Indonesia, if necessary.

10. to select two (2) Kabupatens in each provinces based on rice production before the stage of Preparation Works.

TENTATIVE WORK SCHEDULE



DEPARTMENT OF AGRICULTURE
DIRECTORATE GENERAL OF FOOD CROPS

DIRECTORATE GENERAL OF FOOD CROPS DECREE

NO. S.K. I.A.5.81.29

ON

ESTABLISHMENT OF POST HARVEST WORKING GROUP

DIRECTORATE GENERAL OF FOOD CROPS AGRICULTURE

to consider : that as further implementation of the Minister of Agriculture Decree No. 412/Kpts/Um/7/1979, it is deemed necessary to establish Post Harvest Working Group.

in view of :
1. Decree of the President of R.I. No. 6/1979;
2. Decree of the President of R.I. No. 44/1974 jis No. 45/1974 and No. 47/1979;
3. Decree of the President of R.I. No. 14A/1980;
4. Presidential Instruction No. 7/1979;
5. Minister of Agriculture Decree No. 412/Kpts/Um/7/1979;
6. " " " No. 528/Kpts/Org/8/1979;
7. " " " No. 453/Kpts/Org/6/1980;
8. " " " No. 53/Kpts/Um/1/1981.

DECIDED

to determine:

1st : to establish the Post Harvest Working Group with the members as mentioned in the attachment.

2nd : duty of the Working Group are as follow:

a. to collect and to follow the activities on Post Harvest Food Crops Commodities.

b. to process and to discuss the problems on post harvest and to formulate the alternative analysis.

c. to carry out a study which related to post harvest.

d. to follow the arrangement of planning and programming and implementation of post harvest from many internal and international institutes.

e. to coordinate the activities on aid arrangements and implementation of post harvest activities to be in accord with the national planning and programming.

f. to formulate the working programme of the post harvest food crops commodity committee.

g. to convey the ideas/suggestions to the Chairman of the post harvest committee for further steps on post harvest field.

3rd : In carrying out their duty, the Working Group will follow the guidance and will responsible to the Director General of Food Crops.

4th : Expenses for the Post Harvest Working Group will be born by the budget of the Directorate General of Food Crops - Food Crops Planning and Development Project, National Logistics Agency, and Directorate General of Cooperatives, as long as the budget for the above purpose is exist.

5th : This decree is come into force as from the date of the enactment

Sanctioned in : Jakarta.

date : May 20, 1981

Director General of Food Crops

Ir. Wardojo

cc.

1. Minister of Agriculture.
2. Junior Minister for Cooperatives.
3. Deputy Director of BULOG.
4. Inspector General of Department of Agriculture.
5. Secretary General of the Department of Agriculture.
6. Director General of Cooperatives.
7. Concerned officials.

ATTACHMENT

DIRECTOR GENERAL OF FOOD CROPS DECREE
NO. S.K. : I.A.S. 81.29
DATE : MAY 20, 1981.

MEMBERS OF THE POST HARVEST WORKING GROUP.

Chairman	I	Ir. Soedarto	Director of Food Crops Economic.
Chairman	II	Drs. M. Amin	Director, Center for Research and Development of Logistics Systen, BULOG
Chairman	III	Mamiet Maryono	Staff of Junior Minister for Cooperati Affairs.
Secretary	I	Ir. Soepani	Chief of Sub. Dit. Post Harvest, Directorate General of Food Crops.
Secretary	II	Ir. Tjandra Nur Karim	Chief of Sub. Dit. Foreign Cooperatio Directorate General of Food Crops.
Members:	1.	Ir. Soemandi	Deputy, Agency for Research and Development, Department of Agricultur
	2.	A. Halim M. Sc.	Representative from directorate General of Food Crops.
	3.	Ir. Soeroso	Representative from BULOG.
	4.	Ir. Ramlan MA	" "
	5.	Drs. Leman Soemantri	Representative from Directorate General of Cooperatives.
	6.	Ir. Asikin	Representative from Agency for Research and Development, Department of Trade and Cooperatives.

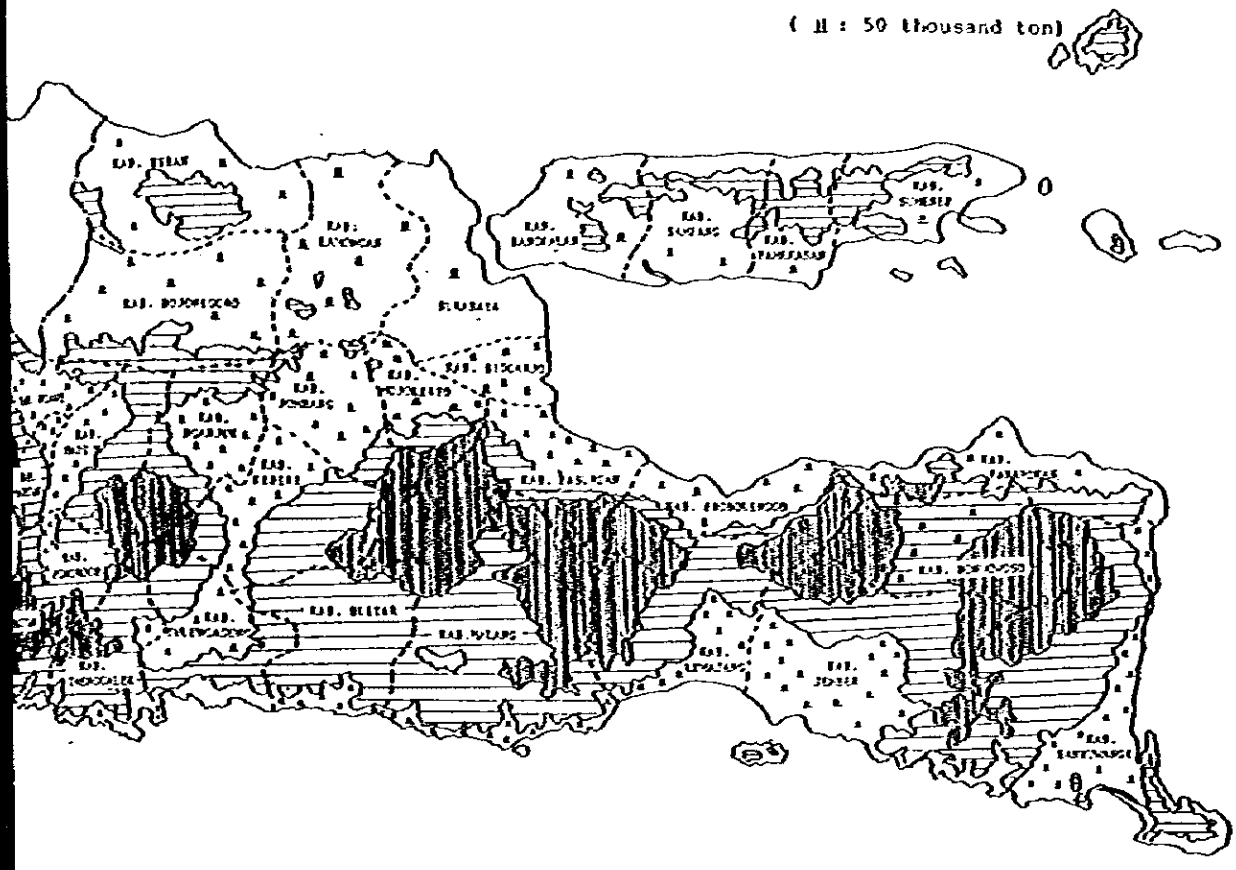
DIRECTOR GENERAL OF FOOD CROPS

(IR. WARDOJO)

MAP OF RICE PRODUCTION IN SURVEY AREA

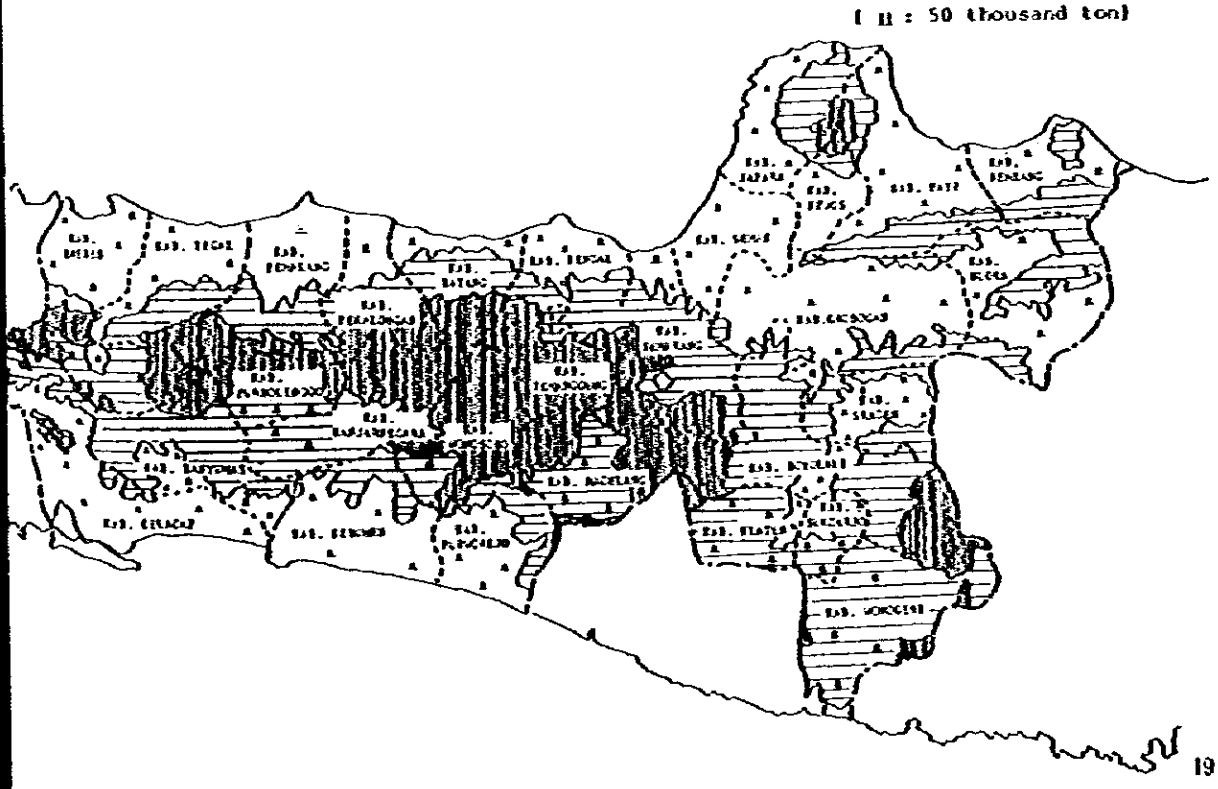
Rice Production in Province of East Java

(■ : 50 thousand ton)

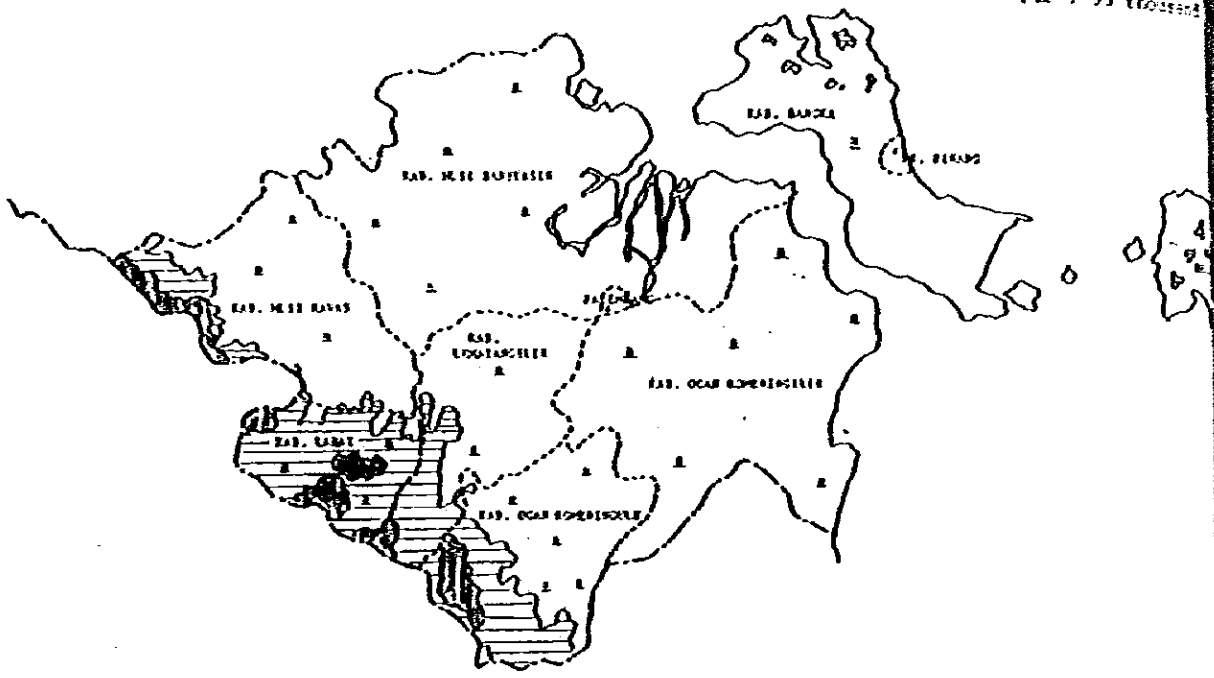


Rice Production in Province of Central Java

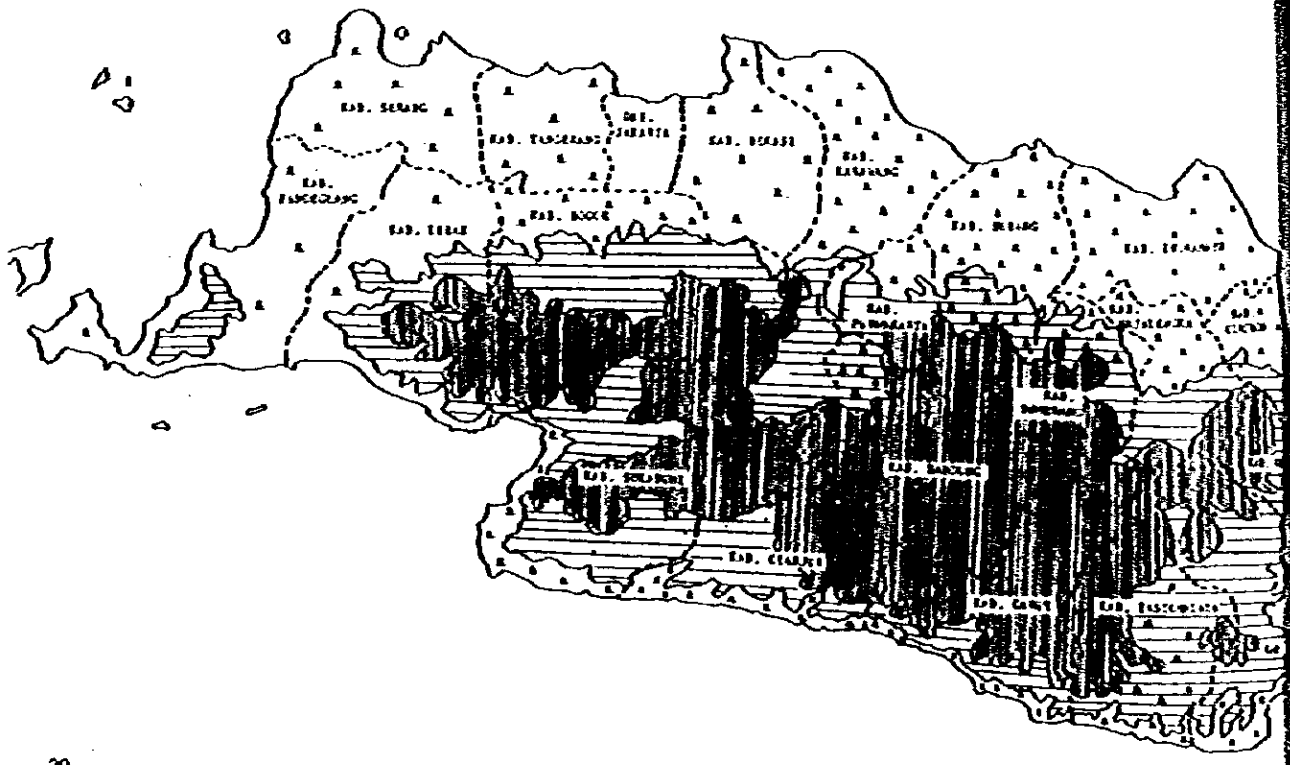
(■ : 50 thousand ton)



Rice Production in Province of South Sumatera



Rice Production in Province of West Java

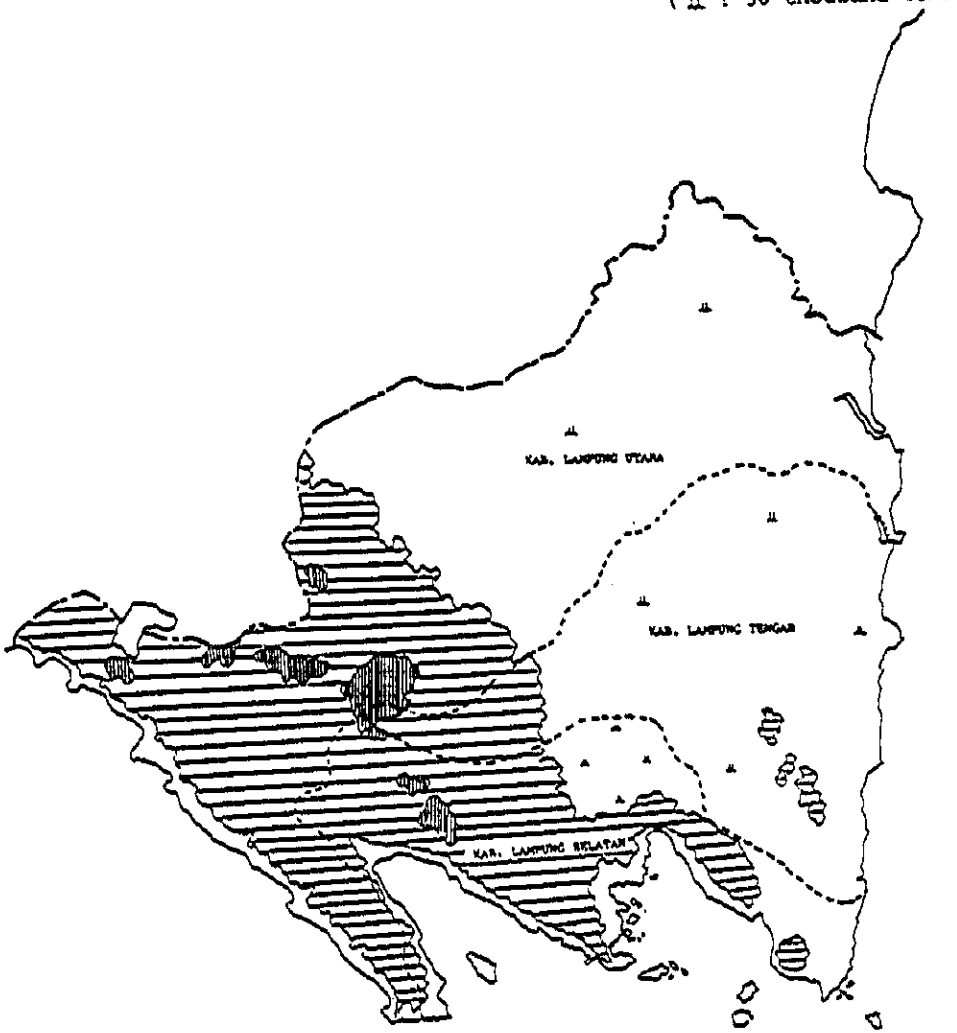


Rice Production in Special Province of Aceh

(1 : 50 thousand ton)

Rice Production in Province of Lampung

(1 : 50 thousand ton)



DATA OF LECTURE AND SEMINER

SHORT TRAINING COURSE ON POST HARVEST LOSSES (ATA.207)

PENATARAN PENGAMATAN LOSSES GABAH/BERAS

(ATA. 207)

Training Course on Post Harvest Losses
Sponsored by, Dept. of Agriculture
and Assisted by JICA
Cisarua, November 13-20, 1981

EXT/FRIDAY, 13 November 1981

.30 - 09.00	Registration of Participants	Committee
.00 - 10.00	Opening ceremony	
	* Short talk and Welcome address	Committee
	* Summary of the Course objective	Japan technical team
	* Address and Official Opening of the training Course	Directorate General of Food Crop Agriculture
.00 - 10.30	Coffee Break	
.30 - 12.00	Course objectives, Course programme. etc.	Mr. Soepani
2.00 - 14.00	Lunch	
4.00 - 15.30	Methods of Loss Assesment definition & Test procedure - Sampling and Design of exprimental Programme	Mr. H. Komuro Assisted by Mr. Soepani Mr. Nasrun
5.30 - 16.00	Coffee Break	
6.00 - 17.30	Apparatus Required for Post Harvest Loss Assesment (PHLA)	Mr. H. Komuro Assisted by Mr. A. Halim Mr. Baedowi

SABTU/Saturday, 14 November 1981

08.30 - 10.00	- Post Harvest Loss Assesment for Harvesting	Mr. H. Kuroo Assisted by Mr. A. Halim Mr. Nasrun
10.00 - 10.30	Coffee Break	
10.30 - 12.00	- Post Harvest Loss Assesment for Harvesting (Continuition) and Threshing	Mr. H. Kuroo Assisted by Mr. Soepani Mr. Baedowi
12.00 - 13.30	Lunch	
13.30 - 15.00	- Post Harvest Loss Assesment for Cleaning	Mr. H. Kuroo Assisted by Mr. Nasrun Mr. Baedowi
15.00 - 15.30	Coffee Break	
15.30 - 17.00	- Post Harvest Loss Assesment for Transport from paddy Field to the Farmer's Yard.	Mr. Takahasi Assisted by Mr. A. Halim Mr. Soepani

MINGGU/SUNDAY, 15 Novemper 1981

08.30 - 10.00	- Post Harvest Loss Assesment for Drying	Mr. H. Kuroo Assisted by Mr. Soepani Mr. Nasrun
10.00 - 10.30	Coffee Break	
10.30 - 12.30	- Post Harvest Loss Assesment for Farm Level Storage and Storage Programme	Mr. Fukuchi Assisted by Mr. Soepani Mr. Nasrun

SENEN/MONDAY, 16 November'1981

08.30 - 10.00	- Post Harvest Loss Assesment for Milling	Mr. Masumoto Assisted by Mr. Nasrun Mr. Halim
10.00 - 10.30	Coffee Break	
10.30 - 12.00	- Post Harvest Loss Assesment for Milling (Continuition)	- i d e m -
12.00 - 14.00	Lunch	
14.00 - 17.00	- Preparing for Examination	Committee

SELASA/TUESDAY, 17 November 1981

09.00 - 10.30	- Examination	Committe
10.30 - 11.00	Coffee Break	
11.00 - 12.00	- Preparing for Field Trip	Mr. Soepani M . H. Kimoro
12.00 - 13.00	Lunch	
13.00 - 15.30	- Leaving for Jakarta Kota Railway station	Mr. Halim cs.
16.30	- Leaving for Yogyakarta by Train (BIMA)	

PABU/WEDNESDAY, 18 November 1981

10.00 - 12.00	- Practical Work for Milling	Mr. Masroto Mr. Soepani
12.00 - 14.00	Lunch	
14.00 - 17.00	- Practical Work for Milling (Continuition)	Mr. Masroto Mr. Soepani
17.00	- Returning to Hotel	

KAMIS/THUESDAY, 19 November 1981

08.00 - 10.00	- Practical Work for Harvesting, Threshing, Cleaning, etc.	Mr. H. Kon Mr. Soepani
10.00 - 12.00	- Practical Work for Harvesting, Threshing, Cleaning. etc. (Continuition)	Mr. H. Kon Mr. Soepani
12.00 - 13.30	Lunch	
13.30 - 17.00	- Practical Work for Harvesting, Threshing, Cleaning. etc. (other system)	Mr. H. Kon Mr. Soepani
17.00	- Back to Hotel	

JUM'AT/FRIDAY, 20 November 1981

09.00 - 11.00	- Closing Ceremony	Committe
11.00 - 14.00	Lunch	
14.00 - 16.00	Free time	
17.00	- Leaving for Jakarta by train (Senja Utama)	Committee

Jakarta, 26 Oktober 1981

Committee

DAFTAR HADIR

SHORT TRAINING COURSE ON POST HARVEST LOSSES (ATA 207)

Tgl. 13 s/d 20 Nop. 1981

Hari / Tgl. : .....

Pukul : .....

Pelajaran : .....

N a m a	Instansi	Tanda tangan
Zarto B.Sc.	Diperta Kalsel	1.....
St. Asrah	Diperta N.T.B.	2.....
Ir. Moerjono Poddan	Diperta Jatim	3.....
J. Rozak	Diperta Lampung	4.....
Ir. Sri Gamawati A.	Diperta Jatim	5.....
Ir. Sudjana	Diperta Jabar	6.....
Ir. Marman Nasution	Dolog Jabar	7.....
Ir. Suharyoto	P u s e t	8.....
Ir. Widodo Purwosubagyo	D.I.Yogyakarta	9.....
Suhyudi	Diperta Jateng	10.....
I.Saragih B.Sc.	Diperta Sumut	11.....
I. Poernomo	Diperta Jateng	12.....
Rusal Rozali	Diperta Sumsel	13.....
Ir. Jamain	Diperta Sumbar	14.....
Ngjk Gde Oka BSc.	Diperta Bali	15.....
Drs. J. Pello	Dolog Kalsel	16.....
Ir. Syahrul Effendi	Diperta Kalsel	17.....
Drs. A. Mukhalib	Ditjen Koperasi	18.....
Syafni Amin	Diperta Lampung	19.....
I. Irfan B.Sc.	Diperta Sumber	20.....
Drs. M.Yusuf Mahmud	Dolog Aceh	21.....
Abdulrahman Bintang BSc	Diperta Aceh	22.....
Ir. Asep S.Abdie	Diperta Jabar	23.....
Ir. Armiyn Azis	Dolog Sulsel	24.....
Hans Lumowa	Diperta Sulut	25.....
Ir. Syamsul Kamri	Diperta Sulsel	26.....
Kab.Tesrif Katunulu	Diperta Sulsel	27.....
.....		28.....
.....		29.....
.....		30.....

Tanda tangan
Dosen/Pengajar

EXAMINATION ON POST-HARVEST LOSSES ASSESSMENT

(Duration : 90 minutes)

Name : _____

Notes : 1. Select the correct answer from these multiple choice questions.
2. Put a check mark (v) in the box before the correct answer.

A. Harvesting, Threshing, Drying.

1. Loss in harvesting shall be, the loss occurring during, the harvesting and stacking in the paddy field, namely shattering kernel, fallen spike and ( )

☐ remainder

☐ left over

2. Loss in threshing shall be the loss due to scattering of paddy during threshing, and paddy remaining in the stalk after threshing ( ) immatured kernels.

☐ except

☐ including

3. Shrinkage occured during drying transportation and storage should generally ( ) considered to be the losses.

☐ not be

☐ be

4. When moisture content of paddy rice became 12.5% during drying process, do you think there is loss or not if the equibilirium it is 14.0% and usage is not for as seed.

☐ Yes

☐ No

5. In the preliminary field survey, when we want to have the accuracy of 99% ± 0.1%

☐ (1) 1.960

☐ (2) 2.861

☐ (3) 3.425

β (99% ± 0.1%) = ☐ x $\frac{\sqrt{}}{\sqrt{n}}$

6. In the preliminary field survey, test shall be conducted at a paddy field having ☐ plot of 6.25 m^2 (2,5 m x 2.5 m)

- ☐ 10
- ☐ 15
- ☐ 20

7. Post harvest shall be the time duration from the harvesting of paddy to the storing the milled rice at the warehouse located in the _____

- ☐ consuming area
- ☐ producing area

8. There are three kind of tools for harvesting namely Big sickle small sickle and ani-ani, generally which one is better to obtain lesser loss if other condition are same

- ☐ 1. Big sickle
- ☐ 2. ani-ani
- ☐ 3. small sickle

9. Which type of paddy generally have more high shattering nature

- ☐ local varieties
- ☐ High yielding varieties

10. In which way of harvesting system, there is more losses if theother condition are same.

- ☐ Bawon
- ☐ Nyeblok

11. What kind of count for losses after harvest is most precise

- ☐ measurement
- ☐ Estimation
- ☐ Guestimation

12. Show the average moisture content of the gabah at time of harvest in rendengan season.

☐ 17% ± 2% ☐ 23% ± 2% ☐ 28% ± 2%

13. Show the average moisture content of the gabah at time of harvest in the gadu season.

☐ 14% ± 2% ☐ 16% ± 2% ☐ 19% ± 2%

14. Usually immatured kernels are counted as losses in stage of Harvesting, threshing and winnowing.

☐ Yes ☐ No

15. There are two kind of way of approach in postharvest technology, namely foundamental and academical study and practical way of study. Which way is your target to study as a man of the spot.

☐ Foundamental and academical

☐ Practical

16. Which way is better to sininize less at stage of threshing.

☐ on mat ☐ ground

17. When stalk paddy is pile up in the field and moisture content level is range to 19 - 23% days inside of temperature of grain become to

☐ 2 - 3 days, ☐ 7 days , ☐ 3 weeks

☐ 30 - 35 °C ☐ 45 - 55 °C ☐ 55 - 75 °C

18. The Sub Dolog or KUD purchase the gabah with Bulog standard quality, without yellow kernels but 2 or 3 month later, why the officer found certain percentage of yellow kernels in the gabah.

☐ (1) Some kind of fungi are already in the kernel of gabah

☐ (2) Storage condition is not good enough

19. To minimize postharvest losses, mechanization have to be applied, but what kind of obstecle you shoud consider the most

☐ manpower ☐ tax ☐ weather

20. To minimize portharvest losses, mechanization have to be applied

Mechanization cost - Existing cost = $\frac{\text{Evaluated saving losses}}{1. \text{ or } 1.5 \text{ or } 2.}$

What figure is not effective in mechanization

☐ 1. ☐ 1.5 ☐ 2.

21. The level of price of gabah is fluctuated by area to area usually what is the most important factor

☐ Near consuming area ☐ Amount of production in the area

☐ Population in the area

22. Which is usually required more cost

☐ Mechanization

☐ Rationalization (other then Mechanization)

23. In relation to the type of rainfall compering with the other country near by our country, what fact is the most advantage we have in country

☐ more rainfall ☐ less rainfall

☐ continuation of rainfall in a day

24. Heliograph is the Apparatus for measurement of

☐ rainfall, ☐ solar radiation ☐ safer

E. Transportation

25. Which sector of transport cause a highest carrying loss ?

☐ a. Rice field to farmer's house

☐ b. KUD to Dolog warehouse

☐ c. Farmer's house to Millers

26. What kind of carrying method is the best for eliminating a carrying loss ?

☐ c. Sundung ☐ b. Basket ☐ c. Bag

27. What kind of form of paddy is the best for carrying from econonical view point.

☐ a. Stalked paddy ☐ b. Wet paddy

☐ c. Cleaned paddy

28. How many stiches are needed in opening of gunny bag for capacity of 100 kg ?

☐ a. 15 stiches ☐ b. 7 - 8 stiches ☐ c. 10 stiches

29. How much of wet paddy can get from 50 kg of stalk paddy The stalk paddy Ratio (R) is 0.60

☐ a. 20 Kg. ☐ b. 30 Kg. ☐ c. 40 Kg.

30. How much Foreign Material should be separated from 10 ℓ/T. of Gabah which contain 13% of

☐ a. 1,300 Kg ☐ b. 130 Kg ☐ 870 Kg

31. Which formula should be applied to the assessment of carrying loss?

☐ a. Loss (%) = $\frac{A(100 - M_1) - B(100 - M_2)}{A\ (100 - M_1)}$

☐ b. Loss (%) = $\frac{A-B}{A} \times 100$

☐ c. Loss (%) = $\frac{A \times M_1 - B \times M_2}{A \times M_1} \times 100$

Where : A ..... Paddy weight before despatch

B ..... Paddy weight at arrival time

C ..... Moisture content of paddy before despatch

D ..... Moisture content of paddy at arrival time

32. 10 M/T of paddy in bag was carried by truck between location A and location B without convered sheet. The cargo has met to a slight rain on the way.
How many per cent of loss shall be coeured'?
Determinated result are shown below.

	Cargo weight	Moisture content of paddy
Location A	10.000 M/T	14.0 %
Location B	10.002 M/T	14.1 %

☐ a. 0.00 %

☐ b. 0.05 %

☐ c. 0.10 %

33. In case of dry paddy is carried by truck, what kind of attention is needed in the rainy season ? The carrying distant is 350 K

☐ a. Arrange a canvas sheet on the truck

☐ b. The cargo should be covered by a sheet

☐ c. No arrangement of canvas sheet

34. Losses concerned, is it allowed to use a hook at the time of both loading and despatching paddy in bag ?

☐ a. Yes ☐ b. No

35. Selleot an accuracy of the scale
Capacity = 100 Kg, Minimum reading scale = 100 gr.

☐ a. 1/1000

☐ b. 1/500

☐ c. 1/100

C. torage

36. Loss in storage shall be the loss caused by birds and rodents, insects and ( ), the scattering of kernels and handling during storing operation.

☐ A. mold ☐ B. ferment ☐ C. false

37. Is periodical inspection of goods necesary for good warehouse-keeping ?

☐ Yes ☐ No

38. In estimation of the losses by rodents and birds, is it necessary that populations are actually surveyed ?

☐ Yes ☐ No

39. Basically, the assessment is made by making a comparison of the "controlled" sections with the "uncontrolled" sections and the difference between them is considered the "Loss"

Is it applicable to the assessment of the loss of storage ?

☐ Yes ☐ No

40. Rat proofing consists of changing structural details to prevent the entry of rodents into buildings. The stoppage work, to economical, should beconfined to the most likely points of entry and not to every possible entrance.

☐ Yes ☐ No

41. Of the thirty or so orders of insects, the food scientist should be familiar with at least the Coleoptera ( ) and the Lepidoptera (Moths)

☐ A. beetles

☐ B. weevil

☐ C. Cockroach

42. The chenicals used to kill rats and mice are called rodenticides the rats are among the few animals that are unable to vomit. Is it thrue or not ?

☐ Yes ☐ No

43. Good Warehousekeeping is one of the most economical and effective ways to reduce rodent and insect problems.
However, extreme caution must always be exercised when handling poisons.

☐ Yes ☐ No

44. For good ware-housekeeping sanitation must be considered.

☐ Yes ☐ No

45. For safety measures, some of the dangers that might occure during the application of insecticides and rodenticides can be avoided by careful use of these chemicals.
This means controlling the amounts and kinds that are used.

☐ Yes ☐ No

D. Killing

46. For determination of milling degree which method is applied in Indonesia

☐ 1. Colouring of milled rice

☐ 2. Compare with standard sample by eye

☐ 3. Comparision of weight of 1000 grains

☐ 4. Weight of oil on milled rice by chemical solution

☐ 5. Applying whitener's meter

47. Observing paddy rice which item shall be connected mostly to the milling loss.

☐ 1. Grain temperature (28 °C)

☐ 2. Moisture content (15 %)

☐ 3. Broken rice or suncracks (10 %)

☐ 4. Foreign matter (3 %)

48. When quality of gabah is average level which range of recovery are commonly obtained in loging grain variety

Paddy —— Brown rice	Paddy —— Milled rice
☐ 1. 70 - 75 %	☐ 1. 55 - 60
☐ 2. 75 - 80	☐ 2. 60 - 65
☐ 3. 80 - 85	☐ 3. 65 - 70
☐ 4. 85 - 90	☐ 4. 70 - 75

49. What type of paddy husker is commonly used recently in major rice producing area.

- ☐ 1. Under runner disk sheller
- ☐ 2. flash type
- ☐ 3. Rubber roll type

50. Which type of whitner is popularly used recently in Indonesia

- ☐ 1. Friction type
- ☐ 2. Friction type with blower
- ☐ 3. Abrasive type

51. In case paddy is mixed in brown rice and fed to whitener. What is the most considerable problem.

- ☐ 1. Low recovery from overpressure
- ☐ 2. Bad taste from high temperature
- ☐ 3. Quick wearing from high friction

52. For comparative milling test wich are important items (Pickup 2)

- ☐ 1. Obtain same capacity
- ☐ 2. Apply same horse power
- ☐ 3. Apply same milling degree
- ☐ 4. Apply same grain temperature
- ☐ 5. Apply same broken rice content
- ☐ 6. Apply same quality of paddy
- ☐ 7. Apply same milling degree

53. Which type of paddy is the most lowest in milling recovery

- ☐ 1. Short grain
- ☐ 2. Long grain
- ☐ 3. Medium grain

54. For the assessment of milling loss.
Which item is most adequate commonly

- ☐ 1. Volume of bran
- ☐ 2. Moisture change
- ☐ 3. Weight of milled rice
- ☐ 4. Volume of husker

55. When the recovery of brown rice from paddy is 75%, and the recovery of milled rice from brown rice is 90%, what is the recovery of milled rice from paddy.

- ☐ 1. $\frac{75}{100} \times \frac{90}{100} = \frac{67.5}{100} = 67.5\ \%$
- ☐ 2. $\frac{75}{100} \div \frac{90}{100} = \frac{83.3}{100} = 83.3\ \%$
- ☐ 3. $(\frac{75}{100} + \frac{90}{100}) \div 2 = \frac{82.5}{100} = 82.5\ \%$

56. When 100 Kg of paddy is passed the husker in 10 minutes, what is the capacity of the husker per hour.

- ☐ 1. $100 \times 60 = 6{,}000$ Kg/Hr
- ☐ 2. $100 \times \frac{60}{10} = 600$ Kg/Hr
- ☐ 3. $100 \times \frac{10}{60} = 16.7$ Kg/Hr

57. When 140 Kg of milled rice obtained from 200 Kg of paddy, what is the milling recovery.

- ☐ 1. $200 - 140 = 60\ \%$
- ☐ 2. $\frac{140}{200} \times 100 = \frac{70}{100} = 70\ \%$
- ☐ 3. $\frac{200}{140} \times 100 = 143\ \%$

58. When 70 Kg of milled rice obtained from 100 Kg of paddy what is the milling recovery, but 1 Kg of paddy and 1 Kg of milled rice are already taken before weighing have been done for use of samples.

☐ 1. $\frac{70}{100 + 1} = \frac{70}{101} = 69{,}3\ \%$

☐ 2. $\frac{70 + 1}{100 + 1} = \frac{71}{101} = 70{,}3\ \%$

☐ 3. $\frac{70 + 1}{100} = \frac{71}{100} = 71\ \%$

59. When recovery of milled rice and bran are 65 % and 10 % respectively what is the estimate recovery of the husk.

☐ 1. $100 - 65 = 35\ \%$

☐ 2. $100 - (65 + 10) = 25\ \%$

☐ 3. $100 - (65 - 10) = 35\ \%$

60. When recovery of milled rice from paddy is 70 %, and from analysis of 100 gr. of milled rice 70 gr of head rice is obtained. What is the recovery of head rice from paddy

☐ 1. $100 - 70 = 30\ \%$

☐ 2. $\frac{70}{100} = 70\ \%$

☐ 3. $\frac{70}{100} \times \frac{70}{100} = \frac{49}{100} = 49\ \%$

———

The inquiry for postharvest situation on rice

PROVINCE :

1. What is the problem in your province.
   Please numbering from major Item.
   a. Harvesting _____
   b. Carrying from rice field to farm _____
   c. Threshing _____
   d. Drying _____
   e. Winnowing _____
   f. Storage _____
   g. Milling _____

2. Proportion of double cropping area of paddy out of total rice field (including upland)

3. System of harvesting _____ %
   1. Bawon _____ %
   2. Ceblok _____ %
   3. Tebasan _____ %
   4. Sendiri

4. In case Bawon system is applied
   First cutting (Bawon) _____ %
   Second cutting Gampungan) _____ %
   Third cutting _____ %

5. Tools of harvesting
   Ani-Ani _____ %
   Sickle-small _____ %
   Sickle large _____ %

6. Cutting portion of stalk by sickle
   Bottom _____ %
   Middle _____ %
   Top _____ %

7. By means of carrying
   Sundung (pikulan) _____ %
   Bag (Gunny, etc) _____ %
   etc. _____ %

8. Way of threshing

Rapping on the platform	_____ %
Beating by a wood stick	_____ %
Trampling	_____ %
Mechanical thresher (including a pedal thresher)	_____ %

9. Place of threshing

	Gadu	Rendengan
Farmer's hourse	_____ %	_____ %
On the field	_____ %	_____ %

10. Threshing on a mat or not.

Mat	_____ %
Conereet floor	_____ %
ground	_____ %

11. Drying is taken place or not

		Gadu / Rendengan
For own consumption	Yes	_____ %
	No	_____ %
For sale	Yes	_____ %
	No	_____ %

12. The quality of Gabah

		Gadu / Rendengan
For own consumption	mlisture	_____ %
	Impurity	_____ %
For sale	moisture	_____ %
	Impurity	_____ %

13. Winnowing

	Gadu season		Rendengan season
Yes	_____ %	Yes	_____ %
No	_____ %	No	_____ %

14. Proportion of farm storage needed for own consumption.

15. Give the priority according to the needs

a. Harvester _____
b. Thresher _____
c. Dryer _____
d. Milling maching _____

General Introduction
of
Postharvest Technology on rice

1. The Need of Post Harvest Technology

Usually rice producers in the traditional rice producing countries have known what is the best way to cultivate and handle the rice to meet with natural environmental situations such as rainfall, temperature, sunlight and surface water. However the wave of demand for mass-production of rice has forced them to change their traditional ways of cultivation and handling of the rice they have produced. Accordingly they have become confused with the new system of rice culture such as the large scale of irrigation, introduction of H.Y.V., pest control, usage of fertilizer, and at the same time, they have been also confused in how to handle their products even after harvesting. In other words, mass-production is the cause of the problem, arising in the stages of post-harvest and at the same time the need for the speeding up of the mass-production system ultimately accelerates post-harvest technology.

2. Way of Approach

Post-harvest technology on rice is a technique of how effectively produced paddy is utilized as food, and at the same time, how its ultization can be improved.

Therefore, its target is to minimize the quantitative and qualitative losses occured in each stage, i.e., harvesting,

threshing, drying, milling, transport and storage.

In taking action against the above problems, we know that there are two kinds of approach; the first one is a more fundamental and academic study wherein we can find causes of the losses and their degree and extent in each stage, and the second is the one based on the actual findings from the first study to minimize the losses in a more practical way such as introducing mechanization, change of existing system of harvesting and milling system and coping with the new situations of transportation and storage.

Precisely speaking, the first approach can be described as that in the harvesting stage, where there are losses in different categories which include shattering, varieties of the paddy, time lags arising from the optimum harvesting time, the harvesting tools (Ani-ani, large stickel and small sickel), cutting portion of the paddy stalk (at top, middle and bottom) and by harvesting systems (Bawon, Nyeblok, Tebasan and Sendiri). In this regard, we can say this much, we should prefer to concentrate our effort on the practical approach rather than academic study which is done by the Institute or the Universities concerned.

3. Original and unique methodology and definition should be applied

Definition and methodology in this connection shall be definitely established in consideration of the way of paddy cultivation, climatical and socio-economical conditions in each case.

We therefore have to make efforts to clarify the definition and the methodology which are the most suitable; original and unique for our country Indonesia and they may not necessarily be in common with nearby countries.
For example, firstly, when we had discussed the issue, we clearly realized that for the qualitative losses, we must have a standard such as moisture content (w.b.) which corresponds to the equiribrium at the given R.H. and temperature of the air. Secondly, the degree of milling, broken kernels and damaged kernels are to be considered.

f. The Extent and interrelation of quantitative v.s. qualitative losses and physical v.s. farm economics situation on the losses.

It is easy to measure or estimate directly the quantitative and physical losses, while measuring or estimating the qualitative and the farm economical losses are comparatively difficult, because of the lack of establishment of a criterion for evaluation and replacement of qualitative losses into the quantitative. Farm economical losses are also considered to be difficult to ascertain.

SEMINAR ON POST-HARVEST LOSSES OF RICE

JAPAN-INDONESIA COOPERATION

ATA - 207 PROJECT

26^{th} - 27^{th} May 1982

CISARUA - BOGOR, INDONESIA

Organized by

The Directorate of Food Crop Economics
The Directorate General of Food Crop Agriculture

SEMINAR PROGRAMME

TUESDAY - MAY 25

17.00 - Arrival of participants and observers

19.30 - Meeting between Committee and JICA ATA-207 Team

WEDNESDAY - MAY 26

08.00 - 08.30 - Registration

08.30 - 08.45 - Speech and Official Opening by Ir. A. Saubari, Director of Food Crop Economics.

		Moderator
08.45 - 10.45	Mr. H. Komuro General discussion on post-harvest losses of rice	- Ir.A.Saubari
10.45 - 11.00	Coffee break	
11.00 - 13.00	Mr. H. Komuro Aceh case and problem of Yellow kernels	- Drs. M.Amien
13.00 - 14.00	Lunch	
14.00 - 16.00	Mr. Yamada West Java case and problem of green/chalku kernels.	- Drs. Hamiet Maryono
16.00 - 16.15	Coffee break.	

THURSDAY - MAY 27 — Moderator

08.00 - 10.00	- Mr. Yamada + Mr. Masumoto Quality on the stage of drying and storage	- Dr.Ir.Eryatno
10.00 - 10.15	- Coffee break	
10.15 - 12.15	- Mr. Masumoto Losses on milling stage.	- Ir.Sumangat MSc.
12.15 - 12.30	- Closing address by Ir. A. Saubari	
12.130	- Lunch.	

STEERING COMMITTEE

- Ir. A. Saubari
- Drs. WK. Tirthayasa
- Ir. Soepani

ORGANIZING COMMITTEE

Chairman : A. Halim M.Sc.
Vice Chairman: Drs. Sudarmanto
Secretary : Ir. Sutadji
Members : - Anis Jones S.H.
- Baedowi
- Amrih HS.

RELEVANT DATA

Table 1 Status of the Farmer and Population of Indonesia

By Sensus 1980 May

No.	Province	Population	%	Area km^2	Population Density Person/km^2	Total Farm Household Agricultural	Workers	Number of Household	Average Family Members
1.	D.I. Aceh	2,511,271	1.77%	55,392	47	370,104	54,472	530,673	4.73
2.	Sumatra Utara	8,360,894	5.67	70,787	118	912,579	188,762	1,548,323	5.40
3.	Sumatra Barat	3,406,816	2.31	49,778	68	499,811	149,170	704,010	4.84
4.	Riau	2,168,535	1.47	94,562	23	244,270	59,273	143,384	5.25
5.	Jambi	1,445,994	0.98	44,924	32	207,962	49,950	300,076	4.82
6.	Sumatra Selatan	4,529,801	3.14	103,688	45	508,551	60,012	857,338	5.28
7.	Bengkulu	768,064	0.52	21,168	36	114,594	15,265	150,218	5.11
8.	Lampung	4,524,785	3.14	33,307	139	711,153	128,379	871,666	5.19
9.	D.K.I. Jakarta	6,503,449	4.41	590	11,023	28,273	5,759	1,164,082	5.59
10.	Jawa Barat	27,453,525	18.61	46,300	593	3,246,164	2,095,146	6,100,713	4.50
11.	Jawa Tengah	25,372,889	17.20	34,206	742	3,145,968	1,736,629	5,286,220	4.80
12.	D.I. Yogyakarta	2,750,813	1.87	3,169	868	403,805	120,627	592,563	4.64
13.	Jawa Timur	29,188,852	19.79	47,922	609	3,537,169	2,064,918	6,478,680	4.51
14.	Bali	2,469,930	1.67	5,561	444	317,718	57,508	485,201	5.09
15.	Nusa Tenggara Barat	2,724,664	1.85	20,177	135	339,995	168,573	594,192	4.59
16.	Nusa Tenggara Timur	2,737,166	1.86	47,876	57	443,701	9,025	495,942	5.52
17.	Timor Timur	555,350	0.38	14,874	37	–	–	–	–
18.	Kalimantan Barat	2,486,068	1.68	146,760	17	320,012	51,072	458,218	5.43
19.	Kalimantan Tengah	354,353	0.65	152,600	6	115,708	7,738	185,528	1.91
20.	Kalimantan Selatan	2,064,649	1.40	37,660	55	276,777	50,961	444,435	4.65
21.	Kalimantan Timur	1,218,016	0.83	202,440	6	99,147	6,579	234,557	5.19
22.	Sulawesi Utara	2,115,384	1.43	19,023	111	279,012	77,122	398,993	5.30
23.	Sulawesi Tengah	1,289,635	0.87	69,726	18	178,928	18,889	233,121	5.53
24.	Sulawesi Selatan	6,062,212	4.11	72,781	83	734,753	36,845	1,117,330	5.43
25.	Sulawesi Tenggara	942,302	0.64	27,686	34	130,675	2,965	173,598	5.43
26.	Maluku	1,411,006	0.96	74,505	19	170,600	7,328	228,689	6.19
27.	Irian Jaya	1,173,875	0.79	421,981	3	130,631	7,774	215,523	5.45
	Total Indonesia	147,490,298	100.00	1,919,443	77	17,468,560	7,230,741	30,263,273	4.87

Source: National Statistics Office

Table 2 Rice Production in Indonesia (1975 - 1980)

Equivalent: Paddy Keringgling

Province	1975		1976		1977		1978		1979		1980		1981	
	Harvested Area	Production	Harvested Area	Production	Harvested Area	Production	Harvested Area	Production	Harvested Area	Production	Harvested Area	Production	Harvested Area	Production
	ha	tons	ha	tons	ha	tons	ha	tons	ha	tons	ha	tons	ha	tons
1. D.I. ACEH	214,496	850,726	220,860	882,054	217,041	665,856	212,877	604,571	243,098	697,692	226,326	678,996	250,421	797,900
2. SUMATRA UTARA	477,528	1,709,244	400,742	1,708,208	395,825	1,211,140	426,539	1,349,125	423,502	1,346,208	532,197	1,480,662	567,074	1,724,672
3. SUMATRA BARAT	262,384	933,350	240,388	942,942	252,729	809,814	255,883	828,489	266,013	898,242	289,498	1,012,141	290,644	1,067,205
4. RIAU	139,011	290,055	89,247	256,190	88,822	191,600	86,377	196,254	83,889	176,012	134,578	276,040	134,369	277,707
5. JAMBI	136,504	414,204	110,703	378,435	114,936	306,434	116,498	311,184	155,447	416,822	146,969	388,147	141,961	367,536
6. SUMATRA SELATAN	353,286	938,897	234,281	753,710	235,345	624,696	250,527	647,895	240,157	681,911	359,266	890,172	365,180	921,675
7. BENGKULU	69,952	206,001	54,099	187,590	51,283	137,369	51,502	135,649	49,400	128,868	70,013	179,425	62,936	147,371
8. LAMPUNG	233,927	696,667	121,717	528,552	128,111	408,605	128,872	411,702	130,665	424,499	272,135	702,891	290,476	764,057
9. D.K.I. JAKARTA	9,120	26,463	13,050	40,185	17,764	45,672	18,863	46,541	17,112	45,852	21,544	63,402	16,557	53,735
10. JAWA BARAT	1,864,344	6,964,986	1,700,183	7,000,842	1,578,176	4,879,080	1,732,718	5,567,396	1,708,084	5,714,113	1,859,599	6,523,161	1,944,750	7,252,566
11. JAWA TENGAH	1,306,186	5,035,638	1,140,185	4,782,463	1,199,327	3,759,890	1,308,834	4,411,252	1,248,399	4,066,907	1,336,485	5,206,034	1,414,607	5,755,158
12. D.I. YOGYAKARTA	145,810	539,683	85,998	415,598	82,343	291,577	93,453	349,655	98,505	386,370	129,303	467,519	151,902	554,027
13. JAWA TIMUR	1,327,810	5,376,269	1,277,013	5,705,927	1,255,254	4,395,900	1,309,634	4,791,541	1,338,405	5,164,954	1,431,047	6,276,783	1,518,816	6,930,502
14. BALI	145,664	636,900	140,189	650,754	144,878	526,375	158,830	564,060	172,996	633,822	182,373	728,293	175,997	764,975
15. NUSA TENGGARA BARAT	207,189	727,279	191,397	730,344	173,123	482,882	203,548	612,075	186,655	556,087	223,516	668,198	234,331	823,419
16. NUSA TENGGARA TIMUR	120,726	243,247	45,548	138,900	58,460	129,255	54,510	114,907	47,878	115,961	145,658	257,107	133,301	228,224
17. TIMOR TIMOR	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18. KALIMANTAN BARAT	295,709	529,699	191,348	442,146	194,059	388,118	192,390	398,824	187,977	406,970	304,141	580,816	306,826	603,525
19. KALIMANTAN TENGAH	113,228	198,896	67,317	140,654	66,735	106,375	67,656	101,687	73,501	134,948	123,660	211,972	120,947	219,005
20. KALIMANTAN SELATAN	256,317	612,962	252,869	610,654	263,813	539,761	279,219	643,408	274,138	667,468	289,597	683,708	332,310	789,761
21. KALIMANTAN TIMUR	76,535	131,612	34,709	73,340	35,160	57,030	32,392	62,808	34,021	65,422	78,171	181,755	79,002	144,291
22. SULAWESI UTARA	79,948	253,183	60,913	216,504	62,582	169,687	61,180	177,728	56,022	164,649	98,094	204,197	70,092	206,978
23. SULAWESI TENGAH	93,577	299,473	61,130	192,417	59,917	139,607	61,154	129,952	67,200	145,421	101,204	200,190	116,756	239,844
24. SULAWESI SELATAN	519,380	1,590,893	485,029	1,771,269	514,073	1,518,572	579,345	1,688,207	558,088	1,664,684	607,828	1,829,692	596,260	2,055,716
25. SULAWESI TENGGARA	28,427	47,422	9,528	23,175	11,701	20,559	14,012	24,829	12,416	25,043	31,682	49,589	36,050	59,418
26. MALUKE	17,475	16,585	502	1,198	522	1,172	509	891	587	1,181	22,486	16,517	22,447	23,099
27. IRIAN JAYA	563	1,285	372	1,023	378	788	1,087	1,735	963	1,766	966	1,555	1,932	3,441
TOTAL INDONESIA	8,495,096	29,201,619	7,229,417	28,575,074	7,202,360	21,808,340	7,698,409	24,172,366	7,675,118	24,731,872	9,018,335	29,773,962	9.375,944	32,775,807

Source: Department of Agriculture

TABLE 1 RICE CULTIVATION AREA AND ITS PRODUCTION IN INDONESIA, 1983

PROPINSI	PADI SAWAH			PADI LADANG			PADI (SAWAH + LADANG)		
	Luas panen (ha)	Hasil/Ha (Kw)	Produksi (ton)	Luas panen (ha)	Hasil/Ha (Kw)	Produksi (ton)	Luas panen (ha)	Hasil/Ha (Kw)	Produksi (ton)
1. Daerah Istimewa Aceh	238,461	32,69	779,529	11,960	15,36	18,371	250,421	31,86	797,900
2. Sumatera Utara	458,248	33,77	1,547,503	108,826	16,28	177,169	567,074	30,41	1,724,672
3. Sumatera Barat	282,886	37,30	1,055,165	7,758	15,52	12,040	290,644	36,72	1,067,205
4. R i a u	87,836	24,56	215,725	46,553	13,32	61,982	134,369	20,67	277,707
5. J a m b i	123,100	27,94	343,941	18,861	12,51	23,595	141,961	25,89	367,536
6. Sumatera Selatan	258,108	29,42	759,354	107,072	15,16	162,321	365,180	25,24	921,675
7. Bengkulu	43,383	26,88	116,614	19,553	15,73	30,757	62,936	23,42	147,371
8. Lampung	167,093	34,51	576,638	123,383	15,19	187,419	290,476	26,30	764,057
S U M A T E R A	1,659,115	32,51	5,394,469	443,946	15,17	673,654	2,103,061	28,85	6,068,123
9. D.K.I. Jakarta	16,283	32,75	53,325	274	14,96	410	16,557	32,45	53,735
10. Jawa Barat	1,835,400	38,51	7,067,327	109,350	16,94	185,239	1,944,750	37,29	7,252,566
11. Jawa Tengah	1,370,772	41,41	5,675,687	43,835	18,13	79,471	1,414,607	40,68	5,755,158
12. D.I. Yogyakarta	108,315	44,47	481,716	43,587	16,59	72,311	151,902	36,47	554,027
13. Jawa Timur	1,449,106	46,99	6,809,764	69,710	17,32	120,738	1,518,816	45,63	6,930,502
JAWA & MADURA	4,779,876	42,03	20,087,819	266,756	17,18	458,169	5,046,632	40,71	20,545,988
14. B a l i	168,312	44,89	755,553	7,685	12,26	9,422	175,997	43,47	764,975
15. Nusatenggara Barat	216,541	36,76	796,005	17,790	15,41	27,414	234,331	35,14	823,419
16. Nusatenggara Timur	48,172	25,34	122,068	85,129	12,47	106,156	133,301	17,12	228,224
17. Timor Timor *)	-	-	-	-	-	-	-	-	-
BALI & NUSATENGGARA	433,025	38,65	1,673,626	110,604	12,93	142,992	543,629	96,73	1,816,618
18. Kalimantan Barat	190,580	23,72	452,056	116,246	13,03	151,469	306,826	19,67	603,525
19. Kalimantan Tengah	71,091	22,04	156,685	49,856	12,50	62,320	120,947	18,11	219,005
20. Kalimantan Selatan	298,006	24,86	740,843	34,304	14,26	48,918	332,310	23,77	789,761
21. Kalimantan Timur	34,245	23,21	79,483	44,757	14,48	64,808	79,002	18,26	144,291
KALIMANTAN	593,922	24,06	1,429,067	245,163	13,36	327,515	839,085	20,93	1,756,582
22. Sulawesi Utara	55,088	33,22	183,002	15,004	15,98	23,976	70,092	29,53	206,978
23. Sulawesi Tengah	69,151	25,06	173,292	47,605	13,98	66,552	116,756	20,54	239,844
24. Sulawesi Selatan	569,686	35,46	2,020,107	26,574	13,40	35,609	596,260	34,48	2,055,716
25. Sulawesi Tenggara	11,489	23,67	27,194	24,561	13,12	32,224	36,050	16,48	59,418
S U L A W E S I	705,414	34,07	2,403,595	113,744	13,92	158,361	819,158	31,28	2,561,956
26. M a l u k u	537	22,56	1,211	21,910	9,99	21,888	22,447	10,29	23,099
27. Irian Jaya	1,308	20,57	2,691	624	12,02	750	1,932	17,81	3,441
MALUKU & IRIAN JAYA	1,845	21,15	3,902	22,534	10,05	22,638	24,379	10,89	26,540
JUMLAH LUAR JAWA	3,393,321	32,14	10,904,659	935,991	14,16	1,325,160	4,329,312	20,25	12,229,819
I N D O N E S I A	8,173,197	37,92	30,992,478	1,202,747	14,83	1,783,329	9,375,944	23,96	32,775,807

Source: Department of Agriculture

Beras : 22.287.549 ton

Table 4 Paddy Production and Harvested Area in Indonesia, 1980
(Equivalent: Paddy)

Province	Paddy			Upland Rice			Total		
	Harvested Area (ha)	Yield (ton/ha)	Production (ton)	Harvested Area (ha)	Yield (ton/ha)	Production (ton)	Harvested Area (ha)	Yield (ton/ha)	Production (ton)
1. Daerah Istimewa Aceh	207.344	31,44	651,890	18.982	14,28	27.106	226.326	30,00	678.996
2. Sumatera Utara	417.111	31,10	1.297.215	115.086	15,94	183.447	532.197	27,82	1.480.662
3. Sumatera Barat	281.081	35,56	999.524	8.417	14,99	12.617	289.498	34,96	1.012.141
4. Riau	87.084	24,51	213.443	47.494	13,18	62.597	134.578	20,51	276.040
5. Jambi	124.396	29,27	364.107	22.573	10,65	24.040	146.969	26,41	388.147
6. Sumatera Selatan	240.078	29,16	700.067	119.188	15,95	190.105	359.266	24,78	890.172
7. Bengkulu	52.758	29,44	155.320	17.255	13,97	24.105	70.013	25,63	179.425
8. Lampung	150.484	34,51	519.320	121.651	15,09	183.571	272.135	25,83	702.891
SUMATERA	1.560.336	31,41	4.900.886	470.646	15,03	707.588	2.030.982	27,61	5.608.474
9. D.K.I. Jakarta	21.055	29,85	62.859	489	11,10	543	21.544	29,43	63.402
10. Jawa Barat	1.744.297	36,33	6.337.676	115.302	16,09	185.485	1.859.599	35,08	6.523.161
11. Jawa Tengah	1.294.578	39,66	5.134.513	41.907	17,07	71.521	1.336.485	38,95	5.206.034
12. D.I. Yogyakarta	99.552	42,17	419.801	29.751	16,04	47.718	129.303	36,16	467.519
13. Jawa Timur	1.370.734	45,07	6.177.472	60.313	16,47	99.311	1.431.047	43,86	6.276.783
JAWA & MADURA	4.530.216	40,03	18.132.321	247.762	16,33	404.578	4.777.978	38.80	18.536.899
14. Bali	173.826	41,24	716.858	8.546	13,33	11.435	182.372	39,93	728.293
15. Nusa Tenggara Barat	202.506	31,60	639.919	21.010	13,46	28.279	223.516	29,89	668.198
16. Nusa Tenggara Timur	55.986	23,66	132.463	89.672	13,90	124.644	145.658	17,65	257.107
17. Timor Timur *)	-	-	-	-	-	-	-		
BALI & NUSATENGGARA	432.318	34,45	1.489.240	119.228	13,79	164.358	551.546	29,98	1.653.598
18. Kalimantan Barat	187.841	23,85	448.001	116.300	11,42	132.815	304.141	19,10	580.816
19. Kalimantan Tengah	73.216	20,05	146.798	50.444	12,92	65.174	123.660	17,14	211.972
20. Kalimantan Selatan	260.484	25,00	651.210	29.113	12,88	37.498	289.597	23,61	683.708
21. Kalimantan Timur	34.070	20,77	70.763	44.101	13,83	60.992	78.171	23,25	181.755
KALIMANTAN	555.611	23,70	1.316.772	239.958	12,36	296.479	795.569	20,28	1,613.251
22. Sulawesi Utara	74.450	30,78	229.157	23.644	14,82	35.040	98.094	20,82	204.197
23. Sulawesi Tengah	62.350	24,48	152.633	38.854	12,24	47.557	101.204	19,78	200.190
24. Sulawesi Selatan	579.120	30,94	1.791.797	28.708	13,20	37.895	607.828	30,10	1.829.692
25. Sulawesi Tenggara	11.914	20,70	24.662	19.768	12,61	24.927	31.682	15,65	49.589
SULAWESI	727.834	30,20	2,198.249	110.974	13,10	145.419	838.808	27,94	2.343.668
26. Maluku	530	19,58	1.038	21.956	7,05	15.479	22.486	7,35	16.517
27. Irian Jaya	571	19,04	1.087	395	11,85	468	966	16,10	1.555
MALUKU & IRIAN JAYA	1.101	19,30	2.125	22.351	7,13	15.947	23.452	7,71	18.072
JUMLAH LUAR JAWA	3.277.200	30,23	9.907.272	963.157	13,81	1.329.791	4.240.357	26,50	11.237.063
INDONESIA	7.807.416	35,91	28.039.599	1.210.919	14,32	1.734.369	9.018.335	33,01	29.773.962

Source: Department of Agriculture

Table 5-1 Statistics of Agriculture in Indonesia (1)

Provinces	Total Farm Household (x 1,000)	Average Farm Paddy Harvested Area (0.1 ha)	Total Paddy Planted Area (ha) (More than 20,000ha.)	Intensification Program Area (1979) BIMAS (x1000ha)	INMAS (x1000ha)	INSUS (x1000ha)	TOTAL (x1000ha)	Intensification Program Area (%)	H.Y.V. Planted Area (1979) (x 1000 ha)
1. D.I. ACEH	353	6.5	256,576	49	55	31	135	59	67
2. SUMATERA UTARA	816	6.7	533,235	100	248	58	406	75	59
3. SUMATERA BARAT	426	6.4	272,863	77	149	30	256	94	12
4. RIAU	199	6.6	124,622	19	51	-	69	52	1
5. JAMBI	143	11.2	166,588	35	17	-	61	38	3
6. SUMATERA SELATAN	377	10.0	355,022	98	16	13	126	34	23
7. BENGKULU	85	9.2	73,085	16	13	3	32	42	7
8. LAMPUNG	447	5.9	244,346	48	74	41	163	62	28
9. D.K.I. JAKARTA	20	9.0	18,496	-	14	-	14	76	0
10. JAWA BARAT	2,468	7.3	1,805,862	887	598	198	1,683	93	65
11. JAWA TENGAH	2,766	4.8	1,291,917	288	477	470	1,235	93	308
12. D.I. YOGYAKARTA	344	3.3	114,628	82	67	55	204	178	43
13. JAWA TIMUR	3,066	4.6	1,397,593	635	630	680	1,945	139	377
14. BALI	305	5.7	181,540	110	29	58	197	112	63
15. N.T. BARAT	281	7.1	201,206	60	45	6	111	56	11
16. N.T. TIMUR	365	2.1	117,634	19	21	2	42	35	0.1
17. KALIMANTAN BARAT	274	11.2	304,477	28	49	0	77	25	0.1
18. KALIMANTAN TENGAH	100	11.9	123,957	20	35	0	55	46	1
19. KALIMANTAN SELATAN	258	11.6	310,013	27	115	3	145	49	5
20. KALIMANTAN TIMUR	58	13.8	80,105	2	17	0	18	23	5
21. SULAWESI UTARA	218	4.2	70,290	21	54	7	82	89	21
22. SULAWESI TENGAH	132	7.8	114,386	8	19	2	29	28	1
23. SULAWESI SELATAN	640	9.0	591,132	110	110	98	318	54	164
24. SULAWESI TENGGARA	103	3.4	32,326	6	1	0	7	21	3
25. MALUKU	120	1.7	20,188	-	4	-	4	22	-
26. IRIAN			1,468	-	-	-	-	-	-

(Total Paddy Harvested Area ÷ Total Farm Household)

(Total Intensification Program Area ÷ Total Paddy Harvested Area)

Source: National Statistic Office Indonesia

Table 5-2 Statistics of Agriculture in Indonesia (2)

Item / Provinces	H.Y.V. Introduction (%)	H.Y.V. Planted Area in Intensification Program Area (%)	Irrigated Area (1978) Complete (A)	Incomplete (B)	Total (x1,000ha.)	Irrigation (A) (%)	Irrigation (B) (%)	G.P.P. per Capita (1975 - 76) (x1,000 Rp.)
1. D.I. ACEH	29	50	17	138	155	10	92	80
2. SUMATERA UTARA	11	24	28	218	246	9	82	140
3. SUMATERA BARAT	4	5	4	131	136	9	94	62
4. RIAU	1	1	–	10	10	–	21	1,000 (Including Oil)
5. JAMBI	2	5	1	23	23	1	31	100
6. SUMATERA SELATAN	6	18	9	48	56	5	33	230
7. BENGKULU	9	22	4	28	32	9	71	59
8. LAMPUNG	11	17	46	28	73	52	82	80
9. D.K.I. JAKARTA	2	0	7	3	10	70	100	250
10. JAWA BARAT	4	4	357	497	854	43	102	90
11. JAWA TENGAH	29	25	297	388	684	37	85	70
12. D.I. YOGYAKARTA	37	21	2	53	55	5	131	60
13. JAWA TIMUR	27	9	549	335	884	59	95	80
14. BALI	39	32	–	97	97	–	118	–
15. N.T. BARAT	6	10	59	74	133	40	90	40
16. N.T. TIMUR	0.1	0	3	41	45	5	71	–
17. KALIMANTAN BARAT	0.03	0	–	–	–	–	–	80
18. " TENGAH	1	2	2	33	35	2	43	130
19. " SELATAN	2	3	8	15	23	5	16	130
20. " TIMUR	6	28	0.1	8	8	0.3	28	760 (Including Oil)
21. SULAWESI UTARA	29	26	3	26	30	8	81	100
22. " TENGAH	1	3	0.5	29	29	1.1	63	80
23. " SELATAN	28	52	85	162	247	26	75	70
24. " TENGGARA	9	42	2	12	14	6	44	–
25. MALUKU	–	0	–	–	–	–	–	–
26. IRIAN	–	–	–	–	–	–	–	–
	(H.Y.V. Planted Area ÷ Total Paddy Harvested Area)					(Complete Irrigated Area ÷ Total Paddy Field Area)	(Incomplete Irrigated Area ÷ Total Paddy Field Area)	(Gross Province Production ÷ Province Population)

Source: National Statistic Office Indonesia

Table 6 Average Annual Per Capita Available and Apparent Consumption (Disappearance) of Milled Rice in Indonesia, 1954-1980

Year	Production	Less seed and losses	Imports	BULOG stock changes	Total Available	Population mid-year (millions)	Available per capita (kg/cap/yr)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	..... million tons						
1954	7.84	0.72	0.26	-0.09	7.29	82.82	88
55	7.51	0.70	0.13	+0.40	7.34	84.56	87
56	7.60	0.71	0.82	-0.06	7.65	86.35	89
57	7.63	0.72	0.55	+0.06	7.52	88.21	85
58	7.98	0.75	0.92	-0.06	8.09	90.14	90
59	8.29	0.77	0.89	+0.02	8.43	92.14	91
1960	10.17	0.89	0.89	+0.08	10.25	94.20	109
61	9.58	0.84	1.06	+0.03	9.77	96.32	101
62	10.28	0.90	1.02	+0.02	10.42	98.32	106
63	9.16	0.83	1.04	-0.12	9.25	100.24	92
64	9.61	0.81	1.01	0	9.81	102.25	96
65	10.24	0.90	0.20	+0.10	9.64	104.34	92
66	10.75	0.94	0.31	-0.10	10.02	106.53	94
67	10.40	0.91	0.35	+0.03	9.87	108.80	91
68	11.67	1.01	0.63	-0.35	10.94	111.17	98
69	12.25	1.05	0.60	+0.23	12.03	113.63	106
1970	13.14	1.10	0.96	-0.27	12.73	116.17	110
71	13.72	1.14	0.49	0	13.07	118.81	110
72	13.18	1.09	0.73	+0.36	13.18	121.55	108
73	14.61	1.20	1.66	-0.41	14.66	124.40	118
74	15.28	1.24	1.07	-0.27	14.84	127.31	117
75	15.18	1.24	0.67	+0.22	14.83	130.29	114
76	15.84	1.27	1.28	+0.08	15.93	133.34	119
77	15.88	1.27	1.96	+0.03	16.60	136.46	122
78	17.52	1.39	1.85	-0.67	17.31	139.65	124
79	17.87	1.43	1.95	+0.37	18.76	142.92	131
1980*	20.25	1.62	2.05	-0.94	19.74	147.21	134

Source:

1. Computation for seeds and losses is based on the estimates of CBS, Neraca Bahan Makanan, Indonesia (Food Balance Sheet for Indonesia), May 1977, of 38.286 kg/ha for seeds, 1.5% for livestock feed and 4.5% for losses.
2. Imports 1954-1969 from BULOG, Sidik Moeljono, "Seperempat abad Bergulat dengan Butir-butir Beras," (A Quarter Century of Rice Grains), 1971; after 1969 from BULOG. Excludes glutinous rice imports.
3. The population of Indonesia 1967-1971 was interpolated using the results of the Population Census 1961 and 1971. The population 1971-1980 was interpolated using Census 1971 and 1980 from CBS.
4. Stock changes from BULOG, see Appendix III, Tables 1 and 2.
5. Production from CBS, converted from paddy at 68%. Preliminary.

NOTE: Figures before 1960 not comparable with later years because of change in methodology in making production estimates.

Above table is quoted from "The New Rice Economy of Indonesia" by Dr. L. A. Mears.

Table 7 Indonesian Domestic Purchases and Sales of Paddy and Milled Rice 1980 - 1981
(in tons of milled rice equivalent)[5]

	April / June	July / Sept.	Oct. / Dec.	Jan. / Mar.[4]	Year[4] 1980/81
Stock, start of period	884,679[1]	2,136,458	2,468,242	1,736,530	884,679
Domestic Purchases:					
Milled Rice	763,407	402,598	30,157	150,214	1,346,376
Paddy	207,836	50,056	5,787	27,233	290,518
Imports - Milled Rice	689,712	299,143	105,805	118,490	1,213,150
Total Stock	2,545,240	2,609,866	2,329,049	2,032,468	3,734,723
Paddy Milled	1,029	3,234	111,857	123,164	239,284
Total M.O. and Distributions	(408,705)	(419,227)	(870,091)	(770,085)	(2,467,508)
Military and Civil Servants	151,015	175,032	151,157	192,062	669,266
Estates	16,206	30,352	19,730	20,184	86,472
Market Operations (M.O.)	237,824	208,258	637,878	529,787	1,613,747
Other	3,060	5,585	61,326	28,052	98,023
Losses	677	756	3,369	11,551	16,383
Stock, end of period	2,136,458	2,468,242[3]	1,736,530	1,250,832	1,250,832[2]

1) Includes 33,723 tons unmilled paddy.
2) Includes 112,544 tons unmilled paddy.
3) Peak month ending stock - August 2,776,556 tons
4) Preliminary
5) Paddy converted at 65%.

Source: BULOG.

Table 8 Rice Imports, Domestic Procurement, Stocks and Distribution 1967 - 1980

(thousand tons)[3/]

Calendar Year	Opening Stocks[2/]	Imports +	Domestic Procurement +	Distribution: Budget Group -	Distribution: Market Operations -	Distribution: Other, including Loss -	Closing Stocks[2/]
1967	176.2	353.8	520.2	681.0	139.4	78.8	151.0
68	151.0	628.4	597.6	697.0	72.8	110.9	496.3
69	496.3	604.2	203.9	687.7	126.5	228.3	261.9
1970	261.9	955.6	493.3	710.5	228.9	241.0	530.4
71	530.4	489.9	616.7	677.4	225.8	203.2	530.6
72	530.6	734.5	160.3	650.6	418.6	188.2	168.0
73	168.0	1,656.7	262.8	660.8	703.5	143.9	579.3
74	579.3	1,070.8	530.4	657.5	315.1	361.1	846.8
75	846.8	672.7	539.3	663.7	423.2	346.7	625.2
76	625.2	1,280.6	391.5	662.0	887.6	206.8	541.0
77	541.0	1,964.1	423.9	635.0	1,702.8	79.5	511.7
78	511.7	1,852.3	865.8	585.8	1,224.4	235.0	1,184.6
79[1/]	1,184.6	1,949.4	331.1	629.4	1,783.8	237.2	814.7
1980[1/]	814.7	2,049.5	1,585.6	600.8	1,840.1	258.4	1,750.5

Source: BULOG

Note: 1/ Preliminary
2/ Milled rice plus paddy (at weight of equivalent milled rice).
3/ Totals may not add due to rounding.

Table 9 Floor Price - Absolute and Index

1969/70 - 1981

Date Price Effective	Floor Price Paddy 1/ Rp/kg	Index (Base 1971 = 100)
1969/70 - 1972/73	20.90	100
April 1, 1973 - May 23, 1973	25.55	122
May 24, 1973 - March 31, 1974	30.40	145
April 1, 1974 - January 31, 1975	41.60	199
February 1, 1975 - January 31, 1976	58.50	280
February 1, 1976 - January 31, 1977	68.50	328
February 1, 1977 - January 31, 1978	71.00	340
February 1, 1978 - January 31, 1979	75.00	359
February 1, 1979 - May 2, 1979	85.00	407
May 3, 1979 - January 31, 1980	95.00	455
February 1, 1980 - January 31, 1981	105	502
February 1, 1981	120	574
January 1, 1982	135	645

Source: BULOG

Note: 1/ Mill dry paddy, 14% moisture content.

Table 10 BULOG Ceiling Price of Milled Rice 1969/70 - April 1979

(Rp/kg)

Date effective	Surplus Areas	Deficit Areas
1969/70 - late 1972	50.00	50.00
1972 and 1973	Floating	
January, 1974 - August 1975	100.00	120.00
September, 1975 - October 1975	120.00	130.00
November, 1975 - May 1976	125.00	135.00
June, 1976 - December 1976	125.00	140.00
January, 1977 - March, 1978	127.50	140.00
April, 1978 - January 17, 1979*	140.00	150.00
January 12, 1979 - January 21, 1979	142.50	155.00
January 22, 1975 - April, 1979"	142.50	160.00

Source: BULOG

Note: Now "ceiling price" concept being implemented in Jakarta starting in 1977 and elsewhere in April 1979

Table 11 Average Monthly Retail Prices of Rice (Medium Quality) 1968 - 1980 in Jakarta

(Rp/kg)

Year / Month	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
January	71.49	38.77	54.10	49.05	47.32	67.50	88.27	93.10	126.87	126.13	134.91	140.56	188.21
February	73.85	37.97	49.80	50.36	48.10	71.85	86.81	95.58	125.21	125.93	135.01	144.58	188.28
March	65.60	36.57	49.12	49.71	47.66	67.77	86.45	99.53	120.35	126.02	137.08	152.10	184.02
April	53.55	34.11	44.83	45.12	46.97	54.61	84.63	96.52	119.22	125.41	128.90	150.36	182.17
May	50.59	37.56	41.48	41.57	45.12	53.72	77.94	91.87	111.78	125.66	128.55	159.99	185.34
June	50.39	31.61	40.42	40.75	44.05	76.35	76.59	91.98	115.14	125.93	128.35	178.64	184.46
July	51.67	33.07	44.27	42.02	44.36	79.43	76.88	96.52	117.80	126.32	129.72	185.78	184.14
August	49.96	37.08	45.00	42.71	46.20	80.78	76.74	101.34	121.19	126.24	129.15	185.10	183.82
September	51.94	40.66	44.68	42.25	50.38	82.85	76.76	108.83	121.91	125.00	128.36	183.60	186.60
October	43.89	46.62	44.15	42.60	55.77	79.06	75.88	110.25	121.49	125.74	135.55	187.43	208.22
November	44.02	46.48	45.45	44.44	69.21	78.60	82.12	120.07	121.85	132.69	140.29	187.55	212.03
December	42.69	47.41	45.71	45.75	82.01	84.12	90.76	125.83	123.31	133.54	140.32	187.27	213.41
Average Yearly	54.14	38.91	45.75	44.66	52.26	73.05	81.15	102.61	120.51	126.97	133.02	120.25	191.73

Source: Badan Urusan Logistik

Table 12 Average Retail Prices of Rice (medium quality) for Low (Jawa) and High Ceiling Price Regions 1974 to 1981

(Rp/kg)

1974		1975		1976		1977	
Low	High	Low	High	Low	High	Low	High
87.49	119.25	89.19	110.59	125.54	130.59	125.78	138.56
82.70	117.19	89.04	111.04	124.14	128.88	124.83	138.23
79.81	114.62	90.45	109.31	119.64	130.55	120.56	137.31
75.19	113.37	85.17	110.99	111.40	130.25	116.77	137.37
73.79	110.32	83.53	111.16	109.97	128.94	120.25	137.16
73.25	109.32	88.26	107.75	115.82	129.37	122.03	135.35
74.62	106.34	93.90	107.94	118.33	130.82	123.65	136.14
74.28	104.50	98.20	110.12	124.11	130.55	126.71	135.51
74.17	101.31	107.20	113.81	125.27	134.01	127.33	136.77
74.24	100.74	110.90	114.98	124.62	135.46	127.99	138.18
81.99	102.31	120.21	118.55	124.80	136.81	131.88	141.14
88.54	110.66	124.75	127.86	125.44	135.58	131.46	141.74

1978		1979		1980		1981	
130.90	142.39	139.39	154.74	183.50	187.46	218.29	221.85
130.40	142.63	145.32	157.43	182.45	188.76	217.07	221.84
129.76	142.56	148.23	160.02	178.95	188.48	205.44	221.58
122.77	144.94	145.96	161.78	196.93	192.53		
123.72	144.42	157.25	170.91	180.71	200.22		
125.61	142.72	172.99	175.78	181.79	201.75		
129.02	144.89	174.80	183.23	182.20	202.60		
130.39	145.66	174.43	186.09	180.02	207.39		
130.74	146.31	174.50	186.04	183.46	209.24		
136.80	148.29	176.79	186.23	207.35	213.37		
140.10	150.31	178.56	186.06	217.55	219.52		
139.03	151.87	181.13	186.70	218.59	221.91		

Source: BULOG

Note: 1. Low retail price regions: Jawa Provinces.

2. High retail price regions (deficit regions):

Jan.1974 - Aug.1975: North Sumatra, Riau, Tg. Pinang, Jambi, Palembang, Bengkulu, Bangka-Belitung, Lampung, West Kalimantan, Central Kalimantan, East Kalimantan, Maluku;

Sept.1975- May 1976: West Kalimantan, Central Kalimantan, East Kalimantan, North Sulawesi, Maluku;

June 1976- Dec.1976: North Sumatra, Riau, Tg. Pinang, Jambi, South Sumatra, Bangka-Belitung, Bengkulu, West Kalimantan, Central Kalimantan, East Kalimantan, North Sulawesi, Maluku;

Jan. 1977- Mar.1978: North Sumatra, Riau, Tg. Pinang, Jambi, West Kalimantan, Central Kalimantan, East Kalimantan, North Sulawesi, Southeast Sulawesi, Maluku;

Apr. 1978- Mar.1981: North Sumatra, Riau, West Sumatra, Jambi, South Sumatra, Bengkulu, Lampung, Central Kalimantan, West Kalimantan, East Kalimantan, North Sulawesi, Maluku.

Table 13 Price and Variety of Medium Quality Rice in Jakarta

1976 - 1980

Month	1976		1977		1978		1979		1980	
	Variety/ Quality	Price Rp/kg	Variety/ Quality	Price Rp/kg	Variety/ Quality	Price Rp/kg	Variety/ Quality	Price Rp/kg	Variety/ Quality	Price Rp/kg
January	Pelita & Hongkong	126.87	Thai. II	126.13	Thai. II	134.91	IR	140.56	Thai. II	188.21
February	Pelita & Hongkong	125.21	Thai. II	125.93	Thai. II	135.01	USA MG/222	144.58	Thai. II	188.28
March	Hongkong	120.35	Thai. II	126.02	Thai. II	137.08	USA MG/222	152.10	IR I	184.02
April	Pelita II	119.22	Pelita I	125.41	IR	128.90	IR	150.36	IR I	182.17
May	Pelita II	111.78	Pelita I	125.66	IR	128.55	IR I	160.00	IR I	185.34
June	Pelita II	115.14	Thai. II	125.93	IR	128.35	IR I	178.64	IR I	184.46
July	Pelita II	117.80	Thai. II	126.32	IR	129.72	IR I	185.79	IR I	184.14
August	Pelita II	121.19	Thai. II	126.24	IR	129.15	IR I	185.10	IR I	183.82
September	Pelita II	121.91	Thai. II	125.00	IR	128.36	IR I	183.10	IR I	186.60
October	Thai. II	121.49	Thai. II	125.74	IR	135.56	USA MG/222	187.43	IR I	208.22
November	Thai. II	121.85	Thai. II	132.69	IR	140.29	USA MG/222	187.55	IR I	212.03
December	Thai. II	123.31	Thai. II	133.54	IR	140.32	USA MG/222	187.27	IR I	213.41

Source: BULOG

Notes: 1. Since April, 1976, a volume survey has been made of rice in 10 markets in Greater Jakarta.
2. Pelita I = Rice, Pelita quality I
Pelita II = Rice, Pelita quality II
3. Thai. II = Rice, Thailand 20% broken

Table 14 Price Indices of 9 Essential Commodities in the Rural Markets of Jawa and Madura 1971/1978

(1971 = 100)

Year	Rice Index	Non-Rice Index	Real Rice Price Index
1971	100	100	100
1972	120	101	119
1973	186	132	141
1974	197	194	102
1975	242	195	124
1976	324	208	156
1977	338	232	146
1978	362	253	143
1979	446	293	152
1980	522	355	147

Source: CBS, Indikator Ekonomi, Table 1.2.

Note: Non-rice commodities are: Salted fish, coconut oil, sugarcane, salt briquettes, kerosene, soap, batik cloth and textiles.

Table 15 Annual Percentage of Food Prices to Rice Prices in Jawa and Madure 1970-1980

Year	Maize	Soybean	Peanuts (Shelled)	Cassava	Wheat Flour	Sweet Potatoes
1970	46	124	197	19	94	20
71	50	144	211	19	117	21
72	55	133	222	20	111	22
73	47	133	200	22	111	25
74	57	157	289	16	98	19
75	61	168	257	19	98	21
76	54	124	208	20	106	21
77	46	130	226	19	102	21
78	46	132	224	19	96	20
79	49	139	228	16	101	18
1980	46	134	234	17	110	18
% change 1970-1980	0	+8	+18	-10	+17	-10

Source: Central Bureau of Statistics, Prices at rural markets, except for wheat.
BULOG, Wheat flour price in Jakarta compared with Jakarta rice price.

ble 16 Marketing Margins for Domestic Paddy and Rice through Government Channels
(in % of Retail Price)[1]

	Sold to DOLOG as Paddy			Sold to DOLOG as Milled Rice		
y Purchased by OG	April 1978	July 1978	June 1979	April 1978	July 1978	June 1979
d Rice Retailed overnment[2]	Oct. 1978	Feb. 1979	Feb. 1980	Oct. 1978	Feb. 1979	Feb. 1980
el	(Krawang/ Jakarta	Krawang/ Bandung	Klaten/ Semarang	Krawang/ Jakarta	Krawang/ Bandung	Klaten/ Semarang
ived by Farmer at Farm e in Terms of Retail e at Harvest Time	89.5	89.0	85.4	89.5	89.0	85.4
ived by Farmer at Farm e in Terms of Retail e at Date of G Sale	83.9	77.5	77.6	83.9	77.5	77.6
bly to KUD	1.2	1.3	1.6	1.2	1.3	1.6
r Price Received by er at KUD	85.1	78.8	79.2	85.1	78.8	79.2
ing				2.9	2.7	3.2
argin	2.8	2.6	3.5	0.1	0.1	3.1
to DOLOG at KUD	87.9	81.4	82.7	88.1	81.6	85.5
ing[5]	4.2	3.9	3.2			
y Fee	0.4	0.3	0.4	0.2	0.2	0.2
port plus In/Out	7.8	7.2	7.2	3.0	3.4	3.2
eat between Ware-ses[3]	2.8	2.6	2.4	2.4	2.2	2.4
	6.0	5.6	5.7	2.9	2.7	2.7
ge - Paddy	2.3	2.1	2.4			
- Milled Rice	0.8	0:8	1.4	0.8	0.8	1.4
s	2.2	2.1	1.3	0.8	0.8	0.8
est and Bank Costs[4]	6.1	5.7	4.5	6.1	5.7	4.6
istration	2.7	2.5	3.1	2.7	2.5	3.1
Cost	123.4	114.2	114.3	107.1	99.8	103.8
y	(27.5)	(23.7)	(24.9)	(11.2)	(9.3)	(14.4)
LOG Price for et Operations)	95.9	90.5	89.4	95.9	90.5	89.4
ale/Retail Margin	4.1	9.5	10.6	4.1	9.5	10.6
l Price	100.0	100.0	100.0	100.0	100.0	100.0

e: BULOG Survey 1980.

1. Cost figures are those existing before the date of sale, see Appendix. VIII, Tables 2 and 3.
2. Priced at average price for common variety milled rice in each urban area.
3. Average after allocation to total purchases.
4. Does not include social cost of subsidized interest rate.
5. Does not include value of by-products retained by miller.

Table 17 Estimates of Typical Charges in Marketing Paddy and Rice in Indonesia 1979

Handling: Loading or unloading and pile to scale	Rp. 25 to Rp. 50/kwintal per operation
Gunny Sack	
New	Rp. 385
Old	Rp. 100/Rp. 275
Drying	
Sun	Rp. 1/1.5/kg.
Mechanical	Rp. 3/kg.
Inspection (survey)	Rp. 25/kg. for paddy, Rp. 15/kg. for rice
Losses (these can be highly variable depending on particular storage conditions)	
Sun drying along roadside	2 to 3%
Sun drying on cement slab	0.5%
Transport to mill	0.4%
Mill to wholesaler or wholesaler to retailer	0.2% each
BULOG/DOLOG storage - gabah[3]	0.15%
(6 month period) - milled rice[3]	0.10 to 0.20%
BULOG shipments - allowance for contractor	
Rail	0.75%
Truck	0.50%
Sea	1.75 to 2.0%
Milling fee	Rp. 4 to Rp. 6/kg. milled rice[1]
Transport	
Porterage (per kwintal/km.)	Rp. 40/Rp. 100
Becak/Bicycle	Rp. 30 to Rp. 75/kw./km.
Truck (per ton/km)[2]	
Java, Bali, Lampung	Rp. 35 maximum
No. & W. Sumatra and Riau	Rp. 40 maximum
So. & SE Sulawesi	Rp. 45 maximum
BULOG, base rate	Rp. 27 to Rp. 40 depending on quantity and location (see Table 6.7).
Rail, per kwintal	Rp. 66/kg. for 1 to 50 km. up to Rp.691.5 over 1,100 km. for rice. Paddy rates slightly higher (see Appendix VI, Table 1)
BULOG, contract rate	Rp. 16/Rp. 70 per ton/km. (warehouse to warehouse)
Sea	
BULOG, contract rate	Rp. 15/Rp. 35 per ton/km. (warehouse to warehouse) depending on distance and port conditions
Revenue from by-products	
Dedak (coarse bran)	Rp. 5/Rp. 30 per kg., depending on the season
Katul (fine bran)	Rp. 20/Rp. 35 per kg., depending on the season
Mendong (extra-fine polishings)	Rp. 50/kg.
Margins - Desa trader	Rp. 100/Rp. 250 per kwintal
- Large wholesale trader	Rp. 50/Rp. 100 per kwintal
- Wholesaler	Rp. 75/Rp. 150 per kwintal
- Retailers	Rp. 250/Rp. 450 per kwintal
Interest and Storage	See discussion of costs in private and Government channels

Source: BULOG, quated from "The New Rice Economy of Indonesia" by Dr. L. A. Mears

Note: 1. Not including by-product value, which is generally retained by miller.
2. Rate/ton/km. declines as length of haul increases.
3. These loss rates are still preliminary, subject to further testing.

Table 18 BULOG's Storage Capacity

(ton)

No.	DOLOG	Planned Unit	Planned Location	Planned Capacity	Completely finished Unit	Completely finished Location	Completely finished Capacity	In Construction Capacity	Not yet started Capacity
1.	ACEH	16	11	38,050	8	6	15,550	5,000	10,500
2.	NORTH SUMATERA	32	6	100,450	19	8	72,450	-	28,000
3.	WEST SUMATERA	7	4	19,500	3	1	10,500	-	9,000
4.	RIAU	19	13	44,500	9	3	26,500	-	18,000
5.	JAMBI	9	7	17,500	2	1	7,000	4,000	6,500
6.	SOUTH SUMATERA	22	11	67,000	12	7	37,000	-	30,000
7.	BENGKULU	3	2	10,500	1	1	3,500	-	7,000
8.	LAMPUNG	9	7	23,400	4	3	10,900	2,000	10,500
9.	JAKARTA	135	7	565,000	55	6	285,000	280,000	-
10.	WEST JAVA	73	38	216,500	32	19	104,500	16,000	96,000
11.	CENTRAL JAVA	62	39	205,400	35	24	115,400	-	90,000
12.	YOGYAKARTA	5	2	16,000	4	1	14,000	-	2,000
13.	EAST JAVA	121	38	414,400	83	25	292,400	-	122,000
14.	WEST KALIMANTAN	17	12	47,150	9	7	22,150	2,000	23,000
15.	EAST KALIMANTAN	11	7	35,250	8	5	27,250	-	8,000
16.	CENTRAL KALIMANTAN	6	6	8,500	4	4	6,500	-	2,000
17.	SOUTH KALIMANTAN	12	7	29,000	9	4	21,500	4,000	3,500
18.	NORTH SULAWESI	25	10	57,600	19	7	38,100	2,000	17,500
19.	CENTRAL SULAWESI	10	10	21,000	4	4	11,500	-	9,500
20.	SOUTHEAST SULAWESI	7	7	12,250	5	5	7,750	1,000	3,500
21.	SOUTH SULAWESI	67	43	150,000	56	36	123,500	-	26,500
22.	BALI	12	9	31,500	8	6	20,500	2,000	9,000
23.	WEST NUSA TENGGARA	16	13	30,500	5	5	12,500	2,000	16,000
24.	EAST NUSA TENGGARA	15	12	33,500	8	7	18,000	3,000	12,500
25.	MALUKU	13	10	31,500	7	6	14,500	-	17,000
26.	IRIAN JAVA	14	11	37,000	5	3	17,500	-	19,500
27.	EAST TIMOR	4	4	10,000	3	3	3,000	3,500	7,000
	TOTAL	742	356	2,272,950	417	207	1,338,950	326,500	604,000

Source: BULOG

Table 19 Organization of Farm Society

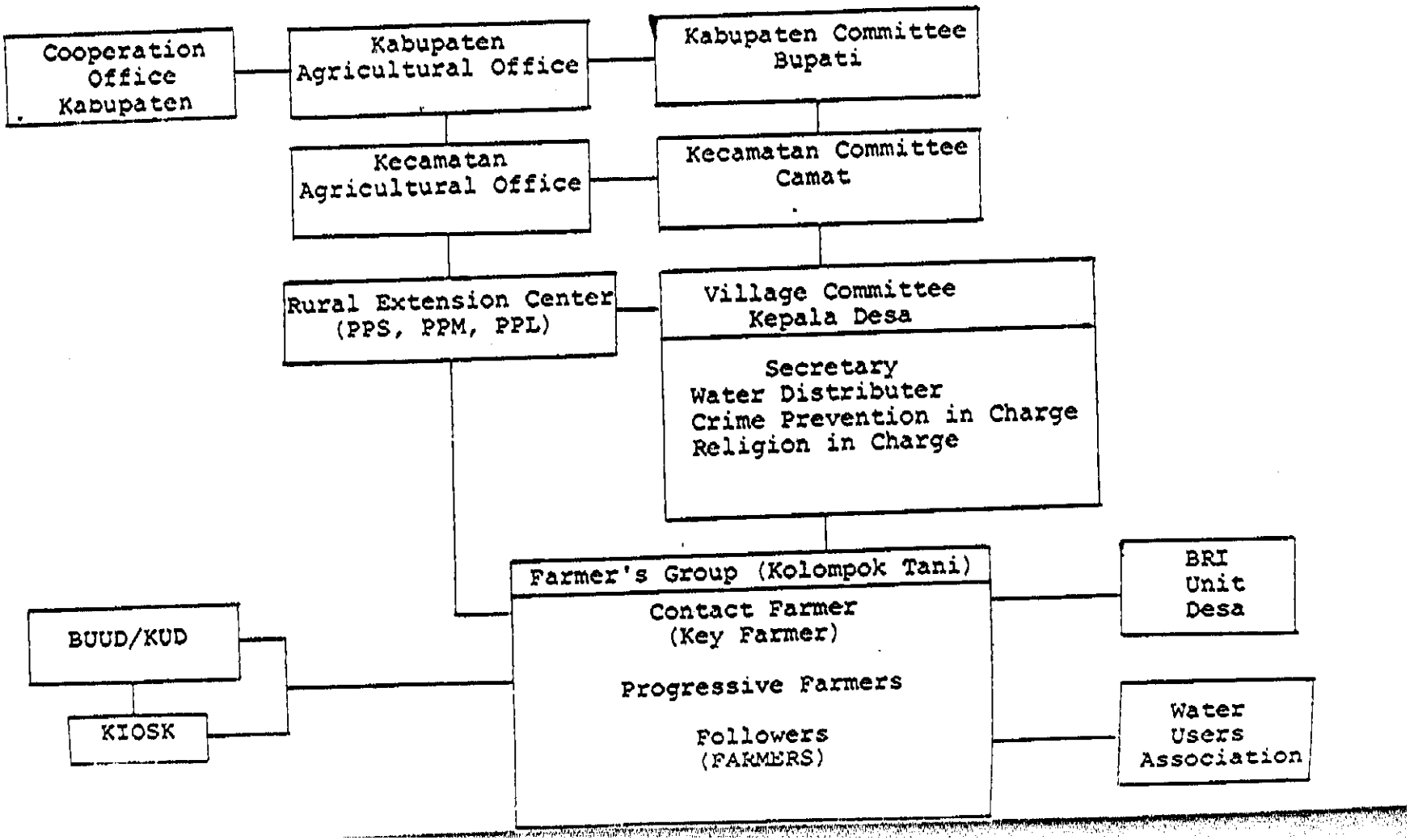


Table 20 Institution Related to Food Crops Production in the Provinces in Indonesia

(1980)

Name of Provinces	Total	D.I. Aceh	Sumatera Utara	Sumatera Barat	Riau	Jambi	Sumatera Selatan	Bengkulu	Lampung	Jawa Barat	Jawa Tengah	D.I. Yogyakarta	Jawa Timur	Bali	Nusa Tenggara Barat	Nusa Tenggara Timur	Kalimantan Barat	Kalimantan Tengah	Kalimantan Selatan	Kalimantan Timur	Sulawesi Selatan	Sulawesi Tenggara	Sulawesi Tengah	Sulawesi Utara	Maluku	D. K. I. Jakarta	Irian Jaya	Timor Timur
STAGE (27)																												
Agricultural Office	10	1	1	-	-	-	-	-	1	2	1	-	1	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-
Agricultural Information Centre	87*)	4	4	4	2	3	3	3	3	4	4	1	4	2	3	4	4	4	3	3	5	2	4	2	3	1	7	1
B I C	543	19	24	19	15	17	20	13	22	54	59	10	63	15	15	16	12	19	18	12	52	10	18	11	5	4	1	-
B P S	52	3	4	3	1	1	2	1	3	4	4	1	4	2	2	1	2	1	2	1	4	1	1	2	1	-	1	-
Plant Protection Brigade	87	3	4	4	4	4	5	3	3	4	3	3	4	3	3	3	4	4	4	3	3	3	3	3	3	1	3	-
Seed Centre (FS)																												
STAGE (246)																												
Agricultural Office	1,206	34	79	58	24	18	52	15	45	207	135	15	142	27	35	39	35	11	32	12	80	25	23	28	17	8	10	-
R. E. C. (72N)	1,206	34	79	58	24	18	52	15	45	207	135	15	142	27	35	39	35	11	32	12	80	25	23	28	17	8	10	-
Seed Farm	689	32	34	22	9	5	23	6	12	114	104	6	114	10	17	21	19	10	41	6	53	9	8	6	4	4	-	-
Pest Forecasting																												
STAGE UNIT	4,643	114	316	238	53	98	129	63	117	925	576	61	716	66	100	41	137	49	117	27	372	88	90	90	24	-	34	1
B I C	146,433	1,800	9,600	5,800	2,187	533	4,500	7,200	2,000	24,240	32,000	3,500	32,000	1,600	3,010	800	1,300	600	2,800	475	12,288	608	1,500	1,500	369	512	260	
Farmers Group	8,211	74	83	197	61	79	46	59	119	2,558	1,189	81	1,517	1,336	22	35	29	389	54	22	34	39	15	159	23	-	-	-
K. U. D.	4,643	114	316	238	54	98	129	63	117	925	576	61	716	66	100	41	137	49	117	27	372	88	90	90	24	-	34	1
B R I	13,211	301	864	526	200	180	608	140	350	2,445	1,939	294	2,080	369	306	129	257	146	521	120	818	64	195	220	30	22	27	-

Note: PPL = Field Extension Worker
= Penyuluh Pertanian Lapang
PPS = Subject Matter Specialists
= Penyuluh Pertanian Spesialis
FS = Foundation Seed
SS = Stock Seed

ES = Extension Seed
W.U.A. = Water Users Association
= Perkumpulan Petani Pemakai Air
R.E.C. = Rural Extension Centre
= Balai Penyuluhan Pertanian

KUD = Village Unit Cooperatives
= Kooperasi Unit Desa
BRI = Bank Rakyat Indonesia

* Planed

Source: Department of Agriculture

Table 21 Total of Number of Village Unit Cooperative throughout Indonesia

(30 October 1980)

PROVINCE	TOTAL NUMBER OF KUD/PUSKUD	
	K.U.D.	PUSKUD
JAWA BARAT	925	1
JAWA TENGAH	576	1
D.I. YOGYAKARTA	61	1
JAWA TIMUR	716	1
D.I. A C E H	114	1
SUMATERA UTARA	316	2
SUMATERA BARAT	238	1
R I A U	54	-
J A M B I	98	1
SUMATERA SELATAN	129	-
B E N G K U L U	63	1
L A M P U N G	117	1
SULAWESI SELATAN	372	1
SULAWESI TENGGARA	88	-
SULAWESI TENGAH	90	1
SULAWESI UTARA	90	1
KALIMANTAN SELATAN	117	1
KALIMANTAN TENGAH	68	1
KALIMANTAN BARAT	137	1
KALIMANTAN TIMUR	27	-
NUSA TENGGARA BARAT	100	1
NUSA TENGGARA TIMUR	41	-
B A L I	68	1
M A L U K U	24	-
IRIAN JAYA	34	-
TIMOR TIMUR	1	-
TOTAL	4,654	18

Source: Department of Trade and Cooperative

Table 22 Paddy (Rough Rice) Quality Specifications for Government Purchases 1969/1970-1980/1981

	1969/197C	1970/1971	1971/1972	1972/1973	1973/1974	1974/1975	1975,1976	1976/1977	1977/1978	1978/1979 1980/1981
1. Moisture Content (%)	14	14	14	14	14	14	14	14	14	14
2. Empty Kernels (%) *)	4	4	4	4	4	3*)	3*)	3*)	3*)	3*)
3. Foreign matters (%)	-	-	-	-	-	-	-	-	-	-
4. Cracked grains (%)	-	-	-	-	-	3	-	-	-	-
5. Yellow & Damaged Kernels (%)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	3	3	3	3	3
6. Chalky Kernels (%) **)	-	-	-	-	-	3	3	3	3	5**)
7. Immatured grains (%)	-	-	-	-	-	-	-	-	-	-
8. Red Kernels (%)	-	-	-	-	-	-	3	-	-	3
9. Crop Year	1969/70;1970	1971/71;1971	1971/72;1972	1972/73;1973	1973/74;1974	-	-	-	-	-
10. No odor	v	v	v	v	v	v	v	v	v	v
11. Free from Insects, diseases molds	v	v	v	v	v	v	v	v	v	v.
12. Decree/Instruction Number by Head of BULOG	05/04/1969 April,1969	67/04/1970 April,1970	-	06/03/1972 Mar.31,'72	48/KA/03/73 Mar.10,1973	28/KA/02/74 Feb.,1974	09/11/74 Nov.,19,'74	253/KA/12/75 Dec.,9,1975	05/KA/01/77 Jan.,5,1977	253/KA/12/77 Dec.,19,1977

*) Empty Kernels + Foreign Matters (Impurities)
**) Chalky + Immatured Grains.

Source: National Logistic Agency (BULOG)

Table 23 BULOG's Quality Specification of Secondary Crops

Components / Commodities	Moisture content (%)	Brokens & impurity (%)	Damaged kernels (%)	Others colours (%)	Split (%)	Impurities	Mouldy	Shrivelled kernels	Diameter (mm)
Corn	14,0	3,0	5%	10,0	-	-	-	-	-
Soybean	14,0	-	3,0	5,0	3,0	3,0	free	5,0	-
Ground nuts	7,0	-	2,0	-	6,0	1,0	free	5,0	> 6
Mungbean	14,0	-	3,0	-	2,0	1,0	free	-	-

Source: National Logistic Agency (BULOG).

Table 24 Domestic Procurement of Rice
(in ton of milled rice equivalent)

Year		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1969	J	-	-	-	303	15,724	40,657	32,498	9,110	16,259	4,861	792	28,562	148,766
	OJ	-	-	-	6,250	6,899	6,461	8,529	5,028	4,993	8,471	4,331	4,409	55,171
1970	J	397	5,785	7,392	15,720	37,054	60,160	66,230	42,199	40,496	35,097	25,271	32,533	372,682
	OJ	5,198	4,114	13,787	5,621	4,907	10,334	12,272	13,402	14,387	12,218	13,274	11,141	120,655
1971	J	20,712	9,158	25,135	19,451	49,494	104,169	81,321	86,059	72,801	36,263	11,389	6,479	522,431
	OJ	8,761	4,737	8,849	1,543	7,742	8,956	5,215	6,834	6,287	10,456	16,764	8,107	94,251
1972	J	2,908	4,320	3,713	-	6,403	33,093	30,661	23,491	15,715	6,717	3,788	1,435	132,245
	OJ	6,644	3,355	2,331	-	-	9,722	2,978	1,572	1,255	204	-	-	28,062
1973	J	125	-	691	46	21,986	74,923	76,209	28,054	15,179	6,344	1,537	524	225,618
	OJ					636	5,994	7,861	4,301	3,561	6,751	6,476	1,462	37,042
1974	J	2,124	1,875	631	19,619	94,247	95,373	112,828	78,166	39,494	27,387	12,001	195	483,940
	OJ	564	287	824	2,858	4,709	6,222	6,738	4,673	4,143	4,755	8,316	2,911	46,500
1975	J	459	76	3,970	37,588	105,412	109,183	84,784	42,106	8,968	1,231	887	25	394,689
	OJ	809	1,387	5,214	15,527	19,328	23,111	19,328	9,872	10,080	15,900	16,896	7,131	144,583
1976	J	44	-	37	63,260	107,586	61,632	26,659	4,745	405	-	128	-	394,689
	OJ	1,424	2,539	7,632	13,985	18,704	15,969	13,805	11,320	14,236	-	-	-	99,614
1977	J	23	-	17,670	109,542	84,085	52,716	23,750	5,696	487	4	1,798	-	293,927
	OJ	2,342	4,316	6,291	11,653	17,049	22,694	17,901	18,109	16,716	11,398	1,094	416	129,973
1978	J	-	-	5,935	118,894	241,090	155,135	66,618	47,611	13,999	1,575	69	-	650,926
	OJ	224	3,364	1,482	11,653	40,853	36,967	29,714	20,636	20,847	26,705	14,752	7,899	215,096
1979	J	-	-	5,014	41,164	75,214	32,586	4,127	1,792	165	-	-	-	160,062
	OJ	1,636	5,156	14,527	24,306	37,515	27,728	15,386	8,795	7,343	12,668	9,257	6,687	171,004
1980	J	-	1,406	96,536	302,242	325,296	189,885	176,114	115,281	-	-	-	-	1,206,760
	OJ	2,715	8,872	16,518	38,675	60,483	54,367	40,344	32,136	-	-	-	-	1,460,870

Source: BULOG

Notes: J = Java (West Java + Central Java + East Java + Jogyakarta + Jakarta)

Table 25 Actual Land Area of Rice Field in D.I. Aceh, 1980

Kabupaten	Land area of district	Land area of rice field	Rice field (%)
	ha	ha	
Aceh Besar*	324,000	21,044	6.50
Pidie	341,500	38,405	11.25
Aceh Utara	475,000	48,372	10.18
Aceh Tengah	557,500	10,551	1.89
Aceh Tenggara	963,500	22,000	2.28
Aceh Timur	776,000	24,945	3.21
Aceh Barat	1,210,000	29,439	2.43
Aceh Selatan	891,000	16,011	1.80
Total	5,539,000	210,767	3.81

* Included Banda Aceh city and Sabang

Source: Agricultural statistic, Province Aceh in 1980.

Table 26 Average Seeding of Rice in D.I. Aceh during 1974 to 1978

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
	%	%	%	%	%	%	%	%	%	%	%	%	%
Aceh Besar	3.63	1.85	2.04	2.56	0.95	0.31	0.71	4.46	18.13	28.03	20.61	16.72	100
Sabang	-	-	-	-	-	-	-	-	-	-	-	-	
Pidie	24.25	22.12	12.19	7.27	3.27	2.94	6.87	4.49	1.52	3.36	3.81	7.91	100
Aceh Utara	15.17	10.16	3.48	0.56	0.88	4.50	3.19	2.60	2.25	5.82	27.31	24.08	100
Aceh Tengah	20.31	5.76	2.17	0.38	0.14	0.93	0.69	0.59	-	11.84	21.70	35.49	100
Aceh Timur	2.50	0.04	0.03	0.26	1.14	0.90	0.45	2.28	13.29	25.70	38.84	14.57	100
Aceh Tengara	7.65	3.36	4.16	5.80	5.10	7.57	5.18	5.39	11.21	22.82	11.67	10.09	100
Aceh Barat	0.07	-	-	0.12	0.01	-	0.63	12.45	38.35	33.76	13.78	0.83	100
Aceh Selatan	0.08	1.11	1.36	3.02	5.04	9.37	13.95	34.74	18.63	9.55	3.15	-	100
Average	9.21	5.55	3.18	2.50	2.07	3.31	3.96	8.37	12.92	17.61	17.61	13.71	100

Source : Agricultural statistics, Province Aceh

Table 27 Variety of Rice in Pidie - 1981

(ha)

No. :	Name of Kecamatan :	IR 36	IR 38	Citarum	Cisadane	Cimandiri	Semeru	PB.28	Total	Other variety
	Bd. Dua	1.100	-	-	1	1	150	125	1500	123
	U l i m	815	20	-	-	-	-	16	851	
	Meureudu	1.200	15	-	5	2	272	-	1500	6
	Tr. Gadeng	54	-	-	-	1	-	5	60	
	Total	3.168	35	-	6	4	422	146	3911	

Sources : Department of Agriculture in Kahupaten Pidie

Table 28 Classification by Irrigation of Rice Field D.I. Aceh in 1980

(ha)

	Total area of Rice field	Irrigation		Rain feded
		1/2 Federal Budget	Desa irrigation	
Aceh Besar*	21,044	4,934	5,652	10,458
Pidie	38,405	2,500	34,820	1,085
Aceh Utara	48,372	15,002	10,430	22,940
Aceh Tengah	10,551	-	8,031	2,520
Aceh Tenggara	22,000	-	21,033	967
Aceh Timur	24,945	5,962	5,101	13,882
Aceh Barat	29,439	915	19,104	9,420
Aceh Selatan	16,011	3,581	11,930	500
Total	210,767	32,894	116,101	61,772

* Included Banda Aceh city and Sabang

Source : Agricultural statistics, Province Aceh in 19[illegible]

Table 29 Monthy Rainfall during 1974-1978

(mm)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Aceh Besar	104	79	104	157	107	82	94	47	167	156	205	212	1,504
Aceh Pidie	101	123	90	70	80	37	69	64	77	113	603	238	1,136
Aceh Utara	54	80	70	109	109	102	96	97	100	110	147	196	1,271
Aceh Timur	77	77	53	84	155	112	149	143	174	163	259	291	1,725
Aceh Barat	189	217	224	316	308	172	293	155	259	245	310	163	2,853
Aceh Selatan	203	256	248	300	161	150	217	186	230	375	333	291	2,950
Average	121.3	138.7	131.5	72.7	153.3	109.2	153.0	115.3	167.8	193.7	309.5	231.8	1,906.5

Table 30 Monthy Rainy Days during 1974-1978

(days)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Aceh Besar	5	4	6	7	7	8	9	7	15	8	13	10	97
Aceh Pidie	7	7	8	7	8	4	7	6	6	8	9	11	84
Aceh Utara	4	5	4	5	5	4	5	5	7	7	8	8	67
Aceh Timur	4	4	3	5	7	6	7	7	7	7	10	10	76
Aceh Barat	8	11	11	13	13	9	13	10	11	13	13	11	136
Aceh Selatan	9	9	10	12	8	7	9	8	11	13	12	11	118
Average	6.2	6.7	7.0	8.2	8.0	6.3	8.3	7.2	9.5	9.3	10.8	10.2	96.3

Table 31 Preliminary Figures on the Rice Production Province Aceh in 1980

Kabupaten/ city	Cultivated area (ha)							Production (M/T)							Share of Province
	New Bimas		Common Bimas		Non-intensification	Upland	Total	New Bimas		Common Bimas		Non-intensification (1980)	Upland (1980)	Total	
	1979/80	1980	1979/80	1980				1979/80	1980	1979/80	1980				%
Aceh Basar	2,017.60	361.50	5,707.75	1,651.00	13,091.15	85	22,914	10,895.04	2,169.00	23,972.55	8,255.00	37,964.34	144.50	83,400.43	10.3
Sabang	-	-	-	-	-	229	229	-	-	-	-	-	412.20	412.20	0.1
Pidie	1,376.45	-	29,760.05	1,280.00	8,187.50	-	40,604	11,011.60	-	142,849.24	7,808.00	27,837.50	-	189,505.34	23.3
Aceh Utara	3,249.00	2,458.50	10,861.75	3,038.00	21,638.25	1,879	43,124.50	22,418.10	19,668.00	48,877.88	15,190.00	73,570.05	3,945.90	183,669.93	22.6
Aceh Tengah	117.12	-	824.00	-	9,204.88	325	10,471	468.48	-	2,884.00	-	21,171.22	585.00	25,108.70	3.1
Aceh Timur	600.50	700.00	6,558.50	1,903.50	20,044.00	300	30,106.50	3,302.75	4,550.00	26,234.00	9,136.80	60,132.00	600.00	103,955.55	12.8
Aceh Tenggara	987.00	153.50	3,527.00	289.00	9,075.50	7,361	21,393	4,835.30	982.40	14,466.70	1,445.00	25,411.40	14,722.00	61,857.80	7.6
Aceh Barat	721.00	35.00	776.50	1,127.50	30,675.00	1,886	35,221	3,244.50	227.50	3,106.00	5,412.00	82,822.50	3,583.40	98,395.90	12.1
Aceh Selatan	1,250.98	109.00	2,121.58	549.50	14,126.94	3,254	21,412	6,254.90	675.80	8,486.32	2,747.50	41,215.63	6,508.00	65,888.15	8.1
Total	10,319.65	3,817.50	60,137.13	9,838.50	126,043.22	15,319	225,475	62,431.67	28,272.70	270,869.69	49,994.30	370,124.64	30,501.00	812,194.00	100.0

Sources : Agricultural statistics, Department of Agriculture, Province Aceh

Table 32 Sensus of Farm Size and Ownership in West Jawa

Sensus 1980

Kabupaten/ City	Population	Owner farmer			Tenant farmer			Owner and part of tenant			Total No. of Farmer	Agricultural Labourer
		Less 0.25 ha.	0.25-0.50 ha.	Over 0.50 ha.	Less 0.25 ha.	0.25-0.50 ha.	Over 0.50 ha.	Less 0.25 ha.	0.25-0.50 ha.	Over 0.50 ha.		
Kabupaten												
1. PANDEGLANG	694,759	25,008	22,035	26,467	10,488	8,517	2,965	3,244	5,525	6,174	110,423	44,655
2. LEBAK	682,868	29,850	30,099	37,730	6,335	5,016	2,360	1,893	3,871	5,269	122,423	42,467
3. BOGOR	2,493,843	113,279	39,217	26,938	18,940	7,351	3,047	6,844	7,258	7,880	230,754	95,167
4. SUKABUMI	1,517,631	88,233	40,240	39,771	25,641	9,312	4,118	9,879	9,014	7,265	233,473	148,512
5. CIANJUR	1,387,578	72,201	36,079	35,058	35,946	11,061	3,134	7,796	7,871	6,765	215,911	151,310
6. BANDUNG	2,669,200	106,292	38,123	28,864	42,802	12,830	4,223	12,822	10,593	8,228	219,777	185,550
7. GARUT	1,483,035	93,876	34,896	27,138	24,204	7,206	1,583	9,496	8,400	5,278	212,077	141,757
8. TASIKMALAYA	1,593,189	103,183	45,963	41,115	24,054	7,484	1,790	13,921	11,945	10,208	259,663	123,065
9. CIAMIS	1,367,578	103,253	56,725	50,115	25,007	7,565	1,941	12,311	13,139	9,501	279,557	132,884
10. KUNINGAN	786,414	44,240	24,183	13,480	12,004	5,608	1,101	4,909	7,234	5,659	118,458	63,372
11. CIREBON	1,331,690	16,375	19,793	18,061	7,710	10,805	5,215	1,302	2,381	4,703	86,345	157,210
12. MAJALENGKA	897,722	55,438	27,190	18,090	12,220	7,043	2,065	3,740	6,395	6,717	138,898	115,136
13. SUMEDANG	723,627	59,034	21,893	15,201	14,707	4,178	935	10,072	7,974	5,677	139,671	56,792
14. INDRAMAYU	1,237,450	28,659	23,142	31,587	9,205	13,052	8,324	1,451	3,565	10,466	129,451	181,081
15. SUBANG	1,065,251	52,371	28,641	30,012	9,037	7,960	5,688	2,607	3,808	5,572	145,696	126,350
16. PURWAKARTA	457,973	24,880	12,060	10,229	4,484	1,865	609	1,720	2,117	2,077	60,041	40,477
17. KARAWANG	1,236,604	16,177	17,034	30,968	11,060	19,196	14,183	1,158	2,256	6,615	118,647	138,161
18. BEKASI	1,143,463	33,978	15,136	17,869	8,017	9,421	7,194	1,641	1,958	4,366	99,580	65,889
19. TANGERANG	1,529,024	52,659	22,520	18,183	9,677	6,170	2,384	1,889	2,196	3,094	118,772	40,060
20. SERANG	1,109,186	40,290	30,680	26,214	13,142	11,693	4,954	4,604	8,981	10,010	150,568	42,317
City												
21. BOGOR	246,946	429	114	183	140	54	19	9	12	29	989	80
22. SUKABUMI	109,898	690	283	209	310	109	36	49	37	26	1,749	175
23. BANDUNG	1,461,407	2,677	1,067	1,279	868	345	133	149	137	99	6,754	835
24. CIREBON	223,504	571	338	185	153	95	26	14	19	86	1,487	1,844
TOTAL	27,453,525	1,163,643	587,451	544,946	326,191	173,936	78,027	113,520	126,686	131,764	3,246,164	2,095,146

Source: Sensus 1980

Table 33 Harvested Land Area and Production of Paddy in West Jawa

Kabupaten	1979/80 Rainy season			1980 Dry season			1980 Total		
	Area (ha)	Yield (M/T)	Production M/T	Area (ha)	Yield (M/T)	Production M/T	Area (ha)	Yield (M/T)	Production M/T
1. SERANG	63,998	2.781	177,979	12,284	3.021	37,122	76,282	2.819	215,101
2. PANDEGLANG	52,840	2.767	146,259	8,637	3.542	30,596	61,477	2.876	176,855
3. LEBAK	40,536	2.054	83,274	4,713	2.757	12,995	45,249	2.127	96,269
4. TANGERANG	56,057	2.845	159,536	26,340	3.550	93,507	82,397	3.077	253,043
5. BEKASI	61,624	2.818	173,709	30,345	3.600	109,242	91,969	3.076	282,951
6. KARAWANG	150,185	3.908	587,025	28,925	3.920	113,386	179,110	3.910	700,411
7. PURWAKARTA	22,538	3.150	71,009	6,863	4.110	28,173	29,401	3.373	99,182
8. SUBANG	119,023	4.241	504,890	19,740	3.899	76,887	138,763	4.192	581,777
9. BOGOR	67,289	2.977	200,344	27,565	3.856	106,318	94,854	3.232	306,662
10. SUKABUMI	64,787	3.453	223,743	20,972	4.394	92,151	85,759	3.683	315,894
11. CIANJUR	68,676	3.466	238,034	26,715	4.092	109,318	95,391	3.641	347,352
12. BANDUNG	85,288	3.586	305,859	37,819	3.980	150,551	123,107	3.707	456,410
13. SUMEDANG	48,470	3.851	186,699	13,043	4.395	57,324	61,513	3.967	244,023
14. GARUT	64,552	3.562	229,953	27,625	3.960	109,399	92,177	3.681	337,352
15. TASIKMALAYA	67,381	3.430	231,125	32,841	3.968	130,335	100,222	3.606	361,460
16. CIAMIS	73,682	3.959	291,765	30,324	4.028	122,175	104,006	3.979	413,940
17. CIREBON	75,046	4.234	317,754	3,407	4.215	14,361	78,453	4.233	332,115
18. KUNINGAN	40,976	4.007	164,290	9,394	4.078	38,318	50,370	4.022	202,608
19. MAJALENGKA	71,375	4.359	311,180	7,013	4.135	28,999	78,388	4.339	340,179
20. INDRAMAYU	184,213	3.689	679,567	2,095	2.727	5,715	186,308	3.678	685,282
TOTAL	1,488,536	3.549	5,283,991	371,660	3.946	1,466,872	1,860,196	3.629	6,750,866

Source: Data from Dinas Pertanian in West Jawa

Table 34 Intensification of Rice Field in West Jawa

(ha)

	Dry season 1980 crop			Rainy season 1980/81 crop		
	INSUS		Cultivated Rice field Total	INSUS		Cultivated Rice field Total
	Target	Reality		Target	Reality	
1. SERANG	8,000	9,920	16,690	40,000	36,332	66,658
2. PANDEGLANG	9,000	7,661	15,835	26,000	25,659	41,740
3. LEBAK	2,500	3,077	5,974	16,000	11,818	30,296
4. TANGERANG	17,000	17,906	28,830	50,000	47,550	55,772
5. BEKASI	36,000	38,122	44,000	53,000	56,445	66,409
6. KARAWANG	87,500	95,808	102,855	98,000	98,865	102,226
7. PURWAKARTA	8,500	6,447	9,454	12,000	12,101	15,889
8. SUBANG	67,500	71,707	76,835	78,000	82,096	82,870
9. BOGOR	25,000	32,971	36,167	58,000	65,056	68,309
10. SUKABUMI	20,000	29,305	30,640	45,000	34,892	36,184
11. CIANJUR	25,000	36,329	39,831	50,000	51,466	53,354
12. BANDUNG	23,500	42,369	47,741	60,000	64,729	67,650
13. SUMEDANG	18,500	25,553	25,553	32,000	34,904	34,904
14. GARUT	35,000	34,946	35,152	38,000	40,218	40,218
15. TASIKMALAYA	31,000	27,089	27,089	35,000	41,471	41,471
16. CIAMIS	24,000	28,642	49,493	38,000	45,839	51,154
17. CIREBON	14,500	30,786	30,786	55,000	51,945	51,945
18. KUNINGAN	13,500	16,412	16,412	22,000	28,833	28,833
19. MAJALENGKA	11,500	29,594	30,444	47,000	46,782	46,782
20. INDRAMAYU	37,500	83,442	85,850	107,000	112,630	112,630
TOTAL	515,000	668,086	755,631	960,000	989,631	1,095,294

Source: Dinas Pertanian of West Jawa

Table 35 Monthly Rainfall in West Jawa. 1978

(mm)

No.	Kabupaten	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	Serang	570	247	279	308	87	98	24	184	153	130	40	370	2.490
2.	Pandeglang	278	162	305	138	213	230	-	278	335	216	204	245	2.604
3.	Lebak	370	97	276	237	119	246	204	83	156	179	60	235	2.262
4.	Tanggerang	304	319	198	89	72	178	143	48	27	43	48	87	1.556
5.	Bekasi	489	562	273	252	181	169	170	162	108	126	267	314	3.073
6.	Karawang	282	298	200	171	46	117	57	121	105	241	373	124	2.135
7.	Purwakarta	329	493	669	141	372	188	178	186	231	377	333	638	4.135
8.	Subang	413	493	-	344	218	108	164	196	119	119	285	277	2.736
9.	Bogor	572	482	551	224	330	376	261	576	553	479	489	442	5.335
10.	Sukabumi	273	-	482	433	438	483	253	483	155	264	350	462	4.076
11.	Cianjur	281	50	108	120	251	285	290	134	264	292	176	447	2.698
12.	Bandung	222	143	396	157	73	150	153	48	59	45	197	248	1.891
13.	Sumedang	369	326	400	171	171	191	191	135	29	70	187	295	2.535
14.	Garut	255	159	102	56	48	74	56	425	350	-	-	185	1.710
15.	Tasikmalaya	223	353	207	162	355	564	170	320	386	446	444	274	3.904
16.	Ciamis	201	331	288	145	559	416	198	130	218	583	280	226	3.575
17.	Cirebon	291	357	152	178	166	29	140	55	46	-	141	324	1.879
18.	Kuningan	293	252	94	133	216	149	105	53	71	123	124	253	1.866
19.	Majalengka	457	-	463	130	273	188	362	185	102	177	133	645	3.115
20.	Indramayu	287	558	209	218	72	217	41	196	-	47	42	195	2.082
	Average	338	316	297	190	213	223	158	200	173	198	209	314	2.783

Source: Data from Dinas Pertanian in West Jawa

Table 36 Occupation Sensus in West Jawa

Kabupaten/ City	Number of household	Store/ Trader	Industry/ Home industry	Cake Maker/ Restaurant	Others
Kabupaten					
1. PANDEGLANG	141,660	2,634	754	80	11,463
2. LEBAK	142,450	2,467	349	83	11,043
3. BOGOR	494,404	15,359	4,873	1,614	59,770
4. SUKABUMI	336,974	7,211	1,661	267	33,658
5. CIANJUR	313,497	7,093	1,193	1,095	33,492
6. BANDUNG	560,209	12,939	3,830	409	58,272
7. GARUT	315,528	5,442	1,071	218	30,940
8. TASIKMALAYA	352,892	7,750	2,168	121	35,881
9. CIAMIS	350,819	5,786	1,859	277	35,214
10. KUNINGAN	162,733	2,789	1,011	115	14,424
11. CIREBON	238,422	4,579	2,919	153	13,362
12. MAJALENGKA	210,680	3,281	3,166	81	17,868
13. SUMEDANG	182,776	2,892	1,258	85	16,096
14. INDURAMAYU	265,350	4,054	727	110	16,131
15. SUBANG	257,122	5,090	758	146	17,279
16. PURWAKARTA	101,777	2,827	470	117	9,267
17. KARAWANG	275,625	7,419	1,030	105	18,268
18. BEKASI	235,794	6,117	927	147	16,714
19. TANGERANG	291,886	6,667	2,070	408	39,714
20. SERANG	213,228	4,230	1,256	367	22,846
City					
21. BOGOR	42,371	1,572	441	83	4,537
22. SUKABUMI	21,000	1,251	248	89	2,289
23. BANDUNG	257,149	13,202	3,675	519	31,815
24. CIREBON	38,786	2,294	354	110	4,685
TOTAL	5,803,132	134,945	38,068	6,799	555,028

Source: Sensus 1980

Table 37 Yearly Rainfall in West Jawa

(mm)

No.	Kabupaten	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Serang	1.717	1.244	2.935	3.030	2.547	2.544	2.609	980	1.932	2.770	2.490
2.	Pandeglang	2.365	2.266	3.288	3.721	4.404	2.766	3.385	3.117	2.510	1.851	2.604
3.	Lebak	3.326	1.952	3.089	1.983	1.573	1.565	2.140	2.028	2.101	1.157	2.262
4.	Tanggerang	1.759	944	1.628	1.637	1.040	1.499	1.548	1.445	1.262	956	1.556
5.	Bekasi	1.383	959	1.879	3.066	1.852	2.684	1.763	1.367	1.865	2.509	3.073
6.	Karawang	1.695	1.155	1.828	2.565	1.924	2.061	1.923	2.287	1.118	2.104	2.135
7.	Purwakarta	-	1.880	2.158	2.117	1.987	2.499	2.754	2.772	3.016	2.919	4.135
8.	Subang	2.668	1.036	1.854	4.125	2.695	3.425	2.317	3.076	2.028	1.955	2.736
9.	Bogor	2.531	3.261	3.673	3.435	2.928	5.217	4.482	4.424	3.923	11.229	5.335
10.	Sukabumi	4.004	2.377	2.511	4.389	1.971	4.257	3.100	2.644	2.943	2.990	4.076
11.	Cianjur	2.671	2.122	3.141	1.914	1.645	2.778	2.419	1.982	1.401	2.074	2.698
12.	Bandung	2.047	1.528	1.892	2.285	1.212	2.844	1.817	2.452	1.926	1.788	1.891
13.	Sumedang	2.682	1.753	2.575	2.749	4.057	3.088	2.719	2.798	1.560	2.483	2.535
14.	Garut	2.134	2.193	2.834	2.878	2.362	2.888	1.531	2.298	1.841	1.529	1.710
15.	Tasikmalaya	5.104	2.499	2.582	3.798	3.832	6.905	4.546	3.665	3.223	2.151	3.904
16.	Ciamis	5.020	3.204	3.649	3.283	3.179	4.001	2.926	3.130	1.947	2.393	3.575
17.	Cirebon	2.834	1.286	2.434	2.497	1.199	1.945	1.642	1.940	1.990	1.441	1.879
18.	Kuningan	3.075	1.982	2.651	2.378	1.892	2.666	2.146	3.293	1.573	1.810	1.866
19.	Majalengka	3.400	2.107	3.011	3.417	2.001	3.194	2.064	3.926	2.478	4.074	3.115
20.	Indramayu	1.053	865	1.657	2.226	1.701	1.474	1.523	1.362	1.433	2.628	2.082
	Average	2.573	1.830	2.564	2.875	2.150	2.993	2.473	2.549	2.104	2.641	2.783

Table 38 Jawa Barat (1980)
(Kind of Tractor)

	Kind of Tractor			Hand Tractor		
Kabupaten	Large	Mini.	Total	Large	Mini.	Total
SERANG	11	6	17	-	-	-
PANDEGLANG	20	4	24	-	-	-
LEBAK	-	3	3	-	-	-
TANGERANG	46	9	55	-	-	-
BEKASI	178	7	185	-	-	-
KARAWANG	563	71	634	-	-	-
PERWAKARTA	8	-	8	-	-	-
SUBANG	339	6	345	8	3	11
BOGOR	9	3	12	-	-	-
SUKABUMI	1	6	7	-	-	-
CIANJUR	22	27	49	-	-	-
BANDUNG	276	72	348	44	7	51
SUMEDANG	103	19	122	3	5	8
GARUT	8	-	8	-	-	-
TASIKMALAYA	5	4	9	-	-	-
CIAMIS	6	-	6	-	-	-
CIREBON	83	4	87	-	-	-
KUNINGAN	13	-	13	-	-	-
MAJALENGKA	82	-	82	-	-	-
INDRAMAYU	485	51	536	-	-	-
TOTAL	2,258	292	2,550	55	15	70

Source : Data from Dinas Pertanian, Jawa Barat

Table 39 Annual Rainfall in South Sulawesi, 1980

(mm)

No.	Kabupaten	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1.	LUWU	40	x	x	136	120	165	61	74	22	181	222	155	1.176
2.	TATOR	84	130	137	326	131	125	81	15	25	48	149	117	1.368
3.	SOPPENG	143	137	143	307	261	106	10	69	0	93	99	271	1.635
4.	WAJO	8	6	50	460	509	471	82	74	-	30	86	85	1.861
5.	BONE	91	157	63	292	488	167	112	55	-	-	20	74	1.519
6.	SINJAI	233	183	184	548	702	437	77	115	-	4	76	539	3.098
7.	BULUKUMBA	66	98	22	108	261	103	17	4	-	20	-	66	765
8.	SELAYAR	104	76	124	222	251	24	2	3	-	42	39	352	1.239
9.	BANTAENG	84	146	67	103	270	125	15	34	-	3	25	183	1.055
10.	JENEPONTO	174	128	28	55	47	59	1	-	-	5	5	133	635
11.	TAKALAR	685	399	262	123	18	2	-	11	-	-	59	599	2.158
12.	GOWA	653	555	403	225	47	16	12	2	5	9	107	767	2.801
13.	U.PANDANG	717	578	433	228	94	34	1	10	-	54	179	940	3.268
14.	PANGKEP	752	478	572	399	76	12	-	10	56	33	144	872	3.404
15.	MAROS	x	x	562	x	x	x	x	x	x	x	x	x	x
16.	BARU	471	349	366	250	158	43	-	51	33	38	204	946	2.899
17.	PARE-PARE	379	261	183	390	77	166	3	13	10	106	35	616	3.239
18.	SIDRAP	144	151	82	392	133	131	14	-	3	68	48	292	1.458
19.	ENREKANG	0	0	49	530	75	203	23	46	60	55	70	85	1.200
20.	PINRANG	107	213	66	0	137	245	3	28	45	-	55	267	1.166
21.	POLMAS	70	261	27	7	272	246	50	93	12	460	233	173	1.904
22.	MAJENE	138	175	119	141	152	168	0	63	2	81	78	349	1.466
23.	MAMUJU	287	374	115	334	166	448	62	127	49	306	0	0	1.235

Source: Department of Agriculture, Sul-Sel.

Table 40 Agricultural Products in South Sulawesi, 1980

No.	Crop name	Planted area ha.	Damaged area ha.	Harvested area ha.	Production (P.K.G.) ton	Yield ton/ha.
1.	Wet season Paddy	452.093,76	10.557,90	443.105,86	1.806.085,14	4.08
2.	Dry season Paddy	163.927,20	4.085,75	146.200,03	729.951,58	4.99
3.	Upland rice	30.987,75	472,50	29.793,70	50.200,56	1.68
	Total	647.008,71	15.116,15	619.099,59	2.586.237,28	4.18
4.	Maize	332.640,87	7.292,30	351.340,28	294.050,79	0.84
5.	Cassava	35.394,42	863,85	34.518,81	270.988,56	7.85
6.	Sweet-potato	9.235,04	151,25	11.259,27	64.456,07	5.72
7.	Groundnut	55.989,93	564,59	49.382,57	35.499,59	0.72
8.	Mung Bean	64.329,31	7.572,93	70.264,87	46.301,38	0.66
9.	Soybean	14.700,92	2.214	17.618,25	12.801,75	0.73

Source: Department of Agriculture, Sul-Sel

Table 41 Planted Area, Harvested Area and Procurement 1974 up 1980 in South Sulawesi

Years	Planted Area (ha)	Harvested Area (ha)	Production ($\frac{\text{P.K.G}}{\text{ton}}$)	Yield ($\frac{\text{P.K.G}}{\text{ton/ha}}$)	Production in Milled Rice (ton)	Dolog Procurement in Milled Rice (ton)
1974	554,097.22	457,069.41	1,272,827	2.78	661,871	8,586
1975	566,024.84	546,061.16	1,769,993	3.24	920,376	72,186
1976	589,053.26	524,001.55	1,834,722	3.50	954,055	81,761
1977	565,143.32	539,072	2,011,685	3.73	1,046,076	61,525
1978	685,962.73	635,546	2,674,014	4.21	1,390,487	85,755
1979	607,465,43	613,388	2,348,457	3.83	1,221,198	61,941
1980	647,008.71	619,099.33	2,605,433.76	4.21	1,354,825.55	118,232

Source: DOLOG, Sul-Sel

Table 42-1 Irrigation Condition of Paddy Field in South Sulawesi. 1980 (1)

No.	KABUPATEN	Technical Irrigation Area (ha)			Semi Technical Irrigation Area (ha)			Village Irrigation Area (ha)		
		Single Cropping	Double Cropping	Total	Single Cropping	Double Cropping	Total	Singel Cropping	Double Cropping	Total
1.	Luwu	1,525	1,205	2,730	-	515	515	23,973	13,107.32	37,080.32
2.	Tator	-	-	-	-	600	600	3,522.25	2,025.75	5,548
3.	Soppeng	-	2,400	2,400	-	4,474	4,474	-	9,521	9,521
4.	Wajo	--	-	-	-	-	-	999	1,310	2,309
5.	Bone	1,373	3,555	4,928	300	1,236	1,536	4,275.70	3,804.30	8,080
6.	Sinjai	-	-	-	-	1,528	1,528	32	3,623	3,655
7.	Bulukumba	-	-	-	426	2,818	3,244	8,137	10,412	18,549
8.	Selayar	-	-	-	-	-	-	-	-	-
9.	Banteng	-	-	-	-	846	846	1,202	4,328	5,530
10.	Jeneponto	3,915	485	4,400	2,175	325	2,500	2,410	45	2,455
11.	Takalar	2,942.50	443.50	3,386	1,812	13	1,825	1,350	-	1,350
12.	Gowa	5,480.18	4,097	9,577.18	2,144	1,383	3,527	6,872.55	1,388	8,260.55
13.	KM. U. Pandang	-	-	-	-	-	-	350	-	350
14.	Maros	2,672	2,378	5,050	-	845	845	5,730	1,830	7,560
15.	Pangkep	697	3,126	3,823	621	200	821	1,410	1,880	2,290
16.	Barru	1,173	1,002.38	2,175.38	300	200	500	1,187	150	1,337
17.	KM. Pare-Pare	-	-	-	-	-	-	300	-	300
18.	Sidrap	63	18,423	18,459	6,316	4,399	10,715	5,438	-	5,438
19.	Pinrang	3,856	28,302.60	21,158.60	-	2,075	2,075	2,152	1,899	4,051
20.	Enrekang	-	-	-	-	-	-	1,979	1,524	3,503
21.	Polmas	-	3,913	3,913	811	600	1,411	4,742	1,471	6,213
22.	Majene	-	-	-	-	-	-	275	120	395
23.	Mamuju (x)	-	-	-	-	-	-	3,100	-	3,100
	Total	23,669.68	69,330.48	93,000.16	14,905	22,057	36,962	78,436.50	58,438.37	136,874.87

(x) Data in 1979

Source: Department of Agriculture, Sul-Sel

Table 42-2 Irrigation Condition of Paddy Field in South Sulawesi 1980 (2)

No.	KABUPATEN	Rain-fed Area (Ha)			Flood Area (Ha)			Total Paddy Field (Ha)		
		Single Cropping	Double Cropping	Total	Single Cropping	Double Cropping	Total	Single Cropping	Double Cropping	Total
1.	Luwu	12.746	1.303	14.049	276	-	276	38.520	16.130,32	54.650,32
2.	Tator	15.089	-	15.089	-	-	-	18.611,25	2.625,75	21.237
3.	Soppeng	3.4 17	2.355	5.772	-	-	-	3.417	18.750	22.167
4.	Wajo	67.946	333	68.279	-	-	-	68.945	1.643	70.588
5.	Bone	67.734,38	300	68.034,88	-	-	-	73.683,58	8.895,30	83.578,88
6.	Sinjai	5.822	946	6.768	-	-	-	5.854	6.097	11.951
7.	Bulukumba	775	728	1.503	-	-	-	9.338	13.958	23.296
8.	Selayar	806	-	806	-	-	-	806	-	806
9.	Bantaeng	345	-	345	-	-	-	1.547	5.174	6.721
10.	Jeneponto	4.440	-	4.440	-	-	-	12.950	855	13.795
11.	Takalar	9.489,05	-	9.489.05	-	-	-	15.593,55	456,50	16.050,05
12.	Gowa	8.857,12	-	8.857,12	-	-	-	23.353,85	6.868	30.221,85
13.	KM.U.Pandong	3.475	50	3.525	-	-	-	3.825	50	3.875
14.	Maros	9.770	143	9.913	-	-	-	18.172	5.196	23.368
15.	Pangkep	19.113	-	19.113	-	-	-	20.841	5.206	26.047
16.	Barru	7.408	2	7.410	-	53	53 x)	10.068	1.407,38	11.475,38
17.	KM. Pare-Pare	755,29	-	755,29	-	-	-	1.055,29	-	1.055,29
18.	Sidrap	10.546	-	10.546	-	-	-	22.336	22.822	45.158
19.	Enrekang	4.385	-	4.385	-	-	-	6.364	1.524	7.888
20.	Pinrang	10.032,17	-	10.032,17	-	-	-	16.040,17	32.276,60	48.316,77
21.	Polmas	12.021	-	12.021	-	-	-	17.574	5.984	23.558
22.	Majene	2.309	-	2.309	-	-	-	2.584	120	2.704
23.	Memuju x)	6.070	-	6.070	-	-	-	9.170	-	9.170
	Total:	283.351,51	6.160	289.511,51	276	53	329	400.638,69	159.038,85	556.677,54

Source: Department of Agriculture, SUL-Sel

Table 43 Classified Rice Cultivation Area according to the Variety in South Sulawesi, 1980

(ha)

No.	Kabupaten	VUTW I	VUTW II	Jumlah	Unggul baru	Unggul Bogor	Unggul Daerah Lokal	Galur	Total
1.	Luwu	3.118,37	10.947,86	14.066,23	5.453,77	625	2.824,75	4.594	27.563.75
2.	Tator	1.624,95	174,60	1.799,55	366,45	2.107	5.965	277	10.515
3.	Soppeng	7.889,64	8.272,52	16.162,16	3.152,54	-	2.084,75	708,55	22.108
4.	Wajo	32.236	22.784	55.020	1.765	-	10.691	584	68.060
5.	Bone	12.191,73	15.885,02	28.076,75	17.731,28	13.362,20	15.786,20	3.544,57	78.501
6.	Sinjai	1.185	1.311	2.496	4.828	1.003	3.110	20	11.457
7.	Bulukumba	9.170,16	2.373,80	11.543,96	1.199	-	795	262	13.799,96
8.	Selayat	-	-	-	-	-	-	-	-
9.	Bantaeng	920	3.024,25	3.944,25	406	9	456	10	4.825,25
10.	Jeneponto	366	127	493	51	-	287	24	855
11.	Takalar	295,65	122,85	418,50	3,50	26	-	8,50	456,50
12.	Gowa	656,70	351,21	1.007,91	756,95	906,18	697,52	59,44	3.428
13.	KM.U.Pandang	50	-	50	-	-	-	-	50
14.	Maros	479	2.002,17	2.481,17	90,08	439,09	254,40	14,87	3.270,50
15.	Pangkep	1.572,50	264	1.836,50	75	4	2	-	1.917,50
16.	Barru	386,30	316,21	402,51	250,60	-	-	-	953,11
17.	KM. Pare-Pare	-	-	-	-	-	-	-	-
18.	Sidrap	8.737,19	29.513	38.250,19	160,63	-	240,09	282,87	38.933,78
19.	Enrekang	1.097,55	1.807,90	2.905,45	454,50	147,80	1.664,10	181	5.352,85
20.	Pinrang	1.216,50	22.785,30	24.001,80	-	-	65,20	-	24.067
21.	Polmas	88	6.473	6.561	216	-	2.216	-	8.993
22.	Majene	74	-	74	-	-	-	-	74
23.	Mamuju	25	18	43	-	-	-	-	43
	Total	83.381,13	128.556,19	211.937,32	36.950,05	18.629,27	47.136,76	10.570,80	325.224,20

Source: Department of Agriculture, Sul-Sel

No.	Year	BIMAS (ha)	INMAS (ha)	Total (ha)	Project Achievement rate (%)	Growth rate (%)
PELITA I						
1.	1969/1970	47.548,80	13.190	60.738,80	78,37	-
2.	1970/1971	46.432,31	21.791,12	68.223,43	59,07	12,32
3.	1971/1972	28.006,58	82.780,34	110.786,92	55,35	62,39
4.	1972/1973	89.025,25	77.909,61	166.934,86	70,55	50,68
5.	1973/1974	87.116,65	58.286,89	145.403,54	57,65	12,90(-)
	Average/Year	59.625,92	50.791,59	110.417,50	62,07	28,12
PELITA II						
1.	1974/1975	95.033,83	17.680,26	112.714,09	50,09	-
2.	1975/1976	94.645,16	30.332,75	125.177,91	47,23	11,06
3.	1976/1977	114.578,99	66.134,07	180.713,06	68,22	44,36
4.	1977/1978	112.527,87	106.615,27	219.143,14	78,27	21,27
5.	1978/1979	110.762,96	143.202,37	253.965,33	89,11	15,89
	Average/Year	105.509,76	72.832,94	178.342,70	67,56	23,15
	Average (PELITA I+II)	82.567,84	61.812,27	144.380,11	65,35	20,29
PELITA III						
1.	1979/1980	70.958,57	155.072,98	226.031,55	102,79	
2.	1980/1981	74.647,58	205.675,47	280.323,05	118,78	

Source: Department of Agriculture South Sulawesi

Table 45 Milling Facilities in South Sulawesi, 1980

No.	Kabupaten	Big Rice Mill	Rice Mill Unit	Rubber Roll + Polisher	Engelberg	Total
1.	Luwu	-	25	114	526	665
2.	Tator	-	45	6	10	61
3.	Soppeng x)	2	72	9	927	1,010
4.	Wajo	3	159	4	764	930
5.	Bone	1	51	20	797	869
6.	Sinjai	-	25	-	65	90
7.	Bulukumba	2	84	35	163	284
8.	Selayar	-	-	-	-	-
9.	Bantaeng	-	26	25	36	87
10.	Jeneponto	-	56	2	30	88
11.	Takalar	-	16	-	136	152
12.	Gowa	-	5	-	220	225
13.	KM. Ujung Pandang	7	23	-	39	69
14.	Maros	3	49	-	318	370
15.	Pangkep	1	60	-	110	171
16.	Barru	-	14	4	271	289
17.	KM. Pare-Pare	4	2	-	32	38
18.	Sidrap	12	113	146	245	516
19.	Enrekang	-	48	-	63	111
20.	Pinrang x)	6	119	109	367	601
21.	Polmas	1	43	52	358	454
22.	Majene	-	-	25	-	25
23.	Mamuju	-	-	-	67	67
	Total	42	1,035	551	5,544	7,172
	(%)	0.58	14.43	7.68	77.31	100

Note: x) Data in 1979

Source: Department of Agriculture, South Sulawesi

Table 46 The Number of Threshers, Dryers and Cleaners in South Sulawesi. 1980

No.	KABUPATEN	Thresher			Dryer			Cleaner		
		Running	Need repair	Out of order	Running	Need repair	Out of order	Running	Need repair	Out of order
1.	Luwu	4	1	-	-	-	-	3	-	-
2.	Tator	-	-	-	-	-	-	-	-	-
3,	Soppeng	9	-	-	-	-	-	16	-	-
4.	Wajo	3	6	-	25	1	-	6	2	-
5.	Bone	-	-	-	3	-	-	-	-	-
6.	Sinjai	-	-	-	-	-	-	-	-	-
7.	Bulukumba	1	-	-	1	1	-	-	-	-
8.	Selayar	-	-	-	-	-	-	-	-	-
9.	Bantaeng	5	-	-	-	-	-	1	-	-
10.	Jeneponto	-	-	-	-	-	-	-	-	-
11.	Takalar	-	-	-	-	-	-	-	-	-
12.	Gowa	3	1	-	-	-	-	-	-	-
13.	K.M.U. Pandang	-	-	-	-	-	-	-	-	-
14.	Maros	13	-	-	2	-	-	4	-	-
15.	Pangkep	42	-	-	3	-	-	10	-	-
16.	Barru	-	-	-	-	-	-	1	-	-
17.	KM. Pare-pare	2	-	-	2	-	-	11	-	-
18.	Sidrop	-	7	-	-	1	-	3	-	-
19.	Enrekang	-	-	-	-	-	-	-	-	-
20.	Pinrang	-	-	-	1	1	-	-	-	-
21.	Pilmas	4	2	-	1	-	-	2	-	-
22.	Majene	-	-	-	-	-	-	-	-	-
23.	Mamuju x)	-	-	-	-	-	-	-	-	-
	Total	86	17	-	38	4	-	57	2	-

Source: Department of Agriculture, Sul-Sel

Table 47 The Number of Tractors in South Sulawesi, 1980

No.	KABUPATEN	Power tiller			Mini Tractor			Small Tractor			Medium Tractor			Big Tractor		
			Broken			Broken			Broken			Broken			Broken	
		Running	Need repair	Out of order	Running	Need repair	Out of order	Running	Need repair	Out of order	Running	Need repair	Out of order	Running	Need repair	Out of order
1.	Luwu	-	-	2	127	25	-	-	-	-	1	-	-	1	-	-
2.	Tator	-	-	-	14	1	-	10	-	-	-	-	-	-	-	-
3.	Soppeng	1	-	-	118	9	-	-	-	-	-	-	-	-	-	-
4.	Wajo	8	-	1	115	3	1	-	-	-	1	1	-	-	1	-
5.	Bone	1	-	-	53	2	-	-	-	-	-	-	-	-	-	-
6.	Sinjai	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.	Bulukumba	-	-	-	17	-	-	-	-	-	-	-	-	2	-	-
8.	Selayar	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
9.	Bantaeng	-	-	-	6	1	-	-	-	-	-	-	-	-	-	-
10.	Jeneponto	-	-	-	2	-	-	-	-	-	-	-	-	1	-	-
11.	Takalar	5	2	-	11	3	-	-	-	-	-	-	-	2	-	-
12.	Gowa	2	-	-	31	-	-	-	-	-	1	-	-	2	-	-
13.	KH.U.Pandang	-	-	-	4	-	-	-	-	-	-	-	-	3	-	-
14.	Maros	20	-	-	22	-	-	8	-	-	-	-	-	1	-	-
15.	Pangkep	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-
16.	Barru	-	-	-	27	1	-	-	-	-	-	-	-	-	-	-
17.	KM. Pare-pare	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.	Sidrap	-	-	-	314	6	1	-	-	-	-	-	-	2	4	1
19.	Enrekang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.	Pinrang	7	1	3	201	11	1	-	-	-	-	-	-	2	-	-
21.	Polmas	-	1	-	195	2	-	-	-	-	-	-	-	2	-	-
22.	Majene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.	Mamuju x)	1	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Total	45	4	7	1.279	64	3	18	-	-	3	1	-	19	5	1

Source: Department of Agriculture, Sul-Sel

Table 48 Wet Season Paddy Production in South Sulawesi 1980

(Unit : ton/PKG)

NO.	KABUPATEN	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL
1.	Luwu	-	373,40	-	2.717,53	48.995,50	46.168,13	392,01	-	-	-	-	-	98.646,57
2.	Tator	-	-	-	-	5.683,97	23.808,87	28.486,81	12.332,41	10.280,70	1.526,87	-	-	82.119,63
3.	Soppeng	-	-	-	-	-	446,91	28.604,44	60.617,38	12.228,94	989,07	-	-	102.886,74
4.	Wajo	-	-	-	-	-	-	7.667,63	218.520,06	60.138,76	5.355,35	-	-	291.681,80
5.	Bone	-	-	-	-	-	-	14.267,15	138.355,54	69.156,39	1.001,58	-	-	222.780,66
6.	Sinjai	-	-	-	-	868,66	3.492,23	203,92	5.539,61	13.895,97	1.950,46	-	-	25.950,85
7.	Bulukumba	-	-	-	-	-	-	-	376,59	13.148,46	27.210,26	1.641,69	-	42.377
8.	Selayar	-	-	-	-	1.442,92	753,27	-	-	-	-	-	-	2.196,19
9.	Bantaeng	-	-	-	-	-	-	573,50	511,70	662,79	3.350,08	9.824,43	1.062,05	15.984,55
10.	Jeneponto	-	-	-	448,95	9.631,77	29.392,94	1.582,35	-	-	-	-	-	41.056,01
11.	Takalar	-	-	14,50	10.873,81	37.404,28	10.280,60	-	-	-	-	-	-	58.573,19
12.	Gowa	-	-	1.572,38	36.018,94	65.394,55	31.189,96	-	-	-	-	-	-	134.175,83
13.	KM.U.Pandang	-	-	-	87,50	7.993,70	3.445,77	-	-	-	-	-	-	11.526,97
14.	Maros	-	-	30,87	28.671,13	41.365,86	13.284,80	-	-	-	-	-	-	83.352,66
15.	Pangkep	-	-	386,64	88.198,38	17.794,56	-	-	-	-	-	-	-	106.379,58
16.	Barru	-	-	-	5.298,36	57.750,97	2.688,51	-	50,85	-	-	-	-	65.788,69
17.	KM. Pare[2]	-	-	-	328,18	3.713,70	-	-	-	-	-	-	-	4.041,88
18.	Sidrap	-	-	-	-	-	-	8.991,23	81.063,15	65.782,98	23.588,99	-	-	179.426,35
19.	Enrekang	-	404,30	357,83	1.114,72	6.396,46	10.705,03	1.262,80	-	-	-	-	-	20.241,14
20.	Pinrang	-	-	-	-	-	-	784,09	10.191,90	33.228,22	36.201,01	29.967,51	14.130,51	124.503,24
21.	Polmas	3.432,50	4.741,44	11.087,70	16.575,75	15.059,36	26.742,70	1.623,93	1.172,10	-	-	-	-	80.435,48
22.	Majene	-	84,45	-	320,59	2.145,15	892,08	-	-	-	-	-	-	3.442,27
23.	Mamuji	-	110,32	567,14	2.625,96	5.010,11	204,33	-	-	-	-	-	-	8.517,86
	Total	3.432,50	5.713,91	14.017,06	193,279,80	326.651,52	203.496,13	94.439,86	528.731,29	278.523,21	101.173,67	41.433,63	15.192,56	1.806.085,14

Source: Department of Agriculture, Sul-Sel

Table 49 Dry Season Paddy Production in South Sulawesi. 1980

(Unit: ton/PKG)

No.	KABUPATEN	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1.	Luwu	-	-	-	-	-	-	351,90	4.751,70	6.345,72	20.742,79	30.198,99	17.696,56	80.087,66
2.	Tator	4.240,42	2.906,03	-	-	-	-	-	-	-	-	919,76	7.767,27	15.833,48
3.	Soppeng	141,33	9.081,05	25.600,48	19.941,15	15.847,25	1.001,08	-	-	-	-	-	1.546,99	73.159,33
4.	Wajo	71,65	609,61	917,10	-	40,81	649,12	-	-	-	-	-	-	2.298,29
5.	Bone	-	429,18	989,06	5.278,93	7.628,24	1.417,78	-	-	-	-	-	-	15.743,19
6.	Sinjai	1.648,27	-	-	1.059,71	10.138,99	-	-	-	-	738,37	2.300,10	2.780,05	18.665,49
7.	Bulukumba	-	-	-	11.853,27	43.701,62	15.199,13	1.614,98	-	-	-	-	-	72.369
8.	Selayar	-	-	-	-	-	-	-	-	-	-	-	-	-
9.	BantaEng	-	-	-	1.032,85	13.774,10	4.757,29	-	-	-	-	-	-	19.564,24
10.	Jeneponto	1.380,55	365,03	-	-	-	-	-	22,89	111,27	1.508,12	-	1.303,54	4.691,4
11.	Takalar	-	-	-	-	-	-	-	38,60	1.030,39	253,29	-	-	1.322,28
12.	Gowa	-	-	-	-	-	-	-	67,77	2.823,98	1.902,92	3.794,63	5.238,10	13.827,4
13.	KH. U. Pandang	-	-	-	-	-	-	-	-	17,70	113,60	-	-	131,3
14.	Maros	-	-	-	-	-	-	-	2.839,26	1.353,69	9.612,35	1.226,43	-	15.031,73
15.	Pangkep	-	-	-	-	-	-	-	2.307,82	5.860,53	319,15	44	-	8.531,5
16.	Barru	-	-	-	-	-	-	-	279,11	1.276,12	1.404,92	943,83	137,80	4.040,78
17.	KM. Pare2	-	-	-	-	-	-	-	-	-	-	-	-	-
18.	Sidrap	-	8.503,79	59.666,09	20.887,94	14.992,74	1.530,39	-	-	-	-	-	-	105.580,95
19.	Enrekang	-	-	-	-	-	-	2.640	5.923,44	2.740,42	3.732,12	1.367,18	1.130,78	17.533,94
20.	Pinrang	-	6.240,49	26.769	91.252,03	66.448,32	24.740,67	1.712,76	-	-	-	-	-	217.163,27
21.	Polmas	554,25	-	-	-	-	-	696,09	7.798,49	6.131,99	8.952,80	10.811,01	8.892,85	43.283.23
22.	Majene	-	-	-	-	-	-	-	-	280,80	169,96	-	-	450,76
23.	Mamuju	-	-	-	-	-	-	-	-	88,21	-	-	-	88,21
	Total	8.036,47	28.135,18	113.951,73	151.305,88	172.572,07	49.295,46	7.015,73	24.029,08	28.060,82	49.450,39	51.604,93	46.493,94	729.951,68

Source: Department of Agriculture, Sul-Sel

Table 50 Upland Rice Production in South Sulawesi 1980

(ton)

No.	KABUPATEN	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1.	Luwu	-	-	215	785	7.252,11	7.533,33	876,48	766,82	-	-	-	-	17.428,74
2.	Tator	-	-	-	-	-	-	-	-	-	-	-	-	-
3.	Soppeng	-	-	-	-	-	16,40	1.116,10	274,10	-	-	-	-	1.406,6
4.	Wajo	-	-	-	-	-	-	1.386,28	1.123,08	-	-	-	-	2.509,36
5.	Bone	-	-	-	-	-	-	985,32	2.541.84	-	-	-	-	3.527,16
6.	Shinjai	-	-	-	-	-	-	-	-	-	-	-	-	-
7.	Bulukumba	-	-	-	-	-	-	-	-	-	-	-	-	-
8.	Selayar	-	-	1.027,54	-	-	-	-	-	-	-	-	-	1.027,54
9.	Bantaeng	-	-	-	-	-	-	-	-	-	-	-	-	-
10.	Jeneponto	-	-	-	309,91	583,60	-	-	-	-	-	-	-	893,51
11.	Takalar	-	-	27,50	757,50	-	-	-	-	-	-	-	-	785
12.	Gowa	-	-	-	113,40	1.039,27	-	-	-	-	-	-	-	1.152,67
13.	KM.U.Pandang	-	-	-	-	-	-	-	-	-	-	-	-	-
14.	Maros	-	5	6,74	13,50	-	43,26	-	-	-	-	-	-	68,5
15.	Pangkep	-	-	-	923,57	162,99	-	-	-	-	-	-	-	1.086.56
16.	Barru	-	-	-	586,72	869,59	242,47	-	-	-	-	-	-	1.698,78
17.	K.M.Pare[2]	-	-	-	6,72	304,97	-	-	-	-	-	-	-	311,69
18.	Sidrap	7,50	-	-	-	-	-	-	429,94	-	-	-	-	437,44
19.	Enrekang	-	7,81	3,35	39,06	4,48	16,76	716,01	35,46	37,86	-	-	-	860,79
20.	Pinrang	-	-	-	-	149,64	-	-	-	-	-	-	-	149,64
21.	Polmas	177,01	679,79	614,81	87,20	3,80	117,60	-	-	-	17	16	344,14	2.057,35
22.	Majene	-	-	453,60	446,25	1.138,59	18,76	-	-	-	-	-	-	2.057,2
23.	Mamuju	971,93	536,56	5.905,21	5.315,39	-	12,94	-	-	-	-	-	-	12.742,03
	Total	1.156,44	1.229,16	8.253,75	9.384,22	11.509,04	8.001,52	5.080,19	5.171,24	37,86	17	16	344,14	50.200,56

Source: Department of Agriculture, Sul-Sel

Table 51. National Movement of South Sulawesi

Name of Port	1979/80(ton)	1980/81(ton)
Kenderi	7,658	3,150
Bau-Bau	4,000	4,300
Tarakan	3,800	8,700
Balikpapan	1,600	10,750
Samarinda	6,930	10,675
Palu	1,495	2,650
Toli-Toli	-	250
Ambon	2,800	5,380
Ternate	7,150	4,000
Pontianak	5,700	10,950
Palenbang	-	10,000
Bangka	-	7,000
Menado	-	20,000
Sorong	-	5,225
Fak-Fak	-	200
Medan	-	10,000
T. J. Pinang	-	3,700
Total	41,133	116,930

Source: Dolog
Sul-Sel.

Table 52 Status of the Population of South Kalimantan, 1980

No.	Kabupaten	Kecamatan	Desa	Area (km^2)	Total Household	Population	Population Density (person km^2)	Average Family Members
1.	BANJARMASIN	4	49	72,00	72.973	343.771	4.775	4.7
2.	BANJAR	13	177	6.228,25	64.281	332.899	53	5.2
3.	TANAH LAUT	5	63	2.149,75	23.481	112.456	53	4.8
4.	BARITO KUALA	11	102	3.284,00	34.943	167.754	51	4.8
5.	TAPIN	6	63	2.315,00	25.294	112.394	49	4.4
6.	HULU SUNGAI SELATAN	8	98	1.753,00	38.747	187.849	110	4.8
7.	HULU SUNGAI TENGAH	8	121	1.472,00	41.287	199.873	136	4.8
8.	HULU SUNGAI UTARA	11	134	2.771,00	47.868	234.241	85	4.9
9.	TABALONG	6	87	3.946,00	27.563	127.104	32	4.6
10.	KOTA BARU	17	201	13.043,50	35.384	176.936	14	5.0
	Total/RATA-RATA	89	1.095	36.984,50	411.821	1.996.277	54	4.8

Source: Province Statistics Office South Kalimantan

Table 53 Rainfall in Banjarbaru (1960 - 1976)

(Unit: mm)

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1960	351	438	296	155	346	99	189	64	135	80	362	186	2,701.5
1961	437	201	278	154	202	195	37	23	29	23	314	216	2,109.0
1962	530	412	273	259	229	155	113	90	98	208	529	215	3,111.0
1963	447	284	322	90	178	18	26	49	-	59	195	251	1,919.0
1964	410	249	193	155	187	128	334	69	213	182	406	122	2,648.0
1965	293	377	327	82	159	154	40	8	23	105	71	565	2,204.0
1966	549	454	349	294	96	127	57	80	54	272	264	544	3,140.0
1967	314	522	351	248	231	122	115	70	130	108	55	234	2,500.0
1968	712	209	408	321	158	244	230	136	197	186	411	286	3,498.0
1969	321	377	529	263	280	110	58	23	58	65	273	541	2,898.0
1970	505	483	880	441	452	399	111	88	140	27	145	601	4,272.0
1971	392	222	265	165	123	90	74	69	151	107	228	209	2,095.0
1972	184	128	120	258	125	37	18	4	-	8	135	361	1,378.0
1973	314	238	519	443	184	123	92	68	191	103	320	411	3,006.0
1974	155	308	20	22.1	86.9	151.7	184.6	143.3	166.5	300	273	157.5	1,968.6
1975	217.5	155.5	421	290	145	155	204	89	279	189	407	540	3,092.0
1976	591	343	277	94	103	110	-	51	3	307	542	388	2,809.0
Mean	395.4	317.7	342.8	219.7	193.2	142.2	117.7	66.1	124.5	137.0	290	342.8	2,689.1

Source: Institute of Meteology

Table 54 Rice Cultivation Area and its Production in South Kalimantan 1980

No.	Kabupaten	Planted Area ha	Damaged Area ha	Harvest Area ha	Yield ton/ha	Production (Stalk Paddy) ton	Rest ha
1.	Banjarmasin	3.172	-	3.172	2.300	6.295,650	-
2.	Banjar	61.538	491,5	60.964,5	2.248	137.067,160	82
3.	Tanah Laut	40.388,5	870,5	38.818	2.645	102.659,260	700
4.	Barito Kuala	75.646,5	984	74.662,5	2.131	159.078,374	-
5.	Tapin	29.677	633	29.044	3.153	91.575,300	-
6.	H.S. Selatan	25.114	2.478	17.300	3.880	67.132,930	5.336
7.	H.S. Tengah	26.514	261	24.817	3.436	85.277,188	1.436
8.	H.S. Utara	33.172	1.002	24.664	2.567	63.306,732	1.506
9.	Tabalong	17.860	55	24.664	3.025	53.413,550	149
10.	Kota Baru	19.498	1.167	18.331	2.187	40.094,205	-
	South Kalimantan	332.580	7.942	309.429	2.604	805.900,349	15.209

Source: Department of Agriculture Kal-Sel

Table 55 Paddy Production, Consumption and its Surplus in South Kalimantan

(GABAH KERING GILING)

(ton)

Year	Production	Consumption	Surplus
1981	675.308,480[x)]	492.234,013	183.074,467
1980	661.870.326	465.335,334	196.534,992
1979	590.033,437	453.574,342	136.509,095
1978	588.326,388	447.021,482	141.304,906
1977	524.563,403	436.836,971	87.726,432
1976	490.230,297	434.535,243	55.695,054

Consumption/Capita/Year = 217 G.KG

x) Estimation

Source: Department of Agriculture, KAL-Sel

Table 56 Production of Paddy Projected in 1981, 82, 83 Years in South Kalimantan (P.K.G.)

No.	Kabupaten/ Kotamadya	1981 (MT. 80/81 + MT. 81)			1982 (MT. 81/82 + MT. 82)			1983 (MT 82/83 + MT. 83)		
		Harvested ha.	Average kW/ha.	Production ton	Harvested ha.	Average kW/ha.	Production ton	Harvested ha.	Average kW/ha.	Production ton
1.	Banjarmasin	3.200	21,88	7.000,000	3.200	21,88	7.000,000	3.100	22,58	7.000,000
2.	Banjar	61.800	23,46	145.000,000	62.000	24,35	151.000,000	62.100	26,57	165.000,000
3.	Tanah Laut	39.000	27,18	106.000,000	39.500	27,59	109.000,000	39.800	28,14	112.000,000
4.	Barito Kuala	71.200	23,88	170.000,000	71.100	24,61	175.000,000	71.800	25,35	182.000,000
5.	Tapin	29.200	31,85	93.000,000	29.750	35,97	107.000,000	30.000	37,00	111.000,000
6.	H. S. Selatan	22.600	37,61	85.000,000	23.000	38.70	89.000,000	23.500	39,15	92.000,000
7.	H. S. Tengah	26.500	35,85	95.000,000	26.800	38,06	102.000,000	27.000	38,89	105.000,000
8.	H. S. Utara	30.200	32,78	99.000,000	30.700	33,22	102.000,000	30.750	33,82	104.000,000
9.	Tabalong	17.800	31,46	56.000,000	17.950	33,43	60.000,000	18.500	37,84	70.000,000
10.	Kotabaru	18.500	23,24	43.000,000	20.000	23,50	47.000,000	21.500	26,98	58.000,000
	Kal. Selatan	320.000	28,09	899.000,000	324.000	29,29	949.000,000	328.050	30,67	1.006.000,000

Note:
1. Bentuk hasil/produksi dalam padi kering giling.
2. Rencana peningkatan produksi thn. 1980 - 1981 = 4,59 %.
3. Rencana peningkatan produksi thn. 1981 - 1982 = 5,56 %.
4. Rencana peningkatan produksi thn. 1982 - 1983 = 6,01 %.

Source: Department of Agriculture, Kal-Sel

Table 57 Paddy Production by Each Type of Cultures in 1981

No.	Kabupaten/ Kotamadya	INSUS			INMUM			NON INTENSIFICATION			EXTENTED AREA			TOTAL		
		Harvested ha.	Average kW/ha.	Production ton	Harvested ha.	Average kW/ha.	Production ton	Harvested ha.	Average kW/ha.	Production ton	Harvested ha.	Average kW/ha.	Production ton	Harvested ha.	Average kW/ha.	Production ton
1.	Banjarmasin	-	-	-	50	24,00	120,0	3.150	21,84	6.880,0	-	-	-	3.200	21,88	7.000,0
2.	Banjar	-	-	-	28.500	27,00	76.950,0	33.240	20,44	67.942,0	60	18,00	108,0	61.800	23,46	145.000,0
3.	Tanah Laut	-	-	-	14.500	29,00	42.050,0	24.205	26,19	63.389,5	295	19,00	560,5	39.000	27,18	106.000,0
4.	Barito Kuala	-	-	-	21.500	27,00	58.050,0	48.500	22,71	110.150,0	1.200	15,00	1.800,0	71.200	23,88	170.000,0
5.	Tapin	1.775	52,00	9.239,0	19.906	34,00	67.680,4	7.479	21,41	16.013,6	40	19,00	76,0	29.200	31,85	93.000,0
6.	H. S. Selatan	1.631	54,00	8.807,4	14.750	39,43	58.157,5	6.219	29,00	18.035,1	-	-	-	22.600	37,61	85.000,0
7.	H. S. Tengah	3.130	56,00	17.640,0	19.000	34,42	65.405,0	4.340	17,50	11.935,0	10	20,00	20,0	26.500	35,85	85.000,0
8.	H. S. Utara	-	-	-	17.000	34,00	57.800,0	13.075	31,35	40.962,5	125	19,00	237,5	30.200	32,78	99.000,0
9.	Tabalong	831	55,00	4.570,5	9.500	31,39	29.819,40	7.419	29,00	21.515,1	50	19,00	95,0	17.800	31,46	56.000,0
10.	Kotabaru	-	-	-	8.500	25,99	22.090,0	9.700	21,00	20.370,0	300	18,00	540,0	18.500	23,24	43.000,0
	Kal. Selatan	7.387	54,48	40.247,9	153.206	31,21	478.122,3	157.327	23,98	377.192,8	2.080	16,52	3.437,0	320.000	28,09	899.000,0

Keterangan: Bentuk Produksi dalam Padi Kering Giling.

Source: Department of Agriculture, Kal-Sel

Table 58 Milling Facilities in South Kalimantan, 1980

No.	Kabupaten	Big Rice Mill P.P.B.	Small Rice Mill P.P.K.	Rice Mill Unit	Engelberg	Huller	Polisher	Total	Milling Capacity
1.	BANJARMASIN	9	59	8	-	-	1	77	31.65
2.	BANJAR	-	242	9	-	-	-	256	99.00
3.	BATOLA	-	121	3	-	-	-	124	58.67
4.	TANAH LAUT	-	75	-	-	-	-	75	25.89
5.	TAPIN	-	57	-	-	-	1	58	18.40
6.	HULU SUNGAI SELATAN	-	95	1	2	-	-	98	19.50
7.	HULU SUNGAI TENGAH	5	88	1	-	-	-	89	38.12
8.	HULU SUNGAI UTARA	-	117	3	-	16	-	136	40.87
9.	TABALONG	-	42	3	21	-	-	66	14.56
10.	KOTABARU	-	47	2	-	-	-	49	19.10
	KALIMANTAN SELATAN	14	943	30	23	16	2	1,028	365.76

Source: Dolog
South Kalimantan

Table 59 Number of PPL, REC, BRI, KIOS etc. 1981 in S. Kalimantan

	Number of Kabupaten	PPM	PPL	No. of Farmer Group	(Village Unit)	(REC)	BRI Unit Desa	Kios Saprodi KUD	Kios Saprodi Non KUD	K.U.D.
1.	Tabalong	8	29	241	41	3	4	27	-	7
2.	Hulu Sungai Utara	8	42	495	48	3	7	17	-	17
3.	Hulu Sungai Tengah	7	43	523	45	3	7	-	15	15
4.	Hulu Sungai Selatan	11	37	521	51	4	4	13	10	13
5.	Tapin	6	33	385	32	2	7	-	2	13
6.	Banjar	12	39	544	65	4	6	22	3	24
7.	Tanah Laut	8	46	576	54	3	5	2	5	8
8.	Barito Kuala	8	47	193	55	3	5	6	5	12
9.	Kotabaru	6	25	190	47	2	4	3	1	3
10.	Banjarmasin/ Propinsi	16	4	32	10	-	-	5	7	5
	Total	90	345		448	26	49	95	48	117

Source: Department of Agriculture KAL-Sel

Table 60 The Number of KUD in South Kalimantan

NO.	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Remarks
1. Banjarmasin	-	-	1	1	4	4	5	5	5	5	Specification of KUD, 1980
2. Banjar	-	-	9	9	10	17	21	21	21	21	- KUD Transimmigrant - 13
3. Tapin	-	-	7	7	12	13	13	13	13	14	
4. Hulu Sungai Selatan	-	-	8	8	11	14	14	13	15	15	- KUD Fishery - 1
5. Hulu Sungai Tengah	-	-	10	10	15	15	15	15	15	15	- KUD Rubber - 1
6. Hulu Sungai Utara	-	-	8	8	13	16	16	17	17	17	- KUD Paddy 102
7. Tabalong	-	-	3	3	5	5	5	6	6	6	Total 117
8. Barito Kuala	-	-	5	5	7	9	9	10	10	10	
9. Tanah Laut	-	-	5	5	7	8	8	9	10	10	
10. Kota Baru	-	-	-	2	3	3	3	4	4	4	
Total	-	-	56	58	87	104	109	113	116	117	

Source: KUD
Kal-Sul

Table 61 Status of DOLOG Rice Distribution in South Kalimantan
(April, 1980 - January, 1981)

(kg)

NO.	INSTANSI/ KESATUAN.	April 1980	May 1980	June 1980	July 1980	Aug. 1980	Sept. 1980	Oct. 1980	Nov. 1980	Dec. 1980	Jan. 1981	TOTAL
1.	Budget Group	586.061	148.612	663.961	544.619	619.874	396.769	741.073	483.522	414.059	712.750	5.311.300
2.	Social Office	8.000	9.000	4.000	5.000	13.000	7.000	12.000	10.000	16.500	12.000	96.500
3.	Prison	35.000	--	--	20.000	--	--	35.000	--	--	25.000	115.000
4.	Trans-imigrant	41.500	70.500	72.000	129.761	169.000	117.500	106.000	150.000	215.978	356.000	1.428.239
5.	Employee	60.000	60.000	90.000	--	60.000	60.000	--	60.000	950	59.050	450.000
6.	DOLOG Employee	4.710	4.750	4.770	5.942	6.536	5.266	5.286	5.476	5.306	5.316	53.358
7.	Emergency Release	--	20.463	46.090	--	5.327	693	28.215	--	10.385	9.082	120.255
8.	Market Operation	2.966.616	1.259.870	636.337	38.000	5.000	5.000	3.200	--	110.500	264.560	5.289.083
9.	Natural Surinkage	653	401	577	83	6.752	1.455	1.160	--	2.040	--	13.121
	Total	3.702.540	1.573.596	1.517.735	743.405	885.489	593.683	931.934	708.998	775.718	1.443.758	12,876,856

Source: Dolog South Kalimantan

Table 62 Estimated Food Consumption in South Kalimantan, 1981/1982

No.	KABUPATEN	Population			Milled Rice Consumption Capita/Year (KG)	Total Consumption Milled Rice Ton / Year	Crop Production	
		Child	Adult	Total				
1.	Banjarmasin.	175.565	168.206	343.771	140	48.127,940	Milled Rice	= 362.546,000 Ton
2.	Banjar	169.787	163.112	332.899	140	46.605,860	Maize	= 2.400,000 Ton
3.	Tanah Laut	55.937	56.519	112.456	140	15.743,840	Cassava	= 51.500,000 Ton
4.	Barito Kuala	86.711	81.043	167.754	140	23.485,560	Sweet-Potato	= 13.000,000 Ton
5.	Tapin	57.423	54.871	112.394	140	15.735,160	Sago	= --
6.	Hulu Sungai Selatan	96.024	91.825	187.849	140	26.298,860	Soybean	= 1.050,000 Ton
7.	Hulu Sungai Tengah	104.541	95.332	199.873	140	27.982,220	Groundnut	= 6.300,000 Ton
8.	Hulu Sungai Utara	122.272	111.969	234.241	140	32.793,740	Mung Bean	= 450,000 Ton
9.	Tabalong	64.596	62.508	127.104	140	17.794,560		-
10.	Kota Baru	85.000	91.936	176.936	140	24.771.040		-
	Kalimantan Selatan	1.017.956	977.321	1.995.277	140 KG.	279.338,780		

Consumption per Capita:
- Milled Rice = 140 kg.
- Maize = 11,14 kg.
- Cassava = 33,40 kg.
- Sweet Potato = 7,45 kg.
- Sago = --
- Tuberous Plant = 33,40 kg.

Source: Dolog
South Kalimantan

Table 63 Estimates of Losses in Rice Marketing in Indonesia by BULOG 1971 and Later

(in % of Production of Paddy)

Source of Loss	1971[1/]	Later Estimates
Harvesting & Threshing	8.0	
By ani-ani		1.93/3.16[3/]
By sickle		2.69/1.70[3/]
Threshing: Trampling by foot		0.45/0.68[3/]
Pedal threshing		0.58/4.92[3/]
Drying	2.0	[4/]
Storage		
Farmers godown	4.0	
Subsequent warehouse storage	1.0	
Milling	4.5	4.79[2/]
If pre-dried and cleaned at mill		2.82[2/]
All transport	5.5	
Total	25.0	

Sources:

1/ Estimates by BULOG, 1971, as reported by Weitz-Hettelsater, op. cit. p. 177.

2/ Eriyatno, System Modeling on Rice Milling Technology in Indonesia, 1979. On a regional basis in West Java, at Clamas the mill loss was 3.4% and at Ciawi 7.1%.

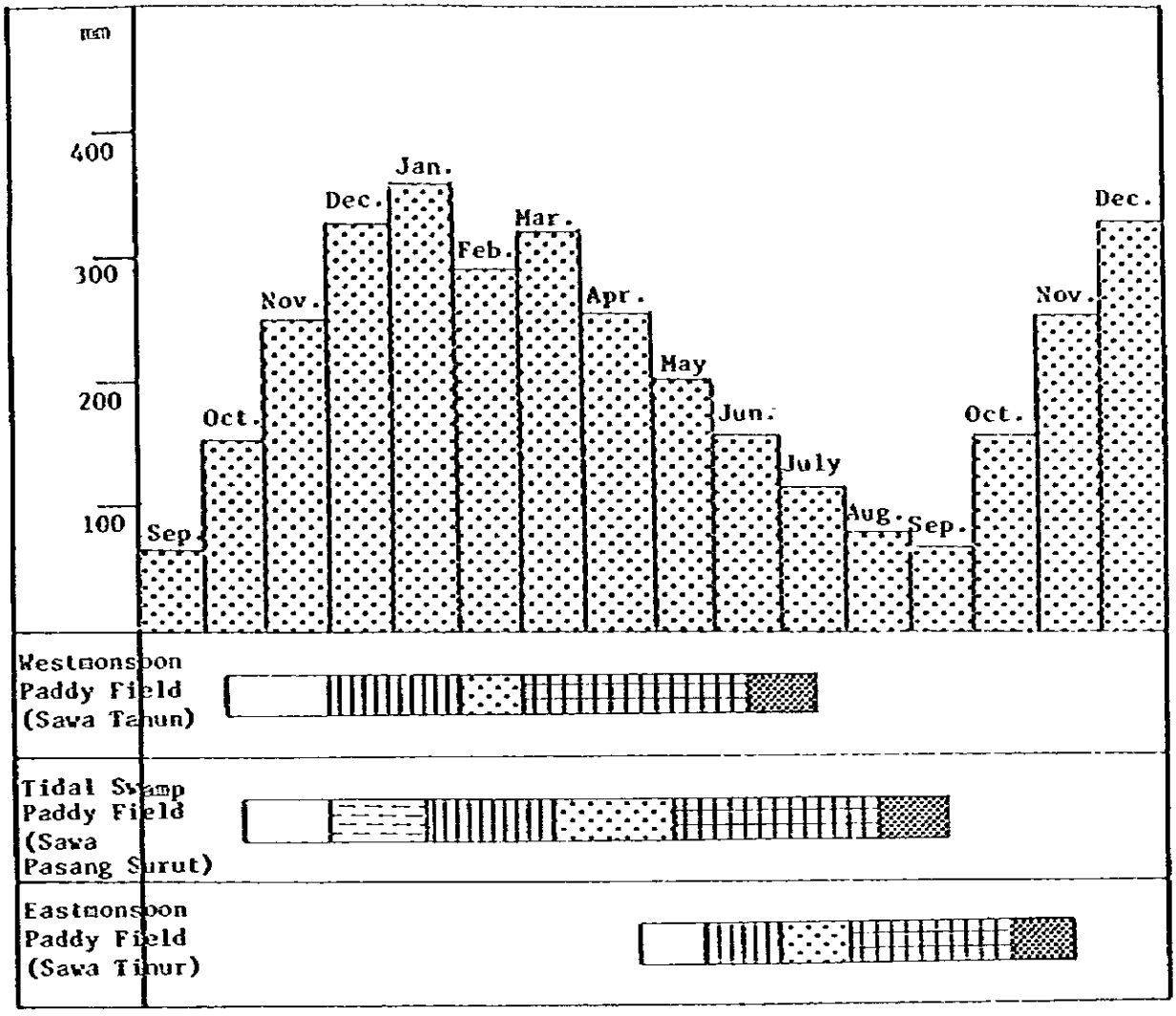
3/ Moeljarno Djojomartono, et at., In-Field Post-Rice Production Losses on Farm in West Java, paper presented at the Crains Post-Harvest Workshop, at BULOG, Jakarta, January 16/18, 1979.
The threshing losses varied depending on maturity of grain.

4/ Losses were negligible during drying but the sun-dried paddy produced 1% more head rice in milling compared with mechanical drying.

Table 64 Official Price Table for Paddy at Gate of KUD according to Quality, 1982/1983

Cost of Cleaning (Rp/kg)	Impurities (%)	Moisture Content (%)	Cost of Drying (Rp/kg)	0,00	0,60	1,20	1,80	2,40	3,00	3,60	4,00	4,40	4,80	5,20	5,60	6,00	6,40	6,80	7,20	7,60
				14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
0		3	Rp.	1,0000	0,9883	0,9768	0,9651	0,9535	0,9418	0,9301	0,9186	0,9070	0,9854	0,8837	0,8722	0,8604	0,8488	0,8371	0,8300	0,8139
			Rp.	135,--	132,83	130,67	128,49	126,32	124,16	121,98	120.01	118,04	116,08	114,10	112,13	110,17	108,19	106.22	104,85	102,28
0,75		4		0,9896	0,9781	0,9667	0,9552	0,9437	0,9322	0,9206	0,9091	0,8977	0,8662	0,8745	0,8631	0,8516	0,8400	0,8285	0,8271	0,8056
				132,86	130,71	128,85	126,40	124,25	122,10	119,93	117,98	116,03	114,07	112,12	110,17	108,22	106,26	104,31	103,71	100,41
		5		0,9794	0,9680	0,9566	0,9452	0,9338	0,9225	0,9111	0,8997	0,8884	0,.770	0,8644	0,8542	0,8427	0,8313	0,8199	0,8186	0,7972
				131,47	129,33	127,19	125,05	122,91	120,77	118,65	116,71	114,77	112,83	110,89	108,95	107,01	105,08	103,15	102,56	99,27
		6		0,9690	0,9577	0,9465	0,9352	0,9240	0,9128	0,9014	0,8902	0,8790	0,8677	0,8565	0,8451	0,8339	0,8225	0,8113	0,8000	0,7868
				130,08	127,95	125,83	123,71	121,58	119,46	117,35	115,42	113,50	111,59	109,66	107,74	105,83	103,90	101,97	100,05	97,87
1,50		7		0,9587	0,9475	0,8365	0,9254	0,9142	0,9031	0,8918	0,8808	0,8696	0,8585	0,8473	0,8362	0,8250	0,8137	0,8027	0,7915	0,7804
				127,94	125,83	123,73	121,61	119,52	117,40	115,98	113,39	111,50	109,58	107,69	105,77	103,87	101,96	100,06	91,15	96,25
		8		0,9484	0,9373	0,9265	0,9154	0,9043	0,8932	0,8823	0,8712	0,8602	0,8492	0,8382	0,8271	0,8160	0,8051	0,7940	0,7830	0,7720
				126,55	124,45	122,36	120,28	118,18	116,10	114,01	112,12	110,23	108,34	106,46	101,56	102,67	100,79	91,90	97,01	95,12
		9		0,9381	0,9272	0,9164	0,9054	0,8945	0,8835	0,8716	0,8618	0,8610	0,8400	0,8291	0,8182	0,8073	0,7964	0,7864	0,7745	0,7636
				125,14	123,07	121,--	118,93	116,85	114,79	112,71	110,84	108,97	107,10	145,23	103,34	101,47	99,60	97,73	95,86	93,99
		10		0,9276	0,9171	0,9063	0,8955	0,8846	0,8738	0,8631	0,8523	0,8614	0,8308	0,8200	0,8493	0,7984	0,7876	0,7768	0,7660	0,7552
				123,75	121,68	119,65	117,59	115,53	113,48	111,42	109,56	107,70	105,84	104,--	102,14	100,28	98,43	96,57	94,71	92,85
2,25		11		0,9173	0,9067	0,8961	0,8853	0,8747	0,8641	0,8533	0,8427	0,8321	0,8213	0,8107	0,8001	0,7893	0,7787	0,7681	0,7575	0,7468
				121,61	119,58	117,54	115,49	113,46	111,42	109,35	107,53	105,70	103,83	102,01	100,18	98,31	96,49	94,66	92,81	90,97
		12		0,9070	0,8966	0,8860	0,8755	0,8649	0,8544	0,8438	0,8332	0,8227	0,8121	0,8016	0,7910	0,7806	0,7700	0,7593	0,7490	0,7385
				120,22	118,20	116,17	114,16	112,13	110,11	108,06	106,23	104,43	102,61	100,78	98,93	97,13	95,31	93,48	91,67	89,85
		13		0,8967	0,8864	0,8760	0,8655	0,8550	0,8446	0,8343	0,8238	0,8133	0,8029	0,7924	0,7821	0,7716	0,7612	0,7507	0,7405	0,7300
				118,83	116,83	114,81	112,81	110,80	108,80	106,78	104,98	103,17	101,35	99,55	97,75	96,62	94,11	92,32	90,52	88,70
		14		0,8864	0,8761	0,8658	0,8555	0,8452	0,8349	0,8246	0,8143	0,8040	0,7936	0,7833	0,7730	0,7627	0,7524	0,7415	0,7320	0,7216
				117,44	115,45	113,46	111,47	109,48	107,49	105,48	103,69	101,90	100,11	98,32	96,53	94,74	92,95	91,16	89,37	87,57
		15		0,8761	0,8660	0,8558	0,8456	0,8353	0,8252	0,8150	0,8049	0,7947	0,7844	0,7743	0,7641	0,7540	0,7436	0,7335	0,7234	0,7133
				116,05	114,07	112,10	110,12	108,14	106,16	104,20	102,42	100,65	98,87	97,09	95,32	93,54	91,76	89,99	88,21	86,45
3,00		16		0,8658	0,8558	0,8456	0,8356	0,8256	0,8155	0,8055	0,7943	0,7853	0,7752	0,7652	0,7550	0,7450	0,7349	0,7249	0,7149	0,7049
				113,88	111,93	109,96	108,01	106,06	104,70	102,14	100,23	98,62	96,85	95,10	93,33	91,58	89,81	88,06	86,31	84,56
		17		0,8556	0,8456	0,8356	0,8256	0,8158	0,8058	0,7968	0,7860	0,7760	0,7660	0,7561	0,7461	0,7361	0,7263	0,7163	0,7064	0,6965
				112,51	110,56	108,61	106,66	104,73	103,38	100,97	99,11	97,36	95,61	93,87	92,12	90,37	88,65	86,90	85,16	83,43
		18		0,8452	0,8353	0,8256	0,8158	0,8060	0,7961	0,7863	0,7764	0,7666	0,7567	0,7469	0,7370	0,7273	0,7175	0,7076	0,6979	0,6881
				111,10	109,17	107,26	105,33	103,41	102,07	99,55	97,81	96,09	94,35	92,63	90,90	89,19	87,46	85,73	84,02	82,29
		19		0,8349	0,8252	0,8155	0,8058	0,7961	0,7864	0,7767	0,7670	0,7572	0,7475	0,7378	0,7281	0,7184	0,7087	0,6990	0,6894	0,6797
				109,71	107,80	105,89	103,98	102,07	100,76	98,25	96,55	94,82	93,11	91,40	89,69	87,98	86,27	84,57	82,87	81,16
		20		0,8246	0,8150	0,8055	0,7958	0,7863	0,7767	0,7670	0,7575	0,7480	0,7383	0,7287	0,7192	0,7095	0,7000	0,6904	0,6709	0,6613
				108,32	106,43	104,54	102,63	100,75	99,45	96,95	95,26	93,58	91,87	90,17	88,49	86,78	85,10	83,40	80,37	78,66

Source : Ministry of Trade and Cooperative



Source: H. Noorsyamsi and Omar, 0.19 The tidal swamp rice culture in South Kalimantan

Teradakan
Dry bed nursery

Anpakan
First transplanted seedlings

Lacakan
Second transplanted seedlings

Planting

Growth period

Harvest

Fig. 1 Crop Calendar of Paddy in Accordance with Types of Paddy Fields and Precipitation in South Kalimantan