

#### 4.4.4 Anticipated Effects

In the stage of development, the KUD is judged as a mid-level middle-class KUD. Since the Credit Business Division and the Marketing Business Division in particular have only a small number of employees, it is felt that it will take some time for these divisions to develop. With an objective to develop into an upper middle-class KUD in five years, the KUD will carry out the Detailed Plan to Promote Activation. The anticipated effects of the various detailed plans are as explained below.

##### (1) Plan for Strengthening of Organization and Management

###### 1) Effects of Plan for Realizing the Complete Payments of Membership Fees and Compulsory Savings

The effect of this plan are the same as the previously discussed KUD Tani Mukti. However, since Kelompok Tani in this KUD have a portion of the KUD's membership fees and compulsory savings, the KUD needs to clarify the division of its accounting, and arrange things so that the KUD will be able to manage everything together. Also, if there is any current surplus, by distributing this to the members in accordance to the By-Low, the KUD will be able to provide people with a merit of membership.

##### (2) Plan for Strengthening of Economic Business

###### 1) Effects of Setting Up a Committee for Examining the Promotion of Marketing Vegetable

Other than potatoes, expanding its sales of such vegetables as tomatoes, cabbage and corn that the KUD grows using the crop rotation system, the KUD will increase the income of the households engaged in horticulture. Also, by opening shops to be operated by the KUD in the central marketplace, the KUD will be able to provide the cooperative members with profit returns, excluding the middleman's margin, as a direct sales facility of the KUD. Also, by establishing joint marketing, which has been requested by the members, the KUD will be able to be selective about quality and increase the incomes of the households engaged in farming. The effects of opening settlement accounts for farm management are the same as those for KUD Tani Mukti, which has been previously discussed.

###### 2) Effects of Spreading Technology for Processing Farm Products

By promoting the merchandising of processed food which is manufactured by the members, and in the future selling these products at shops which are operated by the KUD in the central market,

the KUD will be able to increase the income of the members.

### (3) Plan for Strengthening of Credit Business

#### 1) Effects of Strengthening of KUT Loans for Horticulture

By providing KUT loans for horticulture, the KUD will be able to achieve a margin of profit. Also, since these loans will allow the members who get these loans, to borrow, at a low rate of interest, capital for introducing production materials and for purchasing seedlings, this will make it possible for the KUD to have systematic production and to increase income.

#### 2) Effects of Small Loans from Owned Capital

By providing small loans from the owned capital, the KUD will be able to increase the desire among local residents to become members. This will be convenient for both the farm households and the non-farm households, because they will be able to borrow loans for everyday living and for business from the KUD, which is a financial institution with which they are familiar. Also, the KUD will improve its capacity to manage and collect loans, thus realizing stable operations.

### (4) Plan for Strengthening of Human Resource Development and Guidance Activities

#### 1) Effects of the Five-year Plan to Promote Educational Activities

The plan suggests that the KUD is involved in a hiring plan for employees who will be in charge of the credit business and economic business. In order to produce good results in the above mentioned Plan to Improve the Credit Business and Plan to Improve the Economic Business, this Five-year Plan is essential for the KUD. In addition, the nurturing of instructors to provide instruction for better living, which is a new form of activities, is essential for the KUD in providing instruction for better living.

2) The effects of improving the farm guidance are the same as those for KUD Tani Mukti, which has been previously discussed.

## **KUD Sipatuwo**



## 4.5 KUD Sipatuwo

### 4.5.1 Present Situation and Evaluation

#### (1) Present Situation

##### 1) Natural Conditions and Agricultural Production

In the agro-eco system, KUD Sipatuwo is located in "irrigated area". Located in Sidrap District, where flat irrigated farm land spreads out. With the distance of 180 kilometers from the provincial capital of Ujungpandang, this KUD covers only 2 villages in Maritengungae Sub-district.

The irrigation rate for the entire sub-district amounts to 87%, with a lot of land consolidation having been conducted. This is a rice-growing region, with twice harvest seasons in a year. The yield in the rainy season was 6.96 tons, with the yield in the dry season amounting to 6.83 tons (1990). The sub-district's staple agricultural products in 1996 included 139,672 tons of rice, 849,360 egg-laying hens and 435,600 local chickens. Recently, a small but thriving poultry business, which has an average of around 1,500 chickens, has been introduced into the region as a side business. Rice bran from the rice mill is used for this business.

##### 2) Historical Background of the KUD, and the Promotion of the Rice-milling Business

KUD Sipatuwo was established in 1962, and was registered as a KUD in December 1967. In May 1990, it was recognized as a KUD Mandiri.

Since the KUD was established, its number of members has greatly increased, amounting to 309 members in 1980, 689 members in 1990, and 693 members at the present. The percentage of membership which is high accounting to 59.3% of the region's adult population of 1,168. There are 687 households engaged in farming in the KUD, 628 of which belong to the KUD, reflecting a high membership rate of 91.4% among households engaged in farming. In addition, there are 117 households engaged in occupations other than farming, including hunting (wild fowl), shop-keeping and civil servant. Sixty-five of the households engaged in occupations other than farming belong to the KUD, which also represents a high percentage. There are 131 female members, accounting for a low percentage of just 19% of the total. The main businesses of the KUD are rice-milling and the provision of fertilizers. In fiscal 1996, the KUD sold Rp 333.6 million worth of paddy and milled rice, obtaining Rp 500,000 in profit. A portion of this rice was sold at the National Food Agency (BULOG) and other free markets, at a rate of 60:40.

In fiscal 1996, this KUD provided Rp 220.2 million worth of chemical fertilizers (60% urea, 30% TSP, 10% KCL), obtaining Rp 5.3 million in commissions.

## 2) Economic Business

In addition to the above-mentioned rice-milling business and provision of fertilizers, corn and rice bran are two other chief items handled by the KUD. The KUD sold Rp 66.9 million worth of corn, and Rp 9.5 million worth of rice bran in 1996. From these sales, the KUD obtained Rp 11.1 million in profit, or 169.9% of its profits of 1994. These products are provided to the households engaged in poultry farming.

BUKOPIN has designated the KUD as its sales agent for two-wheeled tractors in the Sidrap District. The KUD has provided 280 small tractors under this program.

The KUD is a member of PUSKUD, but it does not have any business dealings with PUSKUD.

## 3) Credit Business

The balance of savings of the members of this KUD increased by an annual rate of 9.1% from Rp 13.9 million in 1990 to Rp 20.2 million in 1995. The average savings balance for members in the KUD is Rp 29,575. Although the savings balance has increased, since it only accounts for 5.1% of the total assets of the KUD, the level of savings balances is low.

When the survey of the local area was conducted, it was found that the balance of funds borrowed by this KUD from financial institutions was Rp 75 million. This was for a 1-year loan at an annual interest rate of 14%, for operations capital from the BRI for use in purchasing paddy and rice for the KUD's rice-milling business. This KUD did not borrow any money for investments in fixed assets. The current interest rate on borrowed money is believed to be preferential. There is no redemption for borrowing in arrears.

This KUD had a formal institutional finance agency balance of Rp 201 million for its members. This was a KUT rice production loan to 480 members (70% of the present number of members) from the BRI, with an average borrowed amount of Rp 418,750 per borrower. The terms of the loan were 7 months, with an interest rate of 14% per annum for households engaged in farming, and the KUD getting a 2.5% commission from the loan money collected from the members at each harvest time. The maximum amount per loan is Rp 500,000.

## 4) Organization and Management

The business by the KUD covers two villages in Maritengungae Sub-district, but there are 4 other KUD in the sub-district. To qualify to become a member, a person must be an adult residing in the KUD, pay a membership fee of Rp 1,000 and make a compulsory savings deposit of Rp 100, with the compulsory savings deposit collected in one lump sum after the rice harvest, or collected from the dividends from the current surplus paid to the members. The merits for becoming a member include (1) being able to borrow money for fertilizer (a loan in kind), and (2) getting a 20% discount on the rice-milling fee.

There are 5 directors, with a regular directors' meeting being held once a month. Two of the

directors are engaged in the livestock business, and 3 of them are engaged in farming. There are 3 auditors, who conduct auditing focused on financial affairs for periods lasting between 2 and 3 days, 4 times a year. One of the auditors is employed as a company worker, and 2 are in business for themselves. Among the directors and auditors, 5 people have graduated from high school, 1 of them has graduated from junior high school, with 2 of them having attended a 3-year cooperative junior college.

General meeting was held in March, with 354 of the 693 members in attendance. It is judged that the general meeting is operated democratically.

The KUD has 10 business divisions under the secretary. They are the General Affairs Division, the Rice Division, the Production Materials Division, the Livestock Materials Division, the shops operated by the KUD, the Savings and Loan Division, the Rice Mill Division, the Shipping Division, the Electricity Charge Collection Division, and the Farming Machinery and Utensils Division.

As for the employees, in addition to 1 general manager, there are 6 regular employees, as well as 4 temporary employees, and 5 full-time temporary employees, for a total of 16 employees.

As far as the division of work of the regular employees is concerned, there are 1 general manager, 3 employees working in the General Affairs Division, 1 in the Rice Division, 1 in the Rice Mill Division, 1 in the Livestock Materials Division, 1 in the Electricity Charge Collection Division, 3 in the Farming Machinery and Utensils Division, and 1 in the warehouse. As far as the educational background of the employees is concerned, 1 employee has graduated from a university, 4 have graduated from high school, 1 has graduated from junior high school, and 1 has graduated from elementary school. There are only a small number of regular employees compared to the number of business divisions.

The total gross sales in 1995 were about Rp 721 million. Approximately Rp 361 million in rice sales, and Rp 314 million in the provision of fertilizers accounted for almost all of these sales.

Other business included the electricity charge collection business, the shipping business, the tractor business, and the rice-milling business. But the profit on the commissions for these businesses are small. Total sales profits are Rp 62 million, Rp 21 million of which are accounted for by the rice-milling business, with the fertilizer business at Rp 15 million. Total business profits are Rp 28.4 million.

The current surplus is Rp 2.4 million, which does not amount to even one-fourth of the average for the province. Regarding the details of dividends paid to the members, 50% are from savings, and 50% are from the handling of fertilizer and paddy, indicating that the KUD makes efforts to pay dividends to the members.

As far as the financial affairs situation is concerned, total assets amount to Rp 392.3 million, or 1.4% less than the figure for 1994. The reasons for this drop are because of a decrease in loans

to the members, and because of a decrease in fixed assets due to depreciation.

As the KUD has not acquired any new fixed assets, depreciation is conducted appropriately. Investment outside of the KUD is in the form of membership fees and compulsory savings paid to INKUD.

Among the Rp 206.7 million in current liabilities are a combined total of Rp 195 million for KUT loans, rice procurement funds, and fertilizer funds, 164.4 million of which are accounted for by funding for KUT loans. Voluntary savings total Rp 11 million, or only 2.9% of the total assets. There are long-term debts of Rp 129.3 million, 110.9 million of which are in the form of funding for KUD facilities and equipment, including Rp 51.5 million for the rice mill under Japanese ODA assistance and Rp 34 million for a fertilizer kiosk.

Owned capital amounts to Rp 56.3 million, 77.2% of which is in the form of reserves in the KUD, with only 15.8% of this amount coming from the members as membership fees and compulsory savings. Also, the ratio of owned capital is low at 14.4%. The current interest rate on gross sales has a profitability of 0.3%, with the current interest rate on total assets at 0.6%, both of which are extremely low. The turnover rate for total assets is 1.8 times.

The gross business amount handled per member is Rp 1.04 million, which exceeds the average for the province, with good conditions of use. Looking at the breakdown, rice sales amount to Rp 521,500, with the provision of fertilizers at Rp 453,300.

##### 5) Human Resources Development and Guidance Activities

Relatively speaking, the executives and employees of this KUD are well educated. They range in age from 27 to 50 years old. With an education fund of Rp 150,000, which is grossly insufficient, the KUD has trouble promoting the systematic education of its employees. In fiscal 1996, the KUD dispatched 1 employee to the Post-Harvest Training Center in West Java (Cibitung). The KUD has no specific program for the education of the employees. Without anyone clearly in charge of training-related matters in the workplace, systematic educational activities are not promoted. According to the KUD, the education of the executives requires training for the purpose of improving business management abilities.

As far as the education of the members is concerned, the KUD conducts educational activities for 693 members, regarding health management, organization management for the cooperative, farming, and family planning.

The main items sold by KUD Sipatuwo are rice and chicken eggs. Nearly 100% of the income of the households engaged in farming is dependent upon the sales of farm products. The arable or cultivated land per household is between 1 and 2 hectares, and increasing the amount of rice production and improving quality will help to increase the income of these households. Presently, there are 2 farm advisors stationed in the KUD, concentrating on rice cultivation and livestock. In recent years, with an increase in the number of households engaged in poultry farming, technical



instruction in feed management and profitable sales of chicken eggs have become urgent problems for the KUD. Two directors and 2 employees are in charge of farm guidance for rice cultivation and poultry farming. However, as they are not specialists in this field, their technical level is not sufficient.

Sipatuwo provides better living guidance to the members, with 2 executives in charge of this guidance. The guidance has to do with nourishment and diet, as well as with health management. The members want guidance on family planning, health, sanitation, improving the environment of their daily lives, and securing drinking water, and they would like to see an improvement in the system of guidance in the KUD.

There is a women's group involved in the processing of farm products, which is made up of 216 members in the KUD, and which processes rejected chickens (minced and boiled chicken). There is also 1 income-generating group which is involved in sewing and mutual finance. Although the KUD does not organize the women who are family members of the members, with the percentage of female members at 19%, the KUD should organize these women.

## (2) Evaluation

### 1) Rice Processing and Sales Business

As all of the facilities for the processing of rice are decrepit, they need to be renovated. Also, as there is no balance between the drying, storage, and milling abilities, if the KUD can remedy this imbalance and come up with the capital for purchasing unprocessed rice, then it should be able to promote the activation of this business. In order to increase its profit rates for rice-related businesses, the KUD needs to increase its assets. It would take enough capital to support a 6-month (one production period) business cycle just to cover the necessary operation capital for the purchase of rice. Accordingly, it is estimated that it would require Rp 45 million to maintain the operation of an RMU which can process 1 ton of rice per hour.

### 2) New Business and the Involvement of the KUD

With a shortage of market information in the KUD, the KUD is unable to be positively involved in new business. The KUD needs to constructively obtain this information, and responsibly meet the new business needs of the members. It needs to obtain market information, staying constantly in touch with the Ministry of Cooperatives and Small Enterprises Development, the Ministry of Agriculture and private businesses. Based on the needs of the members and this market information, it will be important for the KUD to do this, planning to realize concrete profits for the members. It would also be desirable for the KUD to hire and train young employees to be involved in new business.

### 3) Credit Business

With the per-capita voluntary savings of the members at only Rp 16,000, in order to increase the amount of owned capital in the future, the KUD needs to promote voluntary savings, and secure employees.

This KUD is not currently engaged on its own in the business of extending loans to the members. Accordingly, it gets no income from the lending business, nor does it profit from this business.

### 4) Economic Business

The leaders of the KUD are trying very hard to use the present facilities to their maximum capacity, but with an overall weak business environment, things seem stagnant. The KUD leaders and the employees are trying to link the RMU to the KUD profits. Since the condition of the machinery in the rice mill is unsatisfactory, the quality of its products has not improved, and there has been a lot of loss in the form of crushed rice. (off-grade rice)

### 5) Organization and Management

As the only organizations in the KUD are women's groups, the KUD has a weak organizational foundation. If the KUD cultivates its organizations, and supports organizational activities, it will be able to promote activation throughout the KUD.

With an adult population in the region of 1,168, even if all of these people were to join the KUD, the KUD would still be greatly limited as to its facilities and business scale. There are 5 KUD in the sub-district. If these KUD were to cooperate with one another, it would be possible for them to realize the efficient use of capital, through such means as the installation of jointly-used facilities.

Although owned saving deposits amount to Rp 56 million, fixed assets (after depreciation) amount to Rp 106 million, with outside investment at Rp 30 million. Essentially, fixed assets should be covered by owned capital, which is the most stable form of capital, but since the amount of owned capital is much less than the amount of fixed assets, there is a shortage of about Rp 79 million, if outside investment which should be covered by owned capital is included. It would not be impossible to replenish its owned capital if the KUD sought the help of the cooperatives members.

Not only are compulsory savings not being made in full, but the amount of these arrears is unknown. Although this is because of delays in the clerical process, it also indicates that the amount which the members are supposed to deposit and the amount which has been deposited are not known at an appropriate time.

### 6) Human Resources Development and Guidance Activities

There are not enough employees who are involved in the credit business, of the handling and improvement of farming machinery and utensils. And so, the KUD will have to choose between educating its present employees and hiring new employees, but in either case it will first have to secure capital. In order to do so, it needs to be firm about creating an education fund, as well as to act systematically in educating its employees and hiring new ones.

With the increase in poultry farming, it has become an urgent task for the KUD to train and secure farm advisors who have technical knowledge concerning poultry. Since there is a keen interest among the members about better living guidance, it will be possible for the KUD to create mid- and long-range visions together with the members to satisfy their interest.

#### 7) Other Business

There is a limit as to what extent the KUD's electricity charge collection business can expand. The reason for this is because although it needs to increase its centers in order to increase the area over which the KUD provides service, only a part of the region has electricity. In the future, if the region gets electricity, and if the number of the KUD's offices for the collection of electricity charges are increased, it is believed that its profits from this business will also increase. Since having offices for the collection of electricity charges will increase the KUDs opportunity to come into contact with the members, and to exchange information with them, they will help to strengthen the relationship between the KUD and the members.

## 4.5.2 Detailed Plan for Activation of KUD

### (1) Basic Ideas

Unless this KUD improves its rice business that has to do with the cultivation of rice, which makes up the source of the income of the members, it would not be appropriate to discuss the performance of this KUD. Based on the desires of the members, the KUD will aim at increasing the income of its members and improving the quality of their daily life, and devise and carry out concrete measures which focus on business having to do with the production, distribution and processing of rice and its by-products.

#### 1) Replenishing the Rice-milling Business

By such means as increasing its capacity processing rice through new rice-milling machinery and facilities, securing KUD operation capital through the introduction of outside funding with profitable conditions, and purchasing an inventory of unprocessed rice, the KUD will be able to increase the sales of its rice on the free market and replete the sales from its rice business.

#### 2) Plan to Improve Facilities for Processing Rice

The KUD will change its present Rice Milling Unit (RMU) to a composite rice processing facility to include the processing of minor grains. Since its RMU is outdated, and the KUD does not have the appropriate equipment there, it is not able to process the 2 above-mentioned crops, i.e. rice and other grains. Although its paddy is of a good quality, a lot of non standardized products (crushed rice) come out of the present RMU. Green beans and soy beans can also be produced in the region. The "rejected goods" from the RMU continue to be sold for almost nothing. With the KUD mobilizing its capital and changing the present RMU to a composite rice processing facility, the members will sell their paddy and rice to the facility, purchase milled rice and other commodities for consumption, as well as farming materials from the facility. The KUD will furnish the center with a highly efficient RMU, rice-milling machinery, an area for drying paddy, facilities for bagging rice, a warehouse (for storing paddy, rice, rice bran, corn and fertilizer), and a means for shipping these items to support the center.

Crushed rice, corn, soy beans, green beans and other grains can be processed into materials for making confectionery products for the local market. The members will also be able to buy raw materials for processing.

### (2) Plan for Strengthening of Economic Business

In addition to the plans for the business of rice milling and selling rice, the KUD will also promote the following plans.

#### 1) Setting Up a Poultry Farm

Mobilizing local capital, the KUD will create this facility. The feed will be produced at the rice center. The marketing activities will be promoted in cooperation with local affiliates and private businesses.

#### 2) Setting Up a Simple Feed Mixing/Distributing Facilities

As a benefit to the members who are involved in poultry farming, the KUD will provide them with a feed mixing facility which is economically made of rice bran, crushed rice, soy beans and other grains which have been locally obtained.

#### 3) Opening a Farming Service Center

In order to cope with the mechanization of farming, the KUD will provide the members with maintenance and shipping services for farming machinery at low costs.

#### 4) Setting Up a System of Account Settlement with the members

In order to avoid a large amount of cash transactions, the KUD will pay the members through settlement accounts that the KUD has opened for each of the members. This will help to promote increased savings among the members, and at the same time contribute to the operation capital of the KUD.

### (3) Plan for Strengthening of Credit Business

#### 1) Promoting Savings

It is desirable for the KUD to set objectives for growth in the savings of the members. If these savings increase, the KUD will not have to depend on banks for operation capital, and it will be able to furnish the capabilities from within the KUD for creating the capital needed for business.

A growth of savings in the KUD will result in the improvement of the financial constitution of the KUD. This will also be in line with the appeal of the World Bank to increase internal savings

In order to promote the rapid growth of savings, the KUD should make it so that savings are constructively increased throughout the entire process of its business development planning. For example, this would mean applying compulsory savings when fertilizer is sold, and deposits in the

form of 1 bag of paddy and rice per hectare of land per cooperative member each harvest time. The KUD should also make efforts to increase savings through women's groups which have already been organized . It should also probably implement such means for promoting savings as having contests and awarding prizes to groups and individuals. It would be possible to award the winners of savings contests with cash scholarships, family health insurance (if there is any), television sets, farming machinery (sprayers) and other prizes. This KUD should also employ methods for paying interest directly to the members for all of the different types of savings accounts that the members have. It is desirable that this interest be for the same rate as that paid on the market.

## 2) Inaugurating the KUD's Own Loan System

By skillfully operating a USP member loan business, the KUD will be able to create additional income. The KUD should also consider inaugurating this system on a scale of business which will be able to generate profits at a monthly interest rate of about 3% with a total finance amount at a minimum of Rp 50 million, providing the management costs.

The KUD should include compulsory savings as a part of the USP loan business. When starting this loan business, the KUD will need to borrow funds from a bank, but it will eventually be able to depend on owned capital that will gradually be generated from savings and profits, and so it will eventually be able to expand its loan business among the members, with the BRI, Bank Danamon and PUSKUD Hasanuddin providing capital to the KUD, which will be starting up and expanding its USP loan business.

In the future, the KUD should directly receive financing for loans to the members, with the KUD in turn making loans to the members. In this case, in order to improve its level of management technology, the KUD should provide training for its people who are in charge of relending funds, under the leadership of a bank.

## (4) Plan for Strengthening of Organization and Management

With a high rate of membership, this KUD has a greater amount in use fees per member than do other KUD. But as it is poor in capital, in the business of collection and the sales of rice, which are major business, the KUD lags behind private industry as far as competition is concerned. Also, with a shortage of owned capital being the biggest reason for its shortage in capital, the KUD will replete its owned capital.

In order to further strengthen its bond with the members, and to develop new business, the KUD will cultivate member organizations other than those of the Kelompok Tani, thus increasing use by the members. In addition to coping, for a while, with the consumption at households and local places, fostering women's groups which are involved in processing local products, the KUD will also aim at marketing the products in the future.

As the region is small, the KUD capacity is limited to expand its facilities and business scale. For this reason, in order for the 5 KUDs in the sub-district to cooperate with one another to achieve development, a council of KUDs in the sub-district will be established.

In order not to lose the trust of the members, the KUD will improve its system of conducting clerical affairs.

### 1) Replenishing Owned Capital

Due to a shortage of capital, the KUD lags behind private industry in the businesses of rice collection and sales. It also has such financial problems as its amount of fixed assets exceeding the amount of owned capital. In order to replete the amount of owned capital, in addition to increasing the membership fees to Rp 10,000 and the compulsory savings deposits to Rp 1,000, the KUD will realize reserves for such clear objectives as areas for drying paddy, rice-milling machinery, and trucks, using current surplus as a source of capital.

For this purpose, the KUD will hold discussion meetings among the members from each region, explaining its purport and presenting a document of written consent which clarifies the method of payment. With each of the members getting an understanding of the situation of payment of compulsory savings, the KUD will urge those members who have not yet made these deposits to do so. The KUD will also consider easier methods for making these payments and deposits.

### 2) Improving the Organization of Members

In order to further strengthen the relationship between the members and the KUD, and develop new business, the KUD will increase use by the members, cultivating such organizations which is not related to the Kelompok Tani, as the organizations for the joint use of tractors, poultry producers, and the organization of people who make savings deposits. In addition to temporarily coping with the consumption at households and local places, fostering women's groups which are involved in processing local products (confectionery products made of rice, processed chicken, handicrafts, etc.), the KUD will also aim at marketing these products in the future. For this purpose, the KUD will offer courses through the cooperation of members with technical skills, and so spread processing technology.

### 3) Establishing a Council of KUD in the Sub-District

With an adult population in the region of 1,168, even if all of these people were to join the KUD, the KUD would still be limited in how much it would be able to expand its facilities and the scope of its business. In order for the 5 KUD in the sub-district to cooperate with one another to

achieve development, a council of KUD in the sub-district will be established.

Holding periodic discussions on matters which are common among the KUD in the sub-district, including measures for the collection of rice, sales measures, renovated rice-milling facilities, establishing a brand of rice, and measures for funding, the KUD will decide upon the most effective plans and carry them out. For the time being, the KUD will focus its attention on the mutual exchange of information, achieve uniformity in defining problems, and gradually deliberate on concrete matters.

As regards the establishment of the council, first of all, in addition to deliberating with KUD Semangat, which was the model KUD for this survey, the KUD will request the instruction of the Ministry of Cooperatives and Small Enterprises.

#### 4) Improving the System of Conducting Clerical Affairs

As the KUD appears to be lagging behind in the way that it conducts its clerical affairs, including the fact that the amount of money which has not been paid for compulsory savings is not known, the KUD will constructively educate and train its employees, and create a system by which it will be able to certainly conduct its daily clerical affairs, as well as those clerical affairs that are conducted at the end of the month.

Also, since the KUD does not sufficiently manage the cost price of fertilizer, its rate of profit has been decreasing each year. Therefore, in addition to purchase costs, while doing its best to keep down costs, getting an understanding of other costs involved in the make up cost price, the KUD will improve its ability to conduct clerical affairs so that it will be able to establish appropriate provision costs which reflect the cost price.

#### (5) Plan for Strengthening Human Resources Development and Guidance Activities

##### 1) Educational Activities

As the President of this KUD has a vision for the long-term development of the KUD, the KUD is involved in a variety of activities. In order to ascertain future business results, the KUD needs to secure an educational fund for the purpose of dispatching employees to a training institution. Since there are no employees in this KUD who are in charge of the saving and loan business, the KUD needs to hire new people who are experienced in this field. The KUD will deal with this matter, devising a long-term plan for cultivating talent. It is thought that it would be effective to promote on-the-scene training in advanced KUDs, for employees who are to be in charge of the savings and credit business.

Coping with the mechanization and development of farming, and expansion in the handling of farming machinery in the KUD, the KUD needs to train employees who will be in charge of the repair of farming machinery and utensils. For this purpose, a training facility for the repair of farming machines needs to be set up on the provincial level.



## 2) Farm Guidance

As a service for the members, the KUD will create a plan for the farm guidance, using more expenditures than the KUD has in its budget for such activities. In its sales business, an important task for the KUD will be how it can increase the sales of its brand of rice and of its chicken eggs, by means of cultivating a group for each product and expanding its sales route. Hiring employees to be in charge of farming operations, and having them receive training at a experiment stations on livestock and agriculture and the Post-Harvest Training Center, the KUD needs to improve its abilities to provide guidance capabilities.

## 3) Better Living Guidance

The KUD will establish a Better Living Activities Promotion Center, and set up facilities for the simple processing of farm products. In order to organize the women who belong to the households of the members, in addition to the present chicken processing group, the KUD will cultivate other farm product processing groups. Also, in cooperation with the income-generating group, the KUD will deal with health problems, and be involved in commodity-related knowledge and life planning.

## (6) Other Business

This KUD plans to set up an office for the purpose of collecting electricity charges, as well as to devise a plan for opening retail shops dealing in consumer products.

### 4.5.3 Facilities Plan and Project Evaluation

#### (1) Facilities Plan

##### A. Plan for Establishment of Rice Mill Plant

###### 1) Objectives

KUD is positively carrying out rice sales and supplying in South Sulawesi. Regarding the rice production in Indonesia, it shows a tendency to changing its course from quantity securing to quality securing, therefore planting of rice is partially changing from the variety of IRRI to the good tasted domestic variety.

Rice planting in South Sulawesi also shows the same tendency, therefore it is possible for KUD to promote the project to increase the sales volume of domestic rice variety not only by introducing the high technology of rice mill processing but also by systematizing the relationship between the rice production, the rice mill processing and the rice sales. To realize this project, it is necessary for KUD Sipatuwo to prepare an integrated rice mill processing plant as a model facilities.

###### 2) Project Outline

###### a. Planned Handling Volume

Planned rice handling volume of this project is approx. 1,200 ton/year (white rice).

###### b. Planned Annual Operation Days

The daily plant operation is carried out for 8 hours (1 shift), and total annual operation days are 310 days (2,480 hours).

###### c. Required Plant's capacity and Annual processing volume

According to the above mentioned numbers, the integrated rice mill processing plant is designed to have a capacity of 1.0 ton/hour (paddy). KUD purchases total 2,480 tons of paddy rice from farmers in a year. After the paddy drying stage and the mill processing stage, this plant produces maximum 1,370 tons of white rice in a year (weight decrease ratio of each stage : 85% and 65% respectively). However, 150 tons of broken rice from above mentioned white rice (1,370 tons) will be supplied to the Mini Grain Processing Plant mentioned in the next chapter.

Therefore, total amount of white rice supplied to the market is 1,220 tons in a year.

### 3) Operation and Maintenance of Facilities

#### a. Roles of KUD and its farmer members

KUD will not only constructs the rice mill plant, but operates and maintain this plant by itself. After purchasing the paddy rice from farmers, KUD will carry out the mill processing to the paddy rice, and sell the products as KUD s commercially branded rice in the free market. On the other hand, farmers of KUD members will supply the paddy to the KUD.

#### b. Personnel

The personnel who will be assigned to this facilities are shown as follows.

	Number
Manager	1
Sub manager	1
General affairs / Accounting	2
Operators	3
Workers (incl. drivers)	12
Guards	2

### 4) Condition of Facilities Design

#### a. Paddy Drying Floor

Farmers have 2 cropping seasons in a year, therefore seasonal paddy procurement by KUD is 1,240 tons. Because number of drying days is estimated to be 30.1 days in a cropping season, the drying works of 41.3 tons / day (paddy) is necessary in this term. Concrete paved drying floor is used for this work. The floor area needed to dry 1.0 ton / day (paddy) is estimated to be approx. 70 m<sup>2</sup>, therefore it is necessary to prepare approx. 2,900 m<sup>2</sup> of total floor area for the paddy drying floor. After the paddy drying stage, above mentioned 1,240 tons of paddy will decrease its weight to 1,054 tons (weight decrease ratio : 85%).

#### b. Paddy Rice Storage

Especially in the cropping season, it is necessary for KUD to avoid a large amount of rice sales to the market, because the price of the white rice show a tendency to fall in this season. Therefore, it is required that the paddy rice storage in the plant has a capacity to accommodate 1,054 tons of dried paddy in one time. The floor area needed to store 1.0 ton of paddy is

estimated to be approx. 1.0 m<sup>2</sup>, therefore the paddy rice storage needs 1,054 m<sup>2</sup> of total floor area.

c. Integrated Rice Mill Processing Unit

Processing capacity of the integrated rice mill unit is designed to be 1.0 ton/hour.

d. Project Site

KUD Sipatuwo is now trying to purchase a lot (approx. 2 ha) from a farmer, and it is possible for them to use this land for this project. This site is approx. 1.7 km north-west of the existing KUD office. Regarding the existing condition of the site, it contains rice field (approx. 75 %) and a forest (approx. 25 %). Access road from the neighboring paved mainroad is not paved, its width is 3 m approximately. The neighboring main road mentioned above is paved by crushed stone, and approx. 200 m south of the site Main line of electricity (220 V / 50 Hz / 1,300 Watt) runs along this neighboring main road, but there is no water source around the site. In addition, soil improvement appropriate to the existing rice field is necessary for the construction works.

5) Preliminary Design of Facilities and Equipment

Required items of the facilities and equipment are shown in Table-4.5.3.1.1 with facilities scale (no. of stories, total floor area), types of foundation, and types of structure. Furthermore, layout plan of this facilities and the Mini Grain Processing Plant mentioned in the next chapter is shown in Fig.- 4.5.3.1.1 jointly.

**Table 4.5.3.1.1 Facilities Outline - KUD Sipatuwo / Rice Mill Plant**

Facilities Name	No. of Facilities	No. of Story	Total Floor Area (sq.m)	Type of Foundation	Structure	Special Equipment
1 Rice Mill Plant (incl. Paddy Rice Storage)	1	1	1,626	Spread	Steel	Integrated rice mill unit (incl. generator) / Rice inspection tools / Farm equipment / Truck (3 ton-type x 3)
2 Drying Floor	3	-	1000 x 3	-	R.C.	
3 Public W.C.	1	1	11	Spread	R.C. / Wood	
4 Pump House	1	1	4	Spread	R.C. / Wood	Well system
5 Waste Water Treatment	1	-	-	Spread	R.C.	

6) Implementation Plan

A summary of the cost estimate about this project is shown in Table-4.5.3.1.3 jointly with the cost estimation of the Mini Grain Processing Plant mentioned in the next chapter. Table-4.7.3.1.3 shows implementation schedule for this project.

## B. Plan for Establishment of Mini Grain Processing Plant

### 1) Objectives

South Sulawesi Province shows the outstanding production volume not only in the rice production but also in the other grains production, i.e. maize, peanuts and mungbeans, in Indonesia.

To activate the KUD's business, it is possible for KUDs to promote the project that covers not only the primary processing but also the secondary processing to these local grains, and its products sales in the market. In this project, KUD will supply to the market bean flour, rice flour, and some kinds of cakes / cookies made from flours. Regarding the secondary processing, i.e. cake / cookie processing, it is important to consider the local cooking technique and consumers demand, and also to get assistance from existing local women's groups/associations. For the project mentioned above, it is necessary for KUD to prepare a mini grain processing plant.

### 2) Project Outline

KUD carries out the flour mill processing of immature / broken rice and beans. Some part of the products are used for the cake / cookie processing, and the rest are sold at the market.

#### a. Planned Handling Volume and Required Plant's Capacity

Planned handling volume of immature / broken rice and grains as raw materials are 150 ton/year, and 50 ton/year respectively. Annual production volume of rice flour and grain flour are approx. 135 ton / year, and 35 ton/year respectively. Therefore the flour mill processing unit is designed to have a capacity of 80 kg/hour (rice, bean).

Regarding the cake / cookie processing, planned products handling volume is approx. 500 pieces / day.

#### b. Annual Operation Days

The daily plant operation is carried out for 8 hours (1 shift), and total annual operation days are 310 days (2,480 hours).

### 3) Operation and Maintenance of Facilities

#### a. Roles of KUD and Farmer Members

KUD will construct the mini grain processing plant at its own investment, and operate and

maintain this plant by itself. After purchasing the immature / broken rice (from rice mill plant) and beans, KUD will carry out not only bean husking and flour mill processing but also the cake / cookie processing, and KUD will sell these products to the market.

On the other hand, farmers of KUD members will supply beans to their KUD.

#### b. Personnel

The personnel who will be assigned to this facilities are shown as follows.

	Number
Manager*	1
Sub manager**	1
General affairs / Accounting***	2
Operators	3
Workers (husk, flour)	6
Workers (cooking)	5

\* This manager holds the same post in Rice Mill Plant concurrently.

\*\* This sub-manager holds the same post in Rice Mill Plant concurrently.

\*\*\* This personnel hold the same post in Rice Mill Plant concurrently.

#### 4) Condition of Facilities Design

##### a. Relation between Mini Grain Processing Plant and Rice Mill Plant

This mini grain processing plant will be constructed in the same site as the rice mill plants mentioned in the former chapter. Therefore, incidental facilities of this plant, i.e. raw material / products storage etc., are prepared in the rice mill plant. Generator, water supply well system, and waste water treatment facilities are used by both plants jointly.

##### b. Raw Material

Immature / broken rice, mungbean and soybean are supplied to this plant as the raw materials. In these materials, only immature / broken rice are supplied from the rice mill plant.

##### c. Products

Rice flour, bean flour (mungbean, soybean), and cake / cookiewill be marketed from this plant.

##### d. Raw Material / Products Storage

Raw material storage and products storage are designed to have capacities of 30 days handling volume, i.e. approx. 19 ton, respectively in the rice mill plant.

#### c. Soaking Room and Drying Yard

Regarding the rice flour mill processing, soaking and drying work are necessary to the raw materials before the mill processing stage. At the beginning, approx. 55 kg of the rice are divided into 4 groups in large size plastic basins, and then, they are soaked (soaking time : approx. 20 minutes / floor area needed to soak 55 kg of raw material : approx. 8.5 m<sup>2</sup> ). Then these raw material are drying on the straw mats (floor area needed to dry 55 kg of raw material : approx. 27 m<sup>2</sup>).

In this plant, the soaking room and the drying yard are designed to have a capacity to treat one days handling volume (240 kg) in one time, therefore soaking room needs approx. 39 m<sup>2</sup> of floor area, and drying yard needs approx. 117 m<sup>2</sup>.

#### f. Flour Mill Processing Unit

Capacity of the flour mill processing unit is 80 kg/hour.

### 5) Preliminary Design of Facilities and Equipment

Required items of the facilities and equipment are shown in Table-4.5.3.1.2 with facilities scale (no. of stories, total floor area), types of foundation, and types of structure. Furthermore, layout plan of this facilities and the Rice Mill Plant mentioned in the former chapter is shown in Fig. -4.5.3.1.1 jointly.

[ Legal restrictions pertaining to the existing road and others ]

Local regulations restricts the distance from the center line of adjacent road to the building front. In case that the site faces to a Provincial Road, there must be a distance of 25 meters minimum between the road center line and the face of the building. In case of District Road, limitation of this distance has to be 12 meters. There is no regulations for the building height in this district. Layout plan must incorporate these regulations.

On the other hand, Sidrap Province Government has been restricting the building roof style from 1995, therefore, all of the building roof have to be designed in the traditional mansard style in this region. It is necessary to take this restriction into consideration on the implementation design stage.

**Table 4.5.3.1.2 Facilities Outline - KUD Sipatuwo / Mini Grain Processing Plant**

Facilities Name	No. of Facilities	No. of Story	Total Floor Area (sq.m)	Type of Foundation	Structure	Special Equipment
1 Mini Grain Processing Plant	1	1	232	Spread	Steel	Flour mill unit / Cooking tools and furniture / Plastic basin
2 Drying Floor	1	-	116	-	R.C.	Straw mats

#### 6) Implementation Plan

A summary of the cost estimate about this project is shown in Table-4.5.3.1.3 jointly with the cost estimation of the Rice Mill Plant mentioned in the former chapter. Table-4.7.3.1.3 shows implementation schedule for this project. Construction cost is estimated taking account of the BAPPENAS standard unit rate of construction cost 1997/98, the results of actual construction cost research, the functions / finishing grades of facilities.

#### C. Training Plan for the personnel in charge of the facility

For the rice milling facility and mini grain facility, the training of 3 operators for each would be necessary for operation of facilities and maintenance. At present one of the employees has participated in the training at the Post Harvest Training Centre in West Java province and he is responsible for everyday operation and maintenance of RMU in the KUD. The capacity of the planned rice milling machine is also 1 ton/hour same scale as the KUD has already installed. Therefore, centering on the experienced employee, the operation team shall be established to operate the planned rice mill by training of the staff who will be newly recruited.

According to the experience of the staff, the structure to send them to the Post Harvest Training Centre in turns shall be established. Also it is possible to receive guidance from RMU of the South Slatwesi PUSKUD.

The mini grain is the new type of facility for the KUD and newly recruited employees will be necessary to be trained at the manufacture for about one month.



#### D. Intention of farm household/members of KUD for the suggested facility planning

Date : 1997.07.16

Venue : KUD Sipatuwo, Desa Sereang, Kabupaten Sidrap, South Sulawesi Province

#### Survey Result :

1) Person Surveyed : The number of people who attended accounted thirty (30). All the attendants were members of KUD. Professions of attendants are divided into two(2) groups, i.e. poultry farmer and paddy grower in fifty-fifty.

2) All the participants but one was informed the visit of the Study team.

3) Plan for construction and/or upgrading of facilities in connection with the study has not sofar been proposed by KUD, therefore, attendants expressed their views on the following points : 1) need on improved chicken cage, 2) KUD's involvement in group poultry farming including supply of feed-stuff, 3) increasing capacity of RMU in order to meet demand of member farmers, e.g.an extension of drying yard, and 4) a poultry member stressed the need of KUD's involvement in order to confront prevailing monopoly in feed-chicken supply.

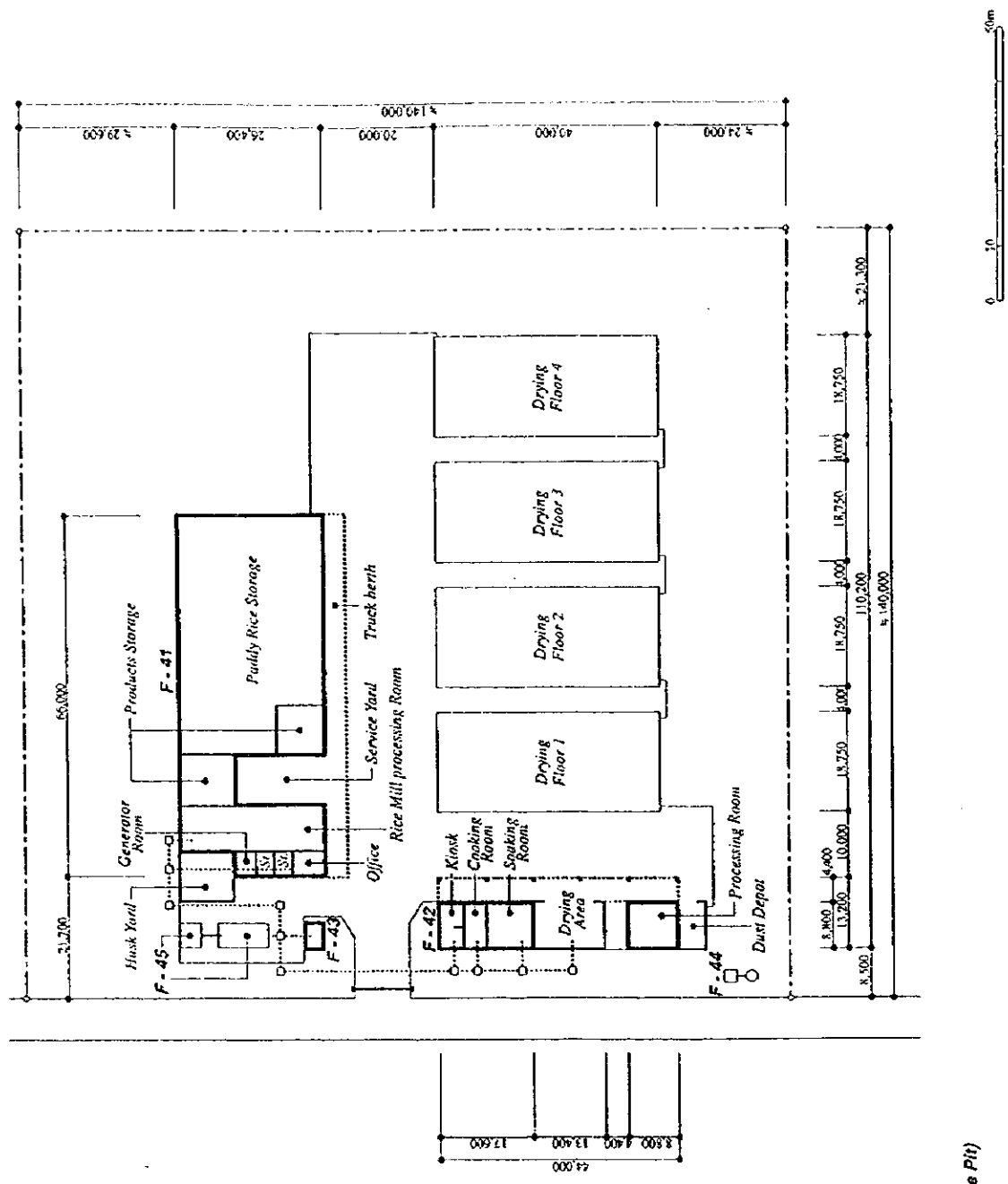
4) Greater majority of attendants expressed their views to utilize possible facility, if it may be provided by KUD.

5) All the attendants expressed their support to the possibility to increase their production, if such a facility will be realized in the future.

6) All the participants presented their will to prepare to bear financial obligation, if necessary.

7) When KUD may propose such a plan, all the attendants said to agree with the plan.

8) Every participant has responded strongly repayment of a loan should be thought as taking it granted.



- Legend**
- F-41 Rice Mill Plant (incl. Paddy Rice Storage)
  - F-42 Mini Grain Processing Plant
  - F-43 Public W.C.
  - F-44 Pump House at Well
  - F-45 Waste Water Treatment (Septic Tank / Seepage Pit)

Fig4. 5. 3. 1. 1 KUD - Sipanwo Rice Mill Plant / Mini Grain Processing Plant Layout Plan Scale = 1 : 1,200

**Table 4.5.3.1.3 Construction Cost - KUD Sipatuwo / Rice Mill Plant / Mini Grain Plant**

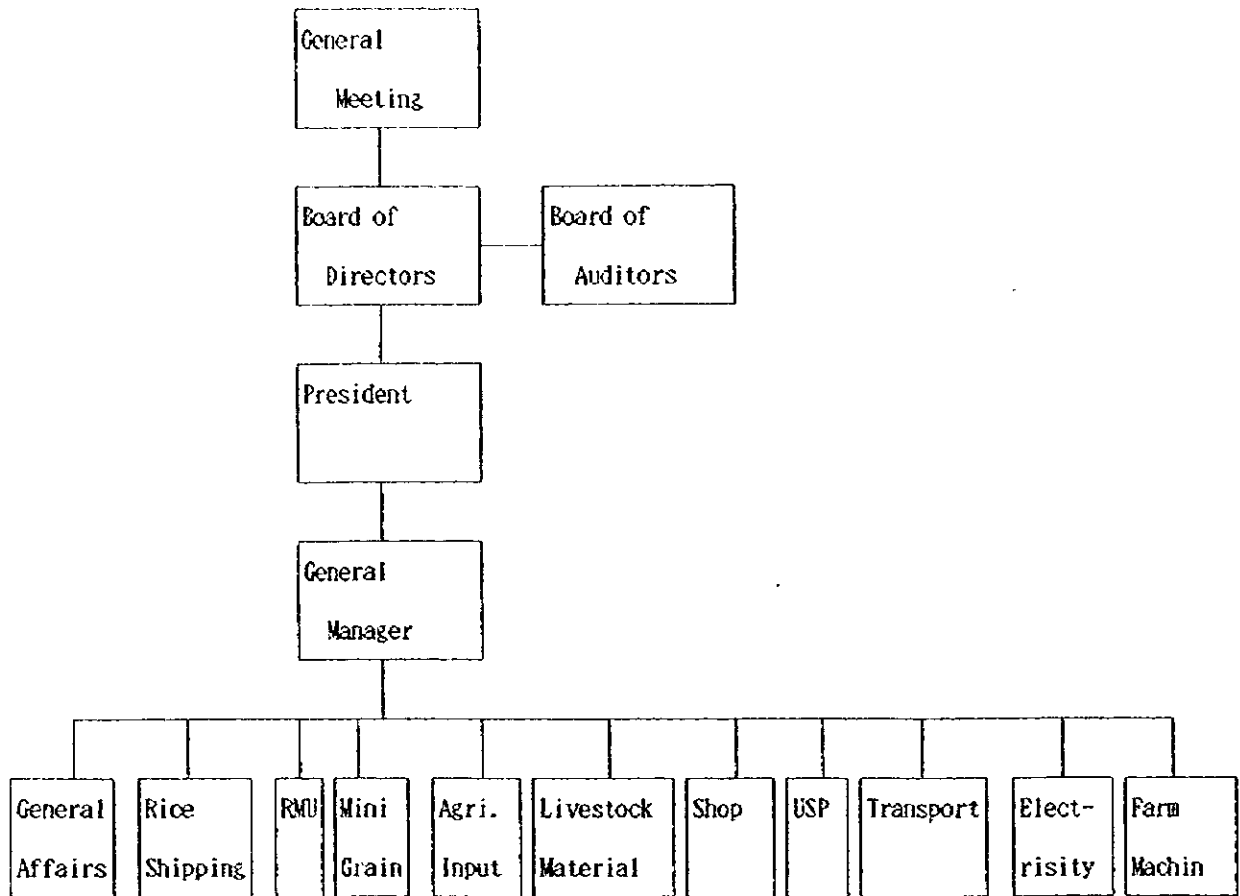
(unit : 1,000 Rupiah)

Item	Total floor area (sqm)	Total Cost	Foreign Currency	Local Currency
<b>1. Facilities</b>				
1.1 Rice Mill Plant (incl. Paddy Rice Storage)	1,626	2,124,950	1,118,000	1,006,950
1.2 Mini Grain Processing Plant	232	333,733	215,600	123,733
1.3 Public W.C.	11	8,938	-	8,938
1.4 Pump House	4	3,852	-	3,852
1.5 Waste Water Treatment	-	29,850	-	29,850
Sub-total		2,506,323	1,333,600	1,173,323
1.6 Detailed Design and Engineering Service		187,974		
1.7 Overhead and Profit		438,606		
Total - 1		3,132,903		
<b>2. External Works and Infrastructure</b>				
2.1 External Works and Infrastructure		1,138,745	-	1,138,745
Sub-Total		1,138,745	-	1,138,745
2.2 Detailed Design and Engineering Service		85,406		
2.3 Overhead and Profit		199,280		
Total - 2		1,423,431		
<b>3. Land Acquisition</b>				
3.1 Total - 3		30,000	-	30,000
<b>Total (excluding VAT 10%)</b>		<b>4,586,335</b>		

**Remarks :**

- 1 Cost of all items are estimated as of August in 1997. The exchange rate as of the month is applied between Indonesian Rupiah and US\$, 1US\$ = Rp. 2,576.
- 2 Cost of local currency portion of Item "1. Facilities" comprises building work cost with electrical, plumbing, and ventilation works cost.
- 3 Cost of foreign currency portion of Item "1. Facilities" comprises plant equipment cost.
- 4 Cost of Item "2. External Works and Infrastructure" comprises external works (site clearing, land adjustment, crushed stone pavement, concrete pavement, rainwater drainage ditch/pit, fence, gate, street light, and soil improvement) , main electricity/water distribution works, well system, and main line work of drainage within the site.
- 5 The foreign portion of Item 1.1 comprises integrated rice mill unit, rice inspection tools, farm equipment, and trucks (3 ton-type x 3)
- 6 The foreign portion of Item 1.2 comprises flour mill unit, cooking tools.
- 7 The local portion of Item 1.1 includes generator.
- 8 Cost of Item "3. Land Acquisition" comprises the land acquisition cost of 2.0 ha lot.

Chart--4.5.3.1.2 KUD Sipatuno Internal Structure for Management of Facilities



(New) (New)

## (2) Project Evaluation

### 1) Basic Evaluation Policy

The facility improvement plan for the KUD SIPATUWO is proposed rice mill plant + mini grain processing facility. The basic evaluation policy of the facility is same as the KUD TANI MUKUTI mentioned earlier.

### 2) Preliminary items in the evaluation

The preliminary items in the evaluation are shown as follows:

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#### ① Fund procurement

a) Initial investment: The construction would be financed by following low interest loans:

- Annual interest: 5 %
- Grace period for repayment of the capital: 5 years
- Repayment period: 20 years

b) Replacement investment: Own financing resources and government subsidies.

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#### ② Revenue and expenditure

Revenue	Expenditure
-sales of rice mill	-rice purchase
-sales of rice bran	-operation cost (personnel expenses, utilities, bags etc.)
-sales of rice flour	-depreciation
-sales of grain flour	-interest
-rice cake	

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#### ③ Unit price

Sales price	Expenditure price
-rice mill: RP 850/kg	-rice purchase: RP430/kg
-rice bran: RP 150/kg	
-rice flour: RP1,400/kg	
-grain flour: RP13,000/kg	-grain purchase: RP430/kg
-rice cake: RP 400/piece	

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\*details of the operation costs as shown in Appendix -IV Table 2.

### 3) Analysis and review of evaluation results

(a) Revenue and operation costs

The revenue and operation costs are shown as follows:

unit:RP1,000

Revenue	On and after 1 st. year	Expenses	On and after 1 st. year
A. Rice mill plant		A. Rice mill plant	
a)rice mill	1,037,000	a) purchase	906,440
b)rice bran	19,500	b)operation	186,410
B. Mini grain processing		B. Mini grain processing	
a)rice flour	189,000	a) purchase	117,500
b) grain flour	455,000	b)operation	75,521
c)rice cakes	62,000		
-----		-----	
Total	1,762,500	Total	1,285,871

(b) Calculation of profit and loss and balance of cash flow

A statement of profit and loss, and table of cash position is shown in Table 4.4.3.2.1. The following results were obtained.

a) Depreciation and interest payment before profits were in the black from the first year and regular operations continued without any problems. This will allow the cost of re-provisioning equipment to be met from the project revenue.

b) The investment amount of 4.6 billion RP can be recovered in the final fiscal year of this project, if low interest loans are used to fund this project as stipulated in the preconditions of the evaluation.

c) The milling and combined improvements which will be implemented under this project for crushed rice and grain processing make this project viable. The improvements to this facility will enable crushed rice which has been hitherto processed at a low cost, to be processed and sold as flour, in addition to expanding retail activities to include rice flour, bean flour and processed sweets and thus contributing to increased revenue.

(c) Financial Inter Rate of Return (FIRR)

Results of the FIRR is shown in Table 4.4.3.2.2. FIRR has been calculated at 6.1 percent, if low interest financing can be obtained, as explained in the preconditions of the evaluation, the project

becomes financing viable. However, it will be difficult to operate the facility and manage the capital solely on revenue of the rice mill plant.

(d) Sensitivity analysis

The sensitivity analysis has been carried out based on the following various cases:

- Case 1 : 5 percent increased of the investment cost
- Case 2 : 5 percent decreased of the revenue
- Case 3 : Combined case of case 1 and case 2

The results of the sensitivity analysis is shown below. Despite a slight decrease in revenue and increase in investment, changes in the profit ratio remain minimal. However, if both of these conditions are prevalent, the interest becomes lower than the figure stipulated in the preconditions. Details results of the sensitivity analysis as shown in Appendix Table -IV 3.

	Investment cost (%)	Revenue (%)	FIRR (%)
Basic case	-	-	6.1
Case 1	+ 5	-	5.3
Case 2	-	- 5	5.3
Case 3	+ 5	- 5	4.5

(e) Comprehensive evaluation

As mentioned above, if this project is able to obtain financial assistance in the form of a low interest, it becomes financially viable.

KUD SIPATUWO which is the major target of this project has more than 30 years experience in rice mill as a cooperative activity. The existing rice mill equipment has been used beyond its normal physical life span due to appropriate management operations and an organized system for facilities and equipment is already in effect. As a result, its existing organization and structural system as a cooperative will strengthened with organizational management measures and plans to foster human resources, etc. which will be formulated separately to mobilize the KUD.

In view of these circumstances, no difficulties are foreseen in the maintenance and control of the equipment and facilities that are planned.

On the other hand, with the implementation of the facility improvement plan, following the indirect benefits which the regional society, economy and KUD's members farmers can be generated adding to the measurable direct benefits mentioned above.

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a) National level :  Contribution for stable supply of the rice

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b) Regional level:  Contribution for regional economy through the improvement of the rice mill quality  
 Effective use of broken rice due to milling

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c) KUD/Members:  Improved capabilities in rice-processing technology which contributes to cooperative farming households and increase of the production of rice for the free rice market  
 Expanded employment opportunities for rural women involved in rice flour, rice cake and grain flour production

d) No. of beneficiary farmers:  Cooperative members 683

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#### 4) Financial analysis of farming household

The financial analysis of farm households a comparison of existing conditions in rice production farm income (farms directly related to this project) and changes in this income when the project is implemented. The model farm households that were used in this analysis were selected from the data collected from 19 households which participated in the survey of farm households in KUD Sipatuwo and KUD Semangat. Present farm households income are as shown in Table 3.4.4.7.3. The average planted area of the rice is estimated about 2 ha. Generally, rice is harvested two times in a year, depend on the family labor. The harvested rice is mainly shipped to the government stock market.

The following are improvements in the average dairy farm households income based on the benefits listed above. The current net profit of farm households is anticipated to increase 1.4 times of the gross income and 1.8 times for the net income.

unit: RP1,000

	Present	Project
1. Agricultural gross income		
-sales of potato	11,180	15,700
sub total	11,180	15,700
2. Production cost		
-seeds	347	347



-fertilizers	1,553	1,553
-chemicals	974	974
-others (water charge, etc.)	92	92
-labor cost	2,874	2,874
sub total	5,840	5,840
<hr/>		
3. Agricultural net income (1-2)	5,340	9,860
<hr/>		

5) Environmental assessment

There are no environmental concerns which need to be particularly addressed in the implementation of this project. The deterioration of the environment caused during the construction works of the project, the executing body of the project will control the contractor during the course of construction.

Table 4.5.3.2.3. Paddy Production Farm Household :  
KUD SIPATUWO, KUD SEMANGAT

Index	Farm scale (paddy cultivation area)		
	A (1.0 ha)	B (2.3 ha)	C (7.0 ha)
Cropping pattern	<ul style="list-style-type: none"> <li>• Two cultivation per year</li> <li>• Rainy season: plant period Jul. ~ Aug., harvesting period Oct. ~ Nov.</li> <li>• Dry season : plant period Jan. ~ Feb., harvesting period Apr. ~ may</li> </ul>		
1. Land holding area (ha)	1.02 ha	2.55 ha	7.05 ha
2. No. of family (family labour)	7 (1)	3 (1)	6 (5)
3. Farm machinery	sprayer	sprayer	tractor, sprayer
Income :			
1. Yield (ton/ha)	6.2	6.5	4.0
2. Production (ton/year)	12.3	29.8	56.0
3. Farm gate price (ton/RP1,000)	395.0	375.0	440.0
4. Gross income (RP1,000)	4,860.0	11,180.0	24,640.0
Expenditures :			
1. Production cost (RP1,000)	563	2,874	6,120
seeds	53	347	450
fertilizer	400	1,553	5,488
chemicals	110	974	182
2. Water charge (RP1,000)	36	92	252
3. Part time worker (RP1,000)	694	2,874	1,750
Total (1+2+3) (RP1,000)	1,293	5,840	8,122
4. Living expenses (RP1,000)	1,285	3,700	2,300
Balance of household:			
1. Net income by paddy (RP1,000)	3,567	5,340	16,518
2. Balance (RP1,000)	2,282	1,640	14,218
3. % of agricultural income	73 %	48 %	67 %
4. Production cost per ton (RP1,000)	105	196	145
Banking loan			
1. Balance (RP1,000)	-	35,118	0
2. Total debt (RP1,000)	-	35,118	11,000
3. Banking institute, interest	-	KUD, 14%	BRI, 14%
4. Objectives	-	purchase of fertilizer	purchase of fertilizer

Source: Household Field Survey, JICA 1997

#### 4.5.4 Anticipated Effects

By carrying out the Detailed Plan for Activation the KUD, the following can be expected as benefits to the members of the local region and the effects on the local economy. At the stage of development, this KUD is thought to be in the mid-middle class or the somewhat upper-middle class bracket, despite its small scale. By carrying out the detailed plan, it is expected that the service that the KUD provides to the members will be improved, and that it will rise further in class.

##### (1) Organization and Business Plan

###### 1) Increasing membership fees and the established amount for the monthly compulsory savings

Due to a shortage in capital, the KUD lags behind in the business of the collection and sales of rice, thus causing a disadvantage for the members from households engaged in farming, as far as sales price is concerned. If the KUD could save even just a little more of its own collection capital, this would result in profitable sales.

###### 2) Fostering the Organization of a Producers Group

By organizing a producers group among members engaged in poultry farming, and by receiving the purchase order for mixed and single feed, the KUD will be able to reduce prices for the members, stabilize quality and secure stable provisions. It will also become possible for the KUD to secure stability of customers for its sales.

###### 3) Establishing a Council of KUD in the Sub-district

By establishing a council of KUD in the sub-district with such KUDs as KUD Semangat, which is close by and which resembles this KUD in its farming operations environment, and by holding deliberations with that council, the KUD will be able to cooperate with other small KUDs in its business affairs, through the exchange of information with such KUDs and the unification of their awareness of problems, and in the future, by effective mergers, it will also be possible for the KUD to increase the profits of the members of the other KUDs.

##### (2) Economic Business Plan

###### 1) Effects of Remediating the Rate of Loss of Products through Replenished and Renovated Rice-milling Facilities

By improving and renovating the rice-milling facilities so that they will be equipped with the total function of an area for drying paddy and a warehouse for raw material, it is expected that there will be an increase in the amount of paddy which is received during the rainy season, and that the income of the members will increase due to the decrease in losses at harvest time. It is reported that there are losses of about 10% at harvest time during the rainy season.

#### 2) Profitable Sales Due to an Increase in the Amount of Rice Collected and Processed, through the Improvement and Renovation of the Entire Rice-milling Facility

The KUD can triple its present capability to collect and process paddy, from 800 tons a year to 2,400 tons a year for the time being. By so doing, the KUD would increase the amount of paddy that it collects and sells, and, with the increase in its share, improve its organizational negotiating ability, and so increase the possibility for more profitable sales for the members as well.

#### 3) Effects of Increasing Profits by Setting Up Facilities for Processing Minor Grains, and Increasing the Opportunity to Hire New People

As the business for processing broken rice and green beans is a new added value business, it can be expected that this will increase the KUD's profits through the sales of the raw materials for the manufacture of confectionery products and the sales of confectionery products, as well as increase the profits of the members.

The KUD will also have increased opportunities to hire employees, which come with conducting the rice processing business. It is expected that the KUD will hire between approximately 25 and 30 new employees, for this new rice-related business and the related new facilities to be set up.

#### 4) Establishing a Repair Center for Farming Machinery

Since it is anticipated that it would be difficult to make commercial profits on its own, it is desirable for the KUD to operate this business over a wide area. However, since the newly established repair center for farming machinery will be equipped with machinery for rapid development, it is expected that this will enable the KUD to provide quick support to the farmers of the region.

### (3) Credit Business Plan

#### 1) Encouraging Saving-in-kind (paddy) among the Cooperatives Members

Not only does having savings in kind contribute to the constitution of the property of the members, but it also contributes to the assets of the KUD, and allows for smooth business activities among

the members.

**(4) Plan for Human Resources Development and Guidance Activities**

**1) Improving Ability by Training Employees Involved in Clerical Affairs and Guidance Businesses**

Improving ability by training employees involved in clerical affairs and farm advisors would result in the KUD becoming a management organization which the members can trust, and would enable the members to receive guidance which would help them to increase their profits.



## **KUD Semangat**





## 4.6 KUD Semangat

### 4.6.1 Present Situation and Evaluation

#### (1) Present Situation

##### 1) Natural Conditions and Agricultural Production

In the agro-eco system, KUD Semangat is located in an irrigated area. Like KUD Sipatuwo, this KUD is in Maritengungae Sub-district, and has 4 villages under its jurisdiction. With the same geographical characteristics as KUD Sipatuwo, it contains 4,112 hectares of irrigated rice fields. There are 1,657 households engaged in farming, an approximate 80% of which are full-time farming households which manage between 1 and 2 hectares of land. The region's biggest businesses are rice production and the rice-processing business. Electricity has not yet been spread throughout the entire region. With an increasing shortage in the labor force, the use of farming machinery is spreading.

##### 2) Historical Background of the KUD, and the Promotion of the Rice-milling Business

KUD Semangat was established in 1970, and was registered as a KUD in October 1988. In April 1992, it was recognized as a KUD Mandiri. Since being established, the KUD has achieved a great increase in the number of its members, with 273 members in 1980, 1,040 in 1990, and 1,080 members at the present time. This accounts for 26.3% of the region's adult population, exceeding both the provincial average and that of Sidrap District. Of the 1,657 households engaged in farming in the KUD, 1,080 households belong to the KUD, for a high membership rate of 65.2% among households engaged in farming. However, there are no female members in this KUD. The KUD's business region covers 4 villages in Maritengungae Sub-district, but there are 4 other KUDs in this sub-district as well. This KUD's main business consists of the sales of rice and the provision of fertilizer.

In fiscal 1996, the KUD had Rp 2,565.7 million in rice sales, which generated Rp 56.8 million in commissions. The sales of rice from the rice mill (Mitra) by the members to BULOG increased in 1996. The actual rate of operation for the RMU was low at just 200 tons for a capacity of 1,200 tons a year. The KUD is having trouble due to a shortage of people with managing abilities. The KUD's RMU is leased to a private company, with the KUD procuring the rice after it has been polished. Most of the people who buy the KUD's rice on the free market are from restaurants, passenger ships and employees at companies in Ujung Pandang. The KUD sells 25 tons of rice a month.

##### 3) Economic Business

In addition to its rice-milling and sales businesses, gross sales of fertilizer amounted to Rp 755 million in 1996. The KUD earned Rp 28 million in commissions from these sales. This represented 110.5% of its earnings for fiscal 1994. Due to drastic increases in the price of fertilizer, as well as a shortage in capital, the KUD was not able to receive its allotted amount.

In addition to these businesses, the KUD also obtains revenues from its shipping service (Rp 28 million), and its RMU service (Rp 1.3 million).

This KUD is a member of PUSKUD, but it does not have any transactions with PUSKUD. The KUD plans to open a kiosk to be operated in cooperation with PUSKUD/PT Goro, but it has not saved the needed operation capital of between Rp 25 million and 40 million.

#### 4) Credit Business

For the 3-year period from 1994 to 1996, the KUD had membership fees and compulsory savings of Rp 500,000 each, and a voluntary savings balance of Rp 4 million. There was no interest on any of these savings. It seems that this is the reason that a lot of the members do not want to increase their savings with the KUD. The KUD needs to increase its assets to expand its business, and in order to do so it needs to make efforts to increase the savings of the members (see Indonesia: Maintaining High Growth of Net Assets; World Bank Report No. 16433 - IND; May 30, 1997).

The balance of the amount that the KUD borrowed from financial institutions was Rp 249.5 million. The KUD also borrowed Rp 100 million in operation capital from the BRI for a 1-year period at an annual interest rate of 14%, for use in purchasing paddy and rice for its rice-milling business. (The KUD needs about 22% of its operation capital for maintaining its rice-milling business.) The KUD also borrowed Rp 149.5 million from the National Petroleum Company for a period of 5 years, at an annual interest rate of 6%, as capital for stocking 23 hand tractors. The KUD resold these hand tractors to its members. The KUD is not overdue in repaying the money it borrows from financial institutions.

As of August 1997, the KUD's loan balance was Rp 4 million. This was for loans in kind to 30 members in the form of consumer goods. The average loan terms are 1 month at a monthly interest rate of 5%, with an amount of Rp 500,000 for each loan transaction. The average amount per loan is Rp 133,333.

The balance for formal institutional loans to members of the KUD was Rp 93.6 million. This was a rice production loan from the BRI to 236 members, with an average loan amount of Rp 396,610 per borrower. The terms on these loans were 6 months, at an annual interest rate of 14% for households engaged in farming, with 4% collection commissions going to the KUD each harvest time. The reason that this loan balance was low was, since a majority of the KUD's members involved in rice production had not repaid past BRI loans, they were not able to get loans from the BRI. As of the end of 1995, there were Rp 286.8 million in loans from 1987 to

1990 for which repayment was overdue.

#### 5) Organization and Management

A person must be an adult residing in the KUD to become a member. Membership fees are Rp 1,000, and the compulsory savings amount is Rp 100. The merits of becoming a member include (1) being able to get discount of Rp 200 per household per month, based on an agreement between the electric company and the KUD; (2) being able to get fertilizer delivered; (3) being able to get a loan for advance payments on rice.

There are five directors, with 1 directors meeting being held every 3 months. As for the occupations of the directors, 3 are in business for themselves, with the other 2 directors engaged in farming. Three of them have graduated from high school, and 2 have graduated from junior high school. A general meeting was held in July 1997, with 103 representatives in attendance. It is judged that the general meetings are conducted democratically.

As far as the makeup of the KUD is concerned, there are 7 business divisions under the general manager. They are the Rice Division, the Production Materials Division, the Rice Milling Division, KUT, the Credit Division, the Shops Division, and the Electricity Charge Collection Division. As for the employees, in addition to 1 general manager, there are 6 regular (full-time) employees (3 men, 3 women), as well as 15 temporary employees.

As far as the division of work of the regular employees is concerned, there are 1 general manager, 1 employee engaged in general affairs, 1 in the shop operated by the KUD, 2 employees in the Electricity Charge Collection Division, and 2 in the Rice Mill Division. In addition to these, there are 10 employees who work at the area for drying paddy, with 5 temporary employees engaged in the savings and loan business. All of the employees have graduated from high school.

Total gross sales were Rp 1,378 million, with rice sales accounting for about Rp 737 million, and the provision of fertilizer accounting for Rp 553 of this, indicating that almost all of the sales were from the rice and fertilizer businesses.

Total business profits were Rp 42 million, with Rp 20 million in profits from the marketing business, and Rp 10 million in profits from fertilizer. Business profits showed a total amount of Rp 15.2 million. The current surplus is Rp 3.3 million, which is not even one-third of the average for the province.

Profits from the electricity charge collection business were Rp 477,000 in losses in fiscal 1994, Rp 768,000 in profits in fiscal 1995, and Rp 75,000 in losses in fiscal 1996. As the KUD was not certain in its collection of electricity charges, it paid a greater amount to the electric company than it was able to collect.

Total assets were Rp 722 million, which represented a 40% increase over the Rp 206 million in assets from the previous year. As for the breakdown of this increase, loans showed an increase of Rp 174 million, most of which were to non-members, for capital (loan in kind) to purchase

tractors. The source of this funding was in the form of Rp 184 million in long-term loans from state companies, with Rp 179 million of this being in the form of loans from the national oil company, which had interest rates of 6% a year.

There was no new acquisition of fixed assets, with depreciation being handled appropriately. Outside investments were in the form of membership fees and compulsory deposits to federations and others. However, fixed assets greatly exceeded owned capital.

Owned capital amounted to Rp 62 million, 90% of which was in the form of reserves in the KUD, with membership fees and compulsory savings from the members only accounting for 2%. The current interest rate for gross sales was 0.2%, with that for total assets at 0.5%, both of which are very low. A total of Rp 1.276 million of business was handled per member, which is above average for the province, thus indicating a good situation of KUD use by the members. As for the breakdown, rice sales amounted to Rp 682,000, with the provision of fertilizer amounting to Rp 512,000.

The per-capita loan amount for the members was Rp 48,000. As there were loans to 45 members, and 28 non-members, there is a restriction on who loans can be made to.

Voluntary savings per member only came to Rp 4,000. Owned capital was Rp 57,000. Of this were amounts of only Rp 500 in membership fees and Rp 500 in compulsory savings which had been paid.

A total of Rp 1,658 thousand in salaries and allowances have been appropriated for business expenses, but as of the end of 1996, an approximate Rp 4 million in salaries and allowances had not been paid. As the employees secure an income from side jobs, it is said that they make enough in income. However, unless the members are able to devote themselves entirely to their KUD-related work, it will be difficult for the KUD to expand its activities.

#### 6) Human Resources Development and Guidance Activities

All 6 of the regular employees have graduated from high school. As the employees range in age from 47 to 56 years old, the employees of this KUD are older than those of most KUDs. This KUD does not have any employees who are in charge of savings and loans. The KUD needs to secure young employees who are in charge of savings, loans, and the sales of rice and other goods by paying those people a sufficient salary which is suitable to their jobs.

There have not been any reserves for educational funds over the past 3 years. In fiscal 1995, 1 employee received training in rice-milling technology at the Post-Harvest Training Center. The KUD does not plan the education of its employees. Since the KUD employees are in charge their respective clerical jobs at the KUD, in addition to having their own farming jobs, and since they are not exclusively employed by the KUD, they do not really have sufficient clerical abilities. The KUD does not conduct activities for the education of its members.

The members would like the KUD to provide them with training in fertilizer-related technology, irrigation technology, as well as farm machinery repair and service. However, at the present time

the KUD does not have any farm advisors. There are 2 agriculture extension officers (PPL) who provide direct guidance to households engaged in farming. Also, as there are only a small number of employees, it is difficult for the KUD to be involved in better living guidance. However, it is thought that the KUD needs to provide better living guidance. With a lot of concern for the education of children and the health of women among the members, it is believed that creating such systems will be tasks for the KUD in the future.

## (2) Evaluation

### 1) Rice-milling Business

The president of the KUD is trying to constructively promote the rice-milling business. This is an important factor as regards the possibility of the KUD developing in the future.

Presently, the factors impeding the rice-milling business have to do with investment for increasing and renovating the rice-milling facilities and operation capital for purchasing unprocessed rice. There is also a shortage of trucks which are needed to provide access to the marketplace. The KUD needs to rationalize its cash settlement affairs between the members and the KUD, focusing on rice and fertilizer.

### 2) Economic Business

The KUD does not have the necessary facilities for purchasing paddy. The fact that there is a shortage of warehouse space and area for drying paddy makes it hard for the KUD to ship paddy. With problems also existing in the provision of fertilizer, and because of a drastic increase in prices, the KUD is not able to receive its allotted amount of paddy due to a shortage of capital. And so, the members have no choice but to buy this from traders, or to have their amount of fertilizer reduced.

### 3) Credit Business

With a lot of over-due loans, the KUD, whose business has been stagnant lately, has a limited borrowing ability. In order to remedy this situation, the KUD needs additional investment from the members.

The savings of the members has stopped increasing during recent years. But this KUD does not seem to acknowledge the importance of increasing savings as a means for creating assets in the KUD to achieve business growth. This KUD needs Rp 450 million to maintain its business activities at harvest time, just for the operation capital necessary for the purchase of rice. The KUD needs to obtain savings more constructively from the members, and procure most of the necessary capital at a low cost.

Although the interest level on the money that the KUD loans in its USP business is high enough,

since the amount that it lends is low, this KUD is in the red as far as this business is concerned. The KUD cannot cover the cost of managing the loans with the present loan amount.

#### 4) Organization and Management

Although the membership rate is higher than the average for the whole province, since it is still at 26%, and with 35% of the households engaged in farming not having become members, the KUD does not have very much organizational clout. Also, in addition to the membership fee amount and the compulsory savings amount being low, compulsory savings are not being made. For this reason, the KUD does not have a lot of influence over the members, and with the shortage of capital, this causes the KUD to lag behind in its handling of rice.

Since the KUD lags behind private traders in its most important business, which is that of rice, it is not able to sufficiently provide the merits to the members which they should get for using the KUD. The KUD also is in a bad business situation whereby it is unable to pay the employees their salaries and allowances.

With its amount of fixed assets, which is supposed to be provide for with owned capital, by far exceeding the owned capital, the KUD's finances are unsound.

#### 5) Human Resources Development and Guidance Activities

In order to develop its credit business, the KUD needs to secure a number of employees who will work exclusively for the KUD and who will be in charge of KUD business activities. This is impossible with its present number of employees. However, since the KUD does not have capital, its business does not grow, which is the biggest cause of its not being able to hire people. Unless the KUD can get some kind of assistance from the government, it is thought that its business activities will stagnate. Regarding better living activities, the KUD needs to consider these as activities for the activation of its organizations which do not require large amounts of capital, and foster women's groups.

#### 6) Other Business

With the KUD not being certain in its collection of electricity charges, and the amount that it pays to the electric company exceeding the amount that it collects, there is an insufficiency in the KUD's clerical affairs. However, if the KUD provides its employees with thorough instruction, and if it is certain in its collection of money and in its clerical affairs for management, then it will certainly be able to increase its profits.

## 4.6.2 Detailed Plan for Activation of KUD

### (1) Basic Ideas

In the agro-eco system, KUD Semangat is located in an irrigated area. Rice farming is the region's mainstay industry. This KUD will expand its production, sales and processing businesses which increase the added value of rice and minor grains, for the purpose of increasing the incomes of the members. Also, since strengthening its organization and management is most important, due to the small size of this KUD, it needs to generally involve itself in these activities.

#### 1) Improving the Rice-processing, Storage and Distribution Facilities, and Increasing Sales on the Free Market

By introducing new improved types of rice-milling machinery, the sales of high-quality rice can be increased on the market through the KUD, and the members will be able to increase their incomes.

The KUD will increase its storage capacity for the unprocessed rice and rice products necessary for this.

#### 2) Milling Flour Processing Business, Including That of By-products of Rice-milling

Introducing a new process by which to process into flour fine-grained rice which has been selected by rice-milling machinery, as well as beans and other minor grains, the KUD will conduct the sales of rice flour as well as its confectionery business, and thus enhance the role of the KUD in creating added value.

### (2) Plan for Strengthening of Economic Business

#### 1) Establishing a Composite Rice-milling Center, to Include the Processing of Minor Grains and the Manufacture of Feed

Since the KUD collects large amounts of paddy in this region, quite a bit of nonstandardized rice (crushed rice) is generated in the course of processing the rice. This is due to the poor equipment in the RMU and inferior rice-processing technology. Furthermore, this region can also produce such grains as corn, soy beans and green beans. The center being planned here will be able to receive all of the paddy, process and store it, then sell it to the BULOG as well as on the free market. This center will also be able to serve as a center for handling grains, including polished rice, rice bran, and nonstandardized rice, as well as fertilizer, and other farming materials.

This center will have to be provided with all of the necessary facilities and equipment, including a highly efficient RMU, a rice refiner, an area for drying paddy, equipment for bagging rice, a

warehouse, and a suitable means for shipping. The center will produce raw materials suitable to the purposes of the local region--for example, rice flour, green bean and soy bean flour, and others. The members and their families will be able to buy these goods, and use them as materials for confectionery products.

This center will maintain close contact with the paddy collection center which is located near the farmers, thus saving the farmers time in carrying paddy to the RMU and the center. Also, since it will be putting the by-products to use, the center will also play the role of an compound feed blending and distribution center.

## 2) Setting Up Shops Operated by the KUD

Along with the composite rice-milling center, the KUD will set up shops to be operated by the KUD, to provide the members with materials necessary for everyday life and materials for use in production. With everything gathered into one place, if these shops are set up, the members will be able to take care of all of their needs at one place, including the sales of rice and the purchase of materials necessary for everyday life and materials for use in production. Selling feed for poultry and livestock through the retail shops at the center will benefit the members.

## 3) Improving the Means of Shipping

The KUD will be furnished with such means of transportation as the trucks needed for collecting paddy and other goods from many different places, and delivering fertilizer and farming materials to the members who belong to households engaged in farming.

## 4) Setting Up a Farm Machinery Service Center

Coping with the mechanization of farming, the KUD will set up a farming service center to provide maintenance service on farm machinery. In order to do so, the KUD will introduce the necessary facilities, and train and station employees to work in this center.

## 5) Opening Settlement Accounts for the Members

The payments made to the members, avoiding transactions in large amounts of cash, will be made through settlement accounts opened in the KUD for each of the members. In addition to helping to increase the savings among the members, this will also contribute to the working capital of the KUD.

## (3) Plan for Strengthening of Credit Business



## 1) Promoting Savings

In order to improve its borrowing ability, the KUD needs to create capital in the KUD. In order to do so, the KUD Semangat will need to start special activities to recruit members for increasing capital. In addition to promoting the membership of new members, the KUD should also consider getting preferential investments from public agencies and private sources. As a means of creating capital in the KUD for its business activities, this KUD needs to attach more importance to savings among the members.

In order to effectively increase savings among the members, this KUD should be involved in the promotion of savings, as pertains to all of its business plans, and pay interest on savings among the members which is the same rate as is available on the market, without delay. In regard to the rice business, the KUD should consider implementing a system of compulsory savings in kind. This would entail each of the members submitting 1 bag of rice per hectare of land at each harvest time. If this sort of a program is carried out, the total amount of deposits in the KUD will probably increase rapidly. This KUD should also consider organizing women's savings groups among the households engaged in farming who are members of the KUD.

## 2) Improving the Loan Business

In order to improve the situation by which it has a low amount in USP loans, this KUD should increase the amount of its USP loans to a minimum of Rp 50 million, which would be 12.5 times the present amount. By so doing, this KUD would be able to generate enough income to cover the management costs for its loans, and so increase its profits from its loan business. The KUD should quicken the loan application process by making it so that the application screening for its USP loan business does not take longer than 3 months.

As regards the system by which the KUD acts as an agent for loans from financial institutions to the members, this system should be changed so that the bank lends the funds directly to the KUD, with the KUD, in turn, relending those funds to the members. In addition to helping with the operation capital for business, these loans must also respond to the needs of the members for the purchase of materials for production and farm machinery. In addition to covering the costs for managing the loans, the interest on the loans to the members must also be of a level by which it can be sure to provide the KUD with profits.

In order to improve its ability to manage loans, the KUD needs to acquire loan-related know-how. That includes selecting the appropriate people with which to make loans, borrowing the funds, managing the loan, and saving methods. The KUD needs to educate its employees who are in charge of the loan business, and provide them with training on loan-related procedures. Such banks as the BRI should take the initiative to receive these trainees, and the KUD should pay for the related costs.

#### (4) Plan for Strengthening of Organization and Management

Due to the fact that the KUD, which has a low rate of membership, does not have a close enough relationship with the households engaged in farming, and because it does not have enough capital to purchase rice, the KUD lags behind private business in the handling of rice. This causes instability in the KUD's business, whereby it is unable to periodically pay the salaries of its employees. Also, with the amount of its fixed assets by far exceeding owned capital, the KUD is in a bad financial situation. In addition to making efforts to increase the number of members, the KUD also needs to make efforts to replenish the owned capital in order to improve its business.

As it is located in a small area, the KUD capacity is limited to the extent to which it can expand its facilities and the scale of its business. For this reason, the KUD will establish a council of KUDs in the sub-district, so that the 5 KUDs in the sub-district will be able to cooperate with one another, and mutually develop their businesses.

Since there is an insufficiency in the KUD's system for conducting clerical affairs, with it not being able to be sure to collect electricity charges, the KUD will thoroughly educate and train its employees.

##### 1) Replenishing Owned Capital

In addition to making efforts to increase its business profits, the KUD will reduce costs, and make efforts to increase the amount of its current surplus. The KUD will do its utmost to save funds for the current surplus in the KUD, and make efforts to replenish owned capital.

In order to secure operation capital and capital for equipment and facilities, the KUD will replenish owned capital. In order to do so, the KUD will increase the amount of its membership fee per member from the present Rp 1,000 to Rp 10,000, as well as the amount for compulsory savings from Rp 100 to Rp 1,000. By so doing, the KUD will be able to realize an approximate Rp 20 million in owned capital in one year, and Rp 12 million per year after that.

For this reason, the KUD will hold discussion meetings in the individual areas, during which it will sufficiently explain things to the members, appealing to them for their written consent concerning the membership fees and compulsory savings. The KUD will rapidly collect the compulsory savings which have not yet been made. In addition to this, getting compulsory savings each month which have not yet been made, the KUD will also introduce a system for lump-sum deposits to be made at harvest time.

##### 2) Devising a Five-year Plan for Increasing the Number of members, and Implementing that Plan

With the objective of increasing its rate of membership from the present 26% to 60% in five years, the KUD will devise a Five-year Plan for Increasing the Number of members, and Implement that Plan. For this reason, the KUD will produce a simple pamphlet which tells about the KUD, and

distribute this pamphlet to all of the households, both those of the members and non-members. Also, deciding on the KUD executives and employees who will be in charge of the various villages, the KUD will distribute the pamphlets, select members to be involved in increasing the numbers of members in the individual villages, and so pursue the cooperation of the people in these villages.

Holding gatherings on KUD Establishment Day, the KUD will also hold commemorative lectures through the cooperation of the District Office of the Ministry of Cooperatives and Small Enterprises, and the cooperation of the DEKOPINDA, as well as exhibitions and spot sales through the cooperation of the members for such products as those produced in the KUD.

### 3) Establishing a Council of KUDs in the Sub-district

The KUD will establish a council of KUDs in the sub-district, so that the 5 KUDs in the sub-district will be able to cooperate with one another, and mutually develop their businesses. This council will hold periodic discussions on matters which are common to the 5 KUDs in the sub-district, including measures for the collection of rice, measures for sales, new rice-milling facilities, establishing a brand, and funding-related measures, and so will decide upon and implement the most effective measures.

As regards the establishment of the council, first of all, in addition to deliberating with KUD Sipatuwo, which was the model KUD for this survey, the KUD will request the instruction of the Ministry of Cooperatives and Small Enterprises Development.

### 4) Establishing a System for Conducting Clerical Affairs

As can be seen from the fact that the KUD is not certain in its collection of electricity charges, this KUD is not certain in the way that it conducts its clerical affairs, and for this reason, its profits are not increasing. By being certain in conducting its clerical affairs, the KUD will be able to expand its business, while this will provide it with a foundation for increasing its profits.

Providing its employees with education and training, the KUD will provide thorough instruction so that it will be able to be certain in the way that it conducts its clerical affairs. Also, periodically paying salaries, the KUD will give its employees an incentive to work.

## (5) Plan for Strengthening of Human Resources Development and Guidance Activities

### 1) Educational Activities

Since the KUD has only a small number of employees, it will realize reserves for an education fund, dispatch its people to receive training outside of the KUD, and so improve the quality of the employees. Since there are no exclusively employed people in the KUD, the KUD needs to come

up with a long-term plan and to secure the necessary employees. As for the education of the members, the KUD needs to form objectives, observing advanced regions, and systematically promote discussion meetings among the members. Discussing with the members the long-term vision of the head of the members, the KUD needs to educate the members as to what they can do in order to increase their incomes, and what their roles are.

## 2) Securing Capital for Hiring Farm Advisors and Employees

A big obstacle to securing personnel is that the KUD does not have the capital to hire people, and this causes the KUD to hesitate in getting involved in new business. However, if the KUD were to try to provide this capital by realizing reserves with surplus from its business, it would take it a number of years to do so. And so, it is considered possible to come up with the funding for the KUD to hire employees through assistance from a government agency.

For example, by means of such initiatives as that of KANWILKOP, it would be possible to have a system whereby the KUD would be able to receive financing for hiring employees as well as for paying 5 years' worth of salaries, and after 5 years repay this within 10 or even 15 years. It will not be readily known to what extent business will expand as a result of having more employees, but if such a system is introduced, and if able people can be hired, this will certainly contribute to the development of the business of the KUD.

## 3) Plan for Strengthening, Improving and Promoting of Better Living Guidance

At the present time, this KUD neither provides better living guidance, nor does it station better living advisors. The KUD will first of all select employees to be in charge of these matters, and promote the observation by women from households engaged in farming, in areas which are advanced in everyday life-related activities. For this reason, it would be possible to consider collecting savings to achieve this objective. Furthermore, the KUD will invite instructors from outside of the KUD to hold seminars that have to do with improving the quality of life of farming villages, in order to increase awareness for these matters. Repeating these kinds of activities for 2 to 3 years, the KUD will need to find women among the households engaged in farming who will be able to serve as leaders for these activities, and cultivate women's groups. As regards conducting better living activities and stationing advisors to teach on these matters, the president of KUD and the directors will deal with these activities and matters, keeping a vision in mind.

## (6) Other Business

The KUD plans to promote its telephone business in the future. If the telecommunications facilities in this region can be improved, it will become possible for this business to realize quite a profit. As there is tough competition in getting WARTEL's permission, the cost involved is currently Rp 25 million.

### 4.6.3 Facilities Plan and Project Evaluation

#### (1) Facilities Plan

##### A. Plan for Establishment of Rice Mill Plant

##### 1) Objectives

Regarding KUD Semangat, the background of rice production is same as KUD Sipatuwo. Therefore it is also possible for this KUD to promote the project to increase the sales volume of local rice not only by introducing the high technology of rice mill processing but also by systematizing the relationship between the rice production, the rice mill processing and the rice sales. To realize this project, it is also necessary for KUD Semangat to prepare an integrated rice mill processing plant as a model facilities.

##### 2) Project Outline

###### a. Planned Handling Volume

Planned rice handling volume of this project is approx. 1,200 ton/year (white rice).

###### b. Planned Annual Operation Days

The daily plant operation is carried out for 8 hours (1 shift), and total annual operation days are 310 days (2,480 hours).

###### c. Required Plant's capacity and Annual processing volume

According to the above mentioned numbers, the integrated rice mill processing plant is designed to have a capacity of 1.0 ton/hour (paddy). KUD purchases total 2,480 tons of paddy rice from farmers in a year. After the paddy drying stage and the mill processing stage, this plant produces maximum 1,370 tons of white rice in a year (weight decrease ratio of each stage : 85% and 65% respectively). However, 150 tons of broken rice from above mentioned white rice (1,370 tons) will be supplied to the Mini Grain Processing Plant mentioned in the next chapter. Therefore, total amount of white rice supplied to the market is 1,220 tons in a year.

##### 3) Operation and Maintenance of Facilities

###### a. Roles of KUD and its farmer members

KUD will not only constructs the rice mill plant, but operates and maintain this plant by itself. After purchasing the paddy rice from farmers, KUD will carry out the mill processing to the paddy rice, and sell the products as KUD s commercially branded rice in the free market. On the other hand, farmers of KUD members will supply the paddy to the KUD.

#### b. Personnel

The personnel who will be assigned to this facilities are shown as follows.

	Number
Manager	1
Sub manager	1
General affairs / Accounting	2
Operators	3
Workers (incl. drivers)	12
Guards	2

#### 4) Condition of Facilities Design

##### a. Paddy Drying Floor

Farmers have 2 cropping seasons in a year, therefore seasonal paddy procurement by KUD is 1,240 tons. Because number of drying days is estimated to be 30.1 days in a cropping season, the drying works of 41.3 tons / day (paddy) is necessary in this term. Concrete paved drying floor is used for this work. The floor area needed to dry 1.0 ton / day (paddy) is estimated to be approx. 70 m<sup>2</sup>, therefore it is necessary to prepare approx. 2,900 m<sup>2</sup> of total floor area for the paddy drying floor. After the paddy drying stage, above mentioned 1,240 tons of paddy will decrease its weight to 1,054 tons (weight decrease ratio : 85%).

##### b. Paddy Rice Storage

Especially in the cropping season, it is necessary for KUD to avoid a large amount of rice sales to the market, because the price of the white rice show a tendency to fall in this season.

Therefore it is required that the paddy rice storage in the plant has a capacity to accommodate 1,054 tons of paddy in one time. The floor area needed to store 1.0 ton of paddy is estimated to be approx. 1.0 m<sup>2</sup>, therefore the paddy rice storage needs 1,054 m<sup>2</sup> of total floor area.

##### c. Integrated Rice Mill Processing Unit

Processing capacity of the integrated rice mill unit is designed to be 1.0 ton/hour.

##### d. Project Site

The site, where the existing KUD Semangat s office it located in, will be used for the project site. Its total land area is approx. 1 ha, and it contains rice field (approx. 50%). This site is facing to the district road - Poros M. Pagaiwaladeceng, but unfortunately there is no main line of electricity and the water source around it. Regarding the electricity, they have no main line around the site. The nearest electric main line runs along the provincial road - JL. Sultan Hasamuddin, it is located 600 m north of the site, however, Sidrap PLN will install the electric main line to the after the project implementation is confirmed. Incidentally, in the implementation stage, it is necessary to demolish the existing rice mill plant building in the site. In addition, soil improvement appropriate to the existing rice field is necessary for the construction works.

### 5) Preliminary Design of Facilities and Equipment

Required items of the facilities and equipment are shown in Table-4.6.3.1.1 with facilities scale (no. of stories, total floor area), types of foundation, and types of structure. Furthermore, layout plan of this facilities and the Mini Grain Processing Plant mentioned in the next chapter is shown jointly in Fig.-4.6.3.1.1.

**Table 4.6.3.1.1 Facilities Outline - KUD Semangat / Rice Mill Plant**

Facilities Items	No. of Facilities	No. of Story	Total Floor Area (sq.m)	Type of Foundation	Structure	Special Equipment
1 Rice Mill Plant (incl. Paddy Rice Storage)	1	1	1,626	Spread	Steel	Integrated rice mill unit (incl. generator) / Rice inspection tools / Farm equipment / Truck (3 ton-type x 3)
2 Drying Floor	3	-	1000 x 3	-	R.C.	
3 Public W.C.	1	1	11	Spread	R.C. / Wood	
4 Pump House	1	1	4	Spread	R.C. / Wood	Well system
5 Waste Water Treatment	1	-	-	Spread	R.C.	

### 6) Project Cost and implementation schedule

A summary of the cost estimate about this project is shown in Table-4.6.3.1.3 jointly with the cost estimation of the Mini Grain Processing Plant mentioned in the next chapter. Table-4.7.3.1.3 shows implementation schedule for this project.

#### B. Plan for Establishment of Mini Grain Processing Plant

##### 1) Objectives

Regarding KUD Semangat, the background of grain production is same as KUD Sipatuwo s. Therefore, it is possible for this KUD to promote the project that covers not only the primary processing but also the secondary processing to these local grains, and its products sales in the

market for the activation of KUD s business. In this project, KUD will supplies to the market bean flour, rice flour, and some kinds of cakes / cookies made from flours. For the project mentioned above, it is necessary for KUD to prepare a mini grain processing plant.

## 2) Project Outline

KUD carries out the flour mill processing of immature / broken rice and beans. Some part of the products are used for the cake / cookie processing, and the rest are sold at the market.

### a. Planned Handling Volume and Required Plant s Capacity

Planned handling volume of immature / broken rice and grains as raw materials are 150 ton/year, and 50 ton/year respectively. Annual production volume of rice flour and grain flour are approx. 135 ton/year, and 35 ton/year respectively. Therefore the flour mill processing unit is designed to have a capacity of 80 kg/hour (rice, bean).

Regarding the cake / cookie processing, planned products handling volume is approx. 500 pieces / day.

### b. Annual Operation Days

The daily plant operation is carried out for 8 hours (1 shift), and total annual operation days are 310 days (2,480 hours).

## 3) Operation and Maintenance of Facilities

### a. Roles of KUD and Farmer Members

KUD will construct the mini grain processing plant at its own investment, and operate and maintain this plant by itself. After purchasing the immature / broken rice (from rice mill plant) and beans, KUD will carry out not only bean husking and flour mill processing but also the cake / cookie processing, and KUD will sell these products to the market.

On the other hand, farmers of KUD members will supply beans to their KUD.

### b. Personnel

The personnel who will be assigned to this facilities are shown as follows.

Number	
Manager*	1
Sub manager**	1



General affairs / Accounting***	2
Operators	3
Workers (husk, flour)	6
Workers (cooking)	5

\* This manager holds the same post in Rice Mill Plant concurrently.

\*\* This sub-manager holds the same post in Rice Mill Plant concurrently.

\*\*\* This personnel hold the same post in Rice Mill Plant concurrently.

#### 4) Condition of Facilities Design

##### a. Relation between Mini Grain Processing Plant and Rice Mill Plant

This mini grain processing plant will be constructed in the site located near the Rice Mill Plants site mentioned in the former chapter. Therefore, this plant will be equipped with generator, water supply well system, and waste water treatment facilities by itself.

##### b. Raw Material

Immature / broken rice, mungbean and soybean are supplied to this plant as the raw materials. In these materials, only immature / broken rice are supplied from the rice mill plant.

##### c. Products

Rice flour, bean flour (mungbean, soybean), and cake / cookie will be marketed from this plant.

##### d. Raw Material / Products Storage

Raw material storage and products storage are designed to have capacities of 30 days handling volume, i.e. approx. 19 ton respectively.

##### e. Soaking Room and Drying Yard

Regarding the rice flour mill processing, soaking and drying work are necessary to the raw materials before the mill processing stage. At the beginning, approx. 55 kg of the rice are divided into 4 groups in large size plastic basins, and then, they are soaked (soaking time : approx. 20 minutes / floor area needed to soak 55 kg of raw material : approx. 8.5 m<sup>2</sup> ). Then these raw material are drying on the straw mats (floor area needed to dry 55 kg of raw material : approx. 27 m<sup>2</sup> ).

In this plant, the soaking room and the drying yard are designed to have a capacity to treat one days handling volume (240 kg) in one time, therefore soaking room needs approx. 39 m<sup>2</sup> of floor

area, and drying yard needs approx. 117 m<sup>2</sup>.

f. Flour Mill Processing Unit

Capacity of the flour mill processing unit is 80 kg/hour.

5) Preliminary Design of Facilities and Equipment

Required items of the facilities and equipment are shown in Table-4.6.3.1.2 with facilities scale (no. of stories, total floor area), types of foundation, and types of structure. Furthermore, layout plan of this facilities and the Rice Mill Plant mentioned in the former chapter is shown in Fig.-4.6.3.1.1 jointly.

[ Legal restrictions pertaining to the existing road and others ]

Local regulations restricts the distance from the center line of adjacent road to the building front. In case that the site faces to a Provincial Road, there must be a distance of 25 meters minimum between the road center line and the face of the building. In case of District Road, limitation of this distance has to be 12 meters. There is no regulations for the building height in this district. Layout plan must incorporate these regulations.

On the other hand, Sidrap Province Government has been restricting the building roof style from 1995, therefore, all of the building roof have to be designed in the traditional mansard style in this region. It is necessary to take this restriction into consideration on the implementation design stage.

**Table 4.6.3.1.2 Facilities Outline - KUD Semangat / Mini Grain Processing Plant**

Facilities Item	No. of facilities	No. of Story	Total Floor Area (sq.m)	Type of Foundation	Structure	Special Equipment
1 Mini Grain Processing Plant	1	1	232	Spread	Steel	Flour mill unit / Cooking tools and furniture / Plastic basin
2 Drying Floor	1	-	116	-	R.C.	Straw mats
3 Public W.C.	1	1	11	Spread	R.C. / Wood	
4 Pump House	1	1	4	Spread	R.C. / Wood	Well system
5 Waste Water Treatment	1	-	-	Spread	R.C.	

6) Project cost and implementation schedule

A summary of the cost estimate about this project is shown in Table-4.6.3.1.3 jointly with the cost estimation of the Rice Mill Plant mentioned in the former chapter. Table-4.7.3.1.3 shows implementation schedule for this project.

Construction cost is estimated taking account of the BAPPENAS standard unit rate of construction

cost 1997/98, the results of actual construction cost research, the functions / finishing grades of facilities.

C. Training plan for the personnel in charge of the facility

3 operator for each of rice milling facility and mini grain will be necessary to be trained for operation and maintenance of of the facilities. the KUD has antiquated 1 ton/hour capacity of the rice mill. however, as the KUD has no operator among their employees, the KUD consigns the operation of the RMU to a provate dealer. The planned rice mill is also 1 ton / hour capacity but the KUD need to recruite employees who are able to operate and maintainthe RMU. It is desiable to formulate an operation team with 3 staff and send them to the Post Harvest Training Centre and in the initial stage, one representative of the operators need to be sent to the manufacturer for training for one month. After that 2 operators will be in charge of daily operation and 1 operator is to be sent to training in turn. It is also possible to receive guidance from South Slawesi PUSKUD concerning rice milling technology.

Regarding mini grain, as it is the new business for the KUD, 3 operators who will be newly recruited will be necessary to be trained by manufacturer of the mini grain through on the job type of training for one month.

D. Intention of farm household/members of KUD for the suggested facility planning

Date : 1997.07.15

Venue : KUD Semangat, Kelurahan Watang Sidenreng, Kecamatan Perw. Sidenreng, Kabupaten Sidrap, South Sulawesi Province

Survey Result :

1) A person surveyed :

The number was thirty (30) all of whom attended is the member of KUD. Although a scale of farming varies. their professions are mostly paddy farming with a few exceptions of a village official. A farmer operates RMU.

2) The visit of current Study Team was informed at the annual meeting of KUD which was held on the 1 st July. therefore. all attendants are aware of the objective of the Study.

3) Twenty (20) among the attendants have known the fact that the Study Team is conducting a survey, though preliminary, on the possible facility which will strengthen the activities KUD which no doubt will contribute to improve members' living standard.

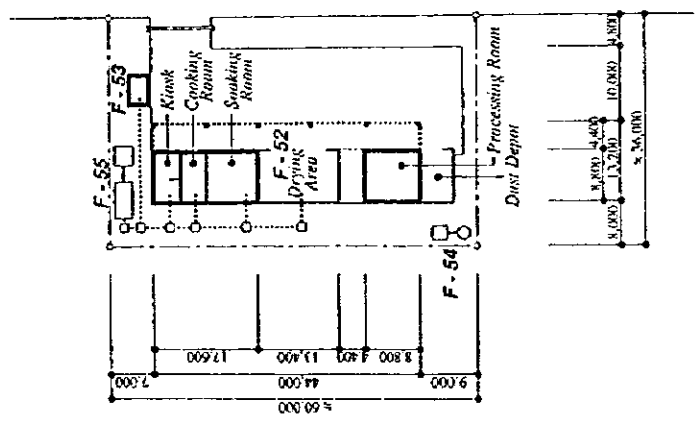
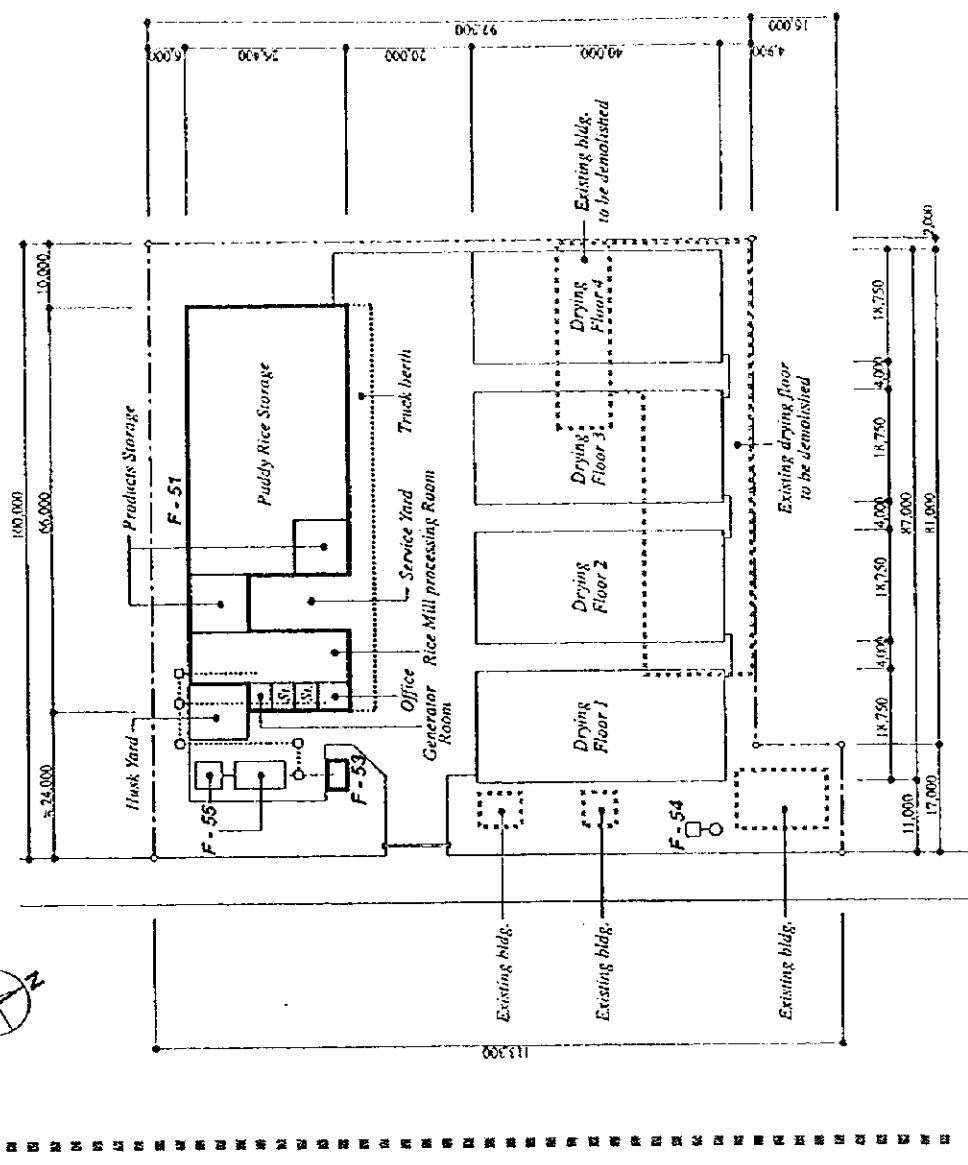
4) On the question whether the attendants wish to utilize such possible facilities when provided,

all of them expressed their anxiousness to utilize them.

5) Asking their opinion on a possibility to increase their farm products, i.e. the paddy, all respondents have presented their very positive attitude.

6) With regard to the question on the preparedness for the possible financial responsibility or contribution to that kind of program, all the attendants expressed their strong wish to do so. They also clearly indicated liability incurred as the result will certainly be paid back.

7) As to an additional question on what their comment on present RMU in KUD is, attendants in a consensus of the opinion that age-old equipment, lower efficiency of disposal, small capacity in warehouse, too small drying floor and shortage of transportation equipment.



**Legend**

- F-51 Rice Mill Plant (incl. Paddy Rice Storage)
- F-52 Mini Grain Processing Plant
- F-53 Public W.C.
- F-54 Pump House at Well
- F-55 Waste Water Treatment (Septic Tank / Seepage Pit)
- ..... Existing Facilities to be demolished



Fig. 4.6.3.1.1 KUD - Semangat Rice Mill Plant / Mini Grain Processing Plant Layout Plan Scale = 1 : 1,200

**Table.4.6.3.1.3 Construction Cost - KUD Semangat / Rice Mill Plant / Mini Grain Plant**

(unit : 1,000 Rupiah)

Item	Total floor area (sqm)	Total Cost	Foreign Currency	Local Currency
<b>1. Facilities</b>				
1.1 Rice Mill Plant (incl. Paddy Rice Storage)	1,626	2,124,950	1,118,000	1,006,950
1.2 Mini Grain Processing Plant	232	392,608	215,000	177,608
1.3 Public W.C.	22	17,875	-	17,875
1.4 Pump House	8	7,704	-	7,704
1.5 Waste Water Treatment	-	59,700	-	59,700
Sub-total		2,602,837	1,333,000	1,269,837
1.6 Detailed Design and Engineering Service		195,213		
1.7 Overhead and Profit		455,495		
Total- 1		3,253,545		
<b>2. External Works and Infrastructure</b>				
2.1 External Works and Infrastructure		905,900	-	905,900
Sub-Total		905,900	-	905,900
2.2 Detailed Design and Engineering Service		67,943		
2.3 Overhead and Profit		158,533		
Total- 2		1,132,375		
<b>3. Land Acquisition</b>				
3.1 Total- 3		3,240	-	3,240
<b>Total (excluding VAT 10%)</b>		<b>4,389,161</b>		

Remarks :

- 1 Cost of all items are estimated as of August in 1997. The exchange rate as of the month is applied between Indonesian Rupiah and US\$. 1US\$ = Rp. 2,576.
- 2 Cost of local currency portion of item "1. Facilities" comprises building work cost with electrical, plumbing, and ventilation works cost.
- 3 Cost of foreign currency portion of item "1. Facilities" comprises plant equipment cost.
- 4 Cost of item "2. External Works and Infrastructure" comprises external works (demolish work of existing building, excavation/back-fill, land adjustment, crushed stone pavement, concrete pavement, rain-water drainage ditch/pit, fence, gate, street light, and soil improvement) , main electricity/water distribution works, well system, and main line work of drainage within the site.
- 5 The foreign portion of item 1.1 comprises integrated rice mill unit, rice inspection tools, farm equipment, and trucks (3 ton-type x 3)
- 6 The foreign portion of item 1.2 comprises flour mill unit, cooking tools.
- 7 The local portion of item 1.1 and item 1.2 include generator.
- 8 Cost of item "3. Land Acquisition" comprises the land acquisition cost of 0.216 ha lot.

## (2) Project Evaluation

### 1) Basic Evaluation Policy

The facility improvement plan for the KUD Semangat is proposed rice mill plant + mini grain processing facility. The basic evaluation policy of the facility is same as the KUD TANI MUKUTI mentioned earlier.

### 2) Preliminary items in the evaluation

The preliminary items in the evaluation are shown as follows:

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#### ① Fund procurement

- a) Initial investment: The construction would be financed by following low interest loans:
- Annual interest: 5 %
  - Grace period for repayment of the capital: 5 years
  - Repayment period: 20 years
- b) Replacement investment: Own financing resources and government subsidies.
- 

#### ② Revenue and expenditure

Revenue	Expenditure
-sales of rice mill	-rice purchase
-sales of rice bran	-operation cost (personnel expenses, utilities, bags etc.)
-sales of rice flour	-depreciation
-sales of grain flour	-interest
-rice cake	

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#### ③ Unit price

Sales price	Expenditure price
-rice mill: RP 850/kg	-rice purchase: RP430/kg
-rice bran: RP 150/kg	
-rice flour: RP1,400/kg	
-grain flour: RP13,000/kg	-grain purchase: RP430/kg
-rice cake: RP 400/piece	

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\*details of the operation costs as shown in Appendix -IVTable 2.

### 3) Analysis and review of evaluation results

(a) Revenue and operation costs

The revenue and operation costs are shown as follows:

unit:RP1,000

Revenue	On and after 1 st. year	Expenses	On and after 1 st. year
A. Rice mill plant		A. Rice mill plant	
a) rice mill	1,037,000	a) purchase	906,440
b) rice bran	19,500	b) operation	186,410
B. Mini grain processing		B. Mini grain processing	
a) rice flour	189,000	a) purchase	117,500
b) grain flour	455,000	b) operation	75,521
c) rice cakes	62,000		
Total	1,762,500	Total	1,285,871

(b) Calculation of profit and loss and balance of cash flow

A statement of profit and loss, and table of cash position is shown in Table 4.6.3.2.1. The following results the obtained.

a) Depreciation and interest payment before profits were in the black from the first year and regular operations continued without any problems. This will allow the cost of reprovisioning equipment to be met from the project revenue.

b) The investment amount of 4.38 billion RP can be recovered in the final fiscal year of this project, if low interest loans are used to fund this project as stipulated in the preconditions of the evaluation.

c) The milling and combined improvements which will be implemented under this project for crushed rice and grain processing make this project viable. The improvements to this facility will enable crushed rice which has been hitherto processed at a low cost, to be processed and sold as flour, in addition to expanding retail activities to include rice flour, bean flour and processed sweets and thus contributing to increased revenue.

(c) Financial Inter Rate of Return (FIRR)

Results of the FIRR is shown in Table 4.6.3.2.2. FIRR has been calculated at 6.7 percent, if low interest financing can be obtained, as explained in the preconditions of the evaluation, the project becomes financing viable. The cost of facilities and equipment for KUD Sipatuo and KUD Semangat mentioned earlier is the same, but there is a difference in the cost of acquiring the



construction site and related infrastructure. As a result, the FIRR for KUD Semangat is higher due to these lower costs.

(d) Sensitivity analysis

The sensitivity analysis has been carried out based on the following various cases:

- Case 1 : 5 percent increased of the investment cost
- Case 2 : 5 percent decreased of the revenue
- Case 3 : Combined case of case 1 and case 2

The results of the sensitivity analysis is shown below. Despite a slight decrease in revenue and increase in investment, changes in the profit ratio remain minimal. In case of the both of these conditions are prevalent, the interest becomes higher than the figure stipulated in the preconditions. Details results of the sensitivity analysis as shown in Appendix -IV Table 3.

	Investment cost (%)	Revenue (%)	FIRR (%)
Basic case	-	-	6.7
Case 1	+ 5	-	5.9
Case 2	-	- 5	5.9
Case 3	+ 5	- 5	5.1

(e) Comprehensive evaluation

As mentioned above, if this project is able to obtain financial assistance in the form of a low interest, it becomes financially viable.

KUD Semangat which is the major target of this project has 27 years experience in rice mill as a cooperative activity. The existing rice mill equipment has been used beyond its normal physical life span due to appropriate management operations and an organized system for facilities and equipment is already in effect. As a result, its existing organization and structural system as a cooperative will strengthened with organizational management measures and plans to foster human resources, etc. which will be formulated separately to mobilize the KUD.

In view of these circumstances, no difficulties are foreseen in the maintenance and control of the equipment and facilities that are planned.

On the other hand, with the implementation of the facility improvement plan, following the indirect benefits which the regional society, economy and KUD's members farmers can be generated adding to the measurable direct benefits mentioned above.

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a) National level :  Contribution for stable supply of the rice

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b) Regional level:  Contribution for regional economy through the improvement of the rice mill quality

Effective use of broken rice due to milling

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c) KUD/Members:  Improved capabilities in rice-processing technology which contributes to cooperative farming households and increase of the production of rice for the free rice market

Expanded employment opportunities for rural women involved in rice flour, rice cake and grain flour production

d) No. of beneficiary farmers:  Cooperative members 2,192

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#### 4) Financial analysis of farming household

The financial analysis of farm households a comparison of existing conditions in rice production farm income (farms directly related to this project) and changes in this income when the project is implemented. The model farm households that were used in this analysis were selected from the data collected from 19 households which participated in the survey of farm households in KUD Sipatuo and KUD Semangat. Present farm households income are as shown in Table 4.6.3.2.3. The average planted area of the rice is estimated about 2 ha. Generally, rice is cropped two times in a year, depend on the family labor. The harvested rice is mainly shipped to the government sock market.

The following are improvements in the average dairy farm households income based on the benefits listed above. The current net profit of farm households is anticipated to increase 1.4 times of the gross income and 1.8 times for the net income.

unit: RP1,000

	Present	Project
1. Agricultural gross income		
-sales of potato	11,180	15,700
sub total	11,180	15,700
2. Production cost		
-seeds	347	347
-fertilizers	1,553	1,553
-chemicals	974	974
-others (water charge, etc.)	92	92

-labor cost	2,874	2,874
sub total	5,840	5,840
<hr/>		
3. Agricultural net income (1-2)	5,340	9,860
<hr/>		

### 5) Environmental assessment

There are no environmental concerns which need to be particularly addressed in the implementation of this project. The deterioration of the environment caused during the construction works of the project, the executing body of the project will control the contractor during the course of construction.

Chart--4.6.3.1.2 KUD Semangat Internal Structure for Management of Facilities

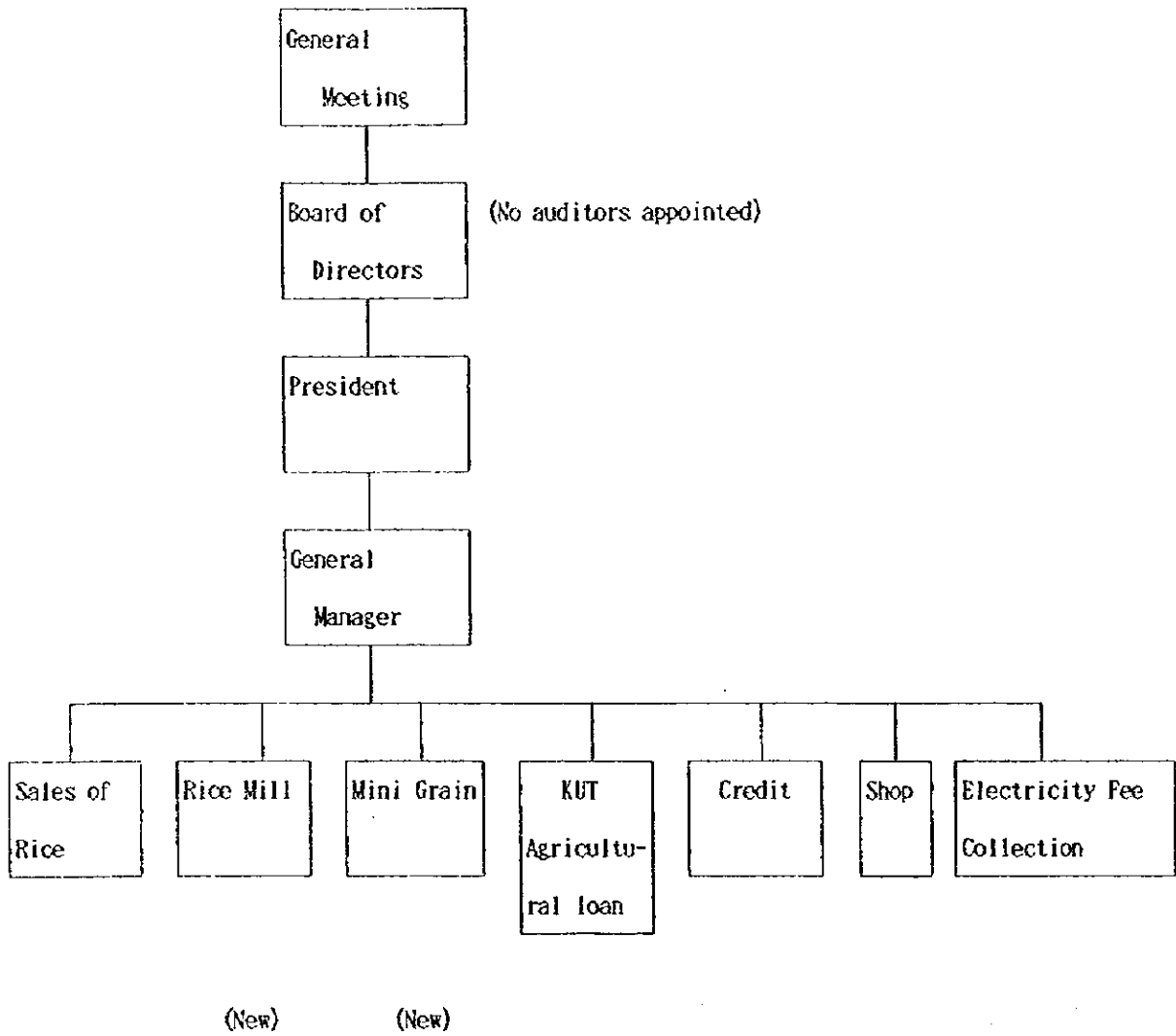


Table 4.6.3.2.3 Paddy Production Farm Household :  
KUD SIPATUWO, KUD SEMANGAT

Index	Farm scale (paddy cultivation area)		
	A (1.0 ha)	B (2.3 ha)	C (7.0 ha)
Cropping pattern	<ul style="list-style-type: none"> <li>• Two cultivation per year</li> <li>• Rainy season: plant period Jul. ~ Aug., harvesting period Oct. ~ Nov.</li> <li>• Dry season : plant period Jan. ~ Feb., harvesting period Apr. ~ may</li> </ul>		
1. Land holding area (ha)	1.02 ha	2.55 ha	7.05 ha
2. No. of family (family labour)	7 (1)	3 (1)	6 (5)
3. Farm machinery	sprayer	sprayer	tractor, sprayer
Income :			
1. Yield (ton/ha)	6.2	6.5	4.0
2. Production (ton/year)	12.3	29.8	56.0
3. Farm gate price (ton/RP1,000)	395.0	375.0	440.0
4. Gross income (RP1,000)	4,860.0	11,180.0	24,640.0
Expenditures :			
1. Production cost (RP1,000)	563	2,874	6,120
seeds	53	347	450
fertilizer	400	1,553	5,488
chemicals	110	974	182
2. Water charge (RP1,000)	36	92	252
3. Part time worker (RP1,000)	694	2,874	1,750
Total (1+2+3) (RP1,000)	1,293	5,840	8,122
4. Living expenses (RP1,000)	1,285	3,700	2,300
Balance of household:			
1. Net income by paddy (RP1,000)	3,567	5,340	16,518
2. Balance (RP1,000)	2,282	1,640	14,218
3. % of agricultural income	73 %	48 %	67 %
4. Production cost per ton (RP1,000)	105	196	145
Banking loan			
1. Balance (RP1,000)	-	35,118	0
2. Total debt (RP1,000)	-	35,118	11,000
3. Banking institute, interest	-	KUD, 14%	BRI, 14%
4. Objectives	-	purchase of fertilizer	purchase of fertilizer

Source: Household Field Survey, JICA 1997