

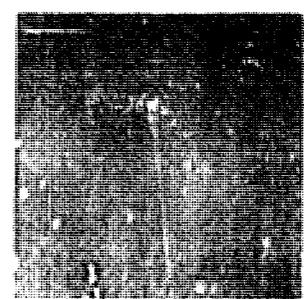
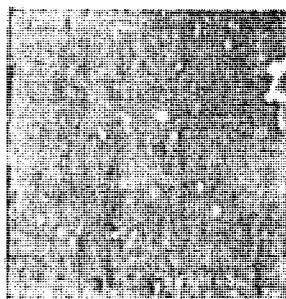
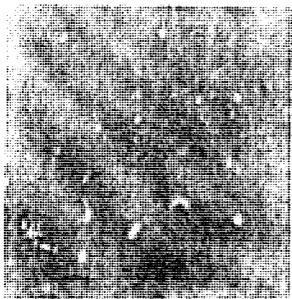
Lembaga
Studi Pembangunan



Institute for
Development Studies



RURAL WORKS II IN INDONESIA
PROJECT IMPACT EVALUATION



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PROJECT IMPACT EVALUATION

by

Institute for Development Studies
(Lembaga Studi Pembangunan)

Indonesia

March, 1984

AID Project : 497 - 0285
AID Loan No. : 497 - T - 056
Contract No. : 497 - 0285 - C - 00 - 3054 - 00

The views and interpretation expressed in this report are those of the Institute for Development Studies Team and should not be attributed to either the Agency of International Development/Indonesia or the Government of Indonesia Department of Manpower.

ACKNOWLEDGEMENT

This evaluation has been accomplished by the help of many contributors to whom we are thankful. The evaluation method itself was learned from the United States Agency for International Development through a training and reading the relevant publication before the project was conducted by the Institute for Development Studies.

Using the Logical Framework various Rural Development Projects termed as Labor intensive Projects or PKGB which were implemented during the Indonesian Fiscal Years of 1979 - 1982 were evaluated, to measure the degree of success in solving the problem of society. Qualitative and quantitative indicators were collected to denote the inputs, outputs, purpose and goals of each kind of project.

We were thankful to the USAID, for the chance granted to conduct the evaluation. Several personnels in the USAID, had worked so hard to read, to comment, to write and to improve the proposal, methods, and the report of this evaluation.

The Department of Manpower of the Republic of Indonesia had granted the permit to collect the data and many invaluable informations and publication for the use of this evaluation. The survey was, granted by the Department of Internal Affairs.

Local PKGB officials were the keys of acquiring data. The Sub-District officials of each project location were helpful in supplying various statistical data. The District Chiefs, the Village Chiefs, the Laborers, the informal leaders and many others were invaluable but un-named contributors to whom we are thankful.

May, we hope, finally, that this work can be of any use in improving the project designs of development.

Jakarta, March, 1984.

INSTITUTE FOR DEVELOPMENT STUDIES.

Adi Sasono
Director.

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ABBREVIATION

- I F Y = Indonesian Fiscal Year
- P 3 A = Association of farm water users, in the aim of regulating the water distribution and the maintenance of irrigation projects.
- P K G B = Labor intensive projects, with cash incentive payment to the participants of the projec construction.
- INPRES = Presidential Instruction Program
- DATI II = District Level Government.
- REPELITA = Five Year Development Plan.

UNIT OF MEASUREMENTS

Centimeter	=	0.01 meter	=	0.394 inch
Meter	=	0.00 kilometer	=	3.281 feet
Kilometer	=	1,000 meter	=	0.621 mile
Square millimeter (mm)	=	0.002 sq. inch		
Square meter (m ²)	=	10.764 sq. feet.....		
Square meter (m ²)	=	1 centiare (Ca)		
Square decameter	=	1 acre	=	3.954 sq. yard
Sq. hectometer	=	1 hectoare	=	2.471 acres
Hectoare	=	1 hectare	=	10,000 m ²
Sq. Kilometer	=	1,000,000 m ²	=	0.386 sq. mile
Acre	=	43,560 sq. ft.	=	0.405 Ha.
Mile (sq. mi)	=	2.59 km ²		
Cubic meter (m ³)	=	35.315 cu. ft.		
Metric ton	=	1,000 kgs	=	0.984 long ton.
Metric ton	=	1,000,000 grams	=	1.102 short tons
Kilograms (kg)	=	2,679 lb. troy		
Kilogram (kg)	=	2.205 lb avdp.		

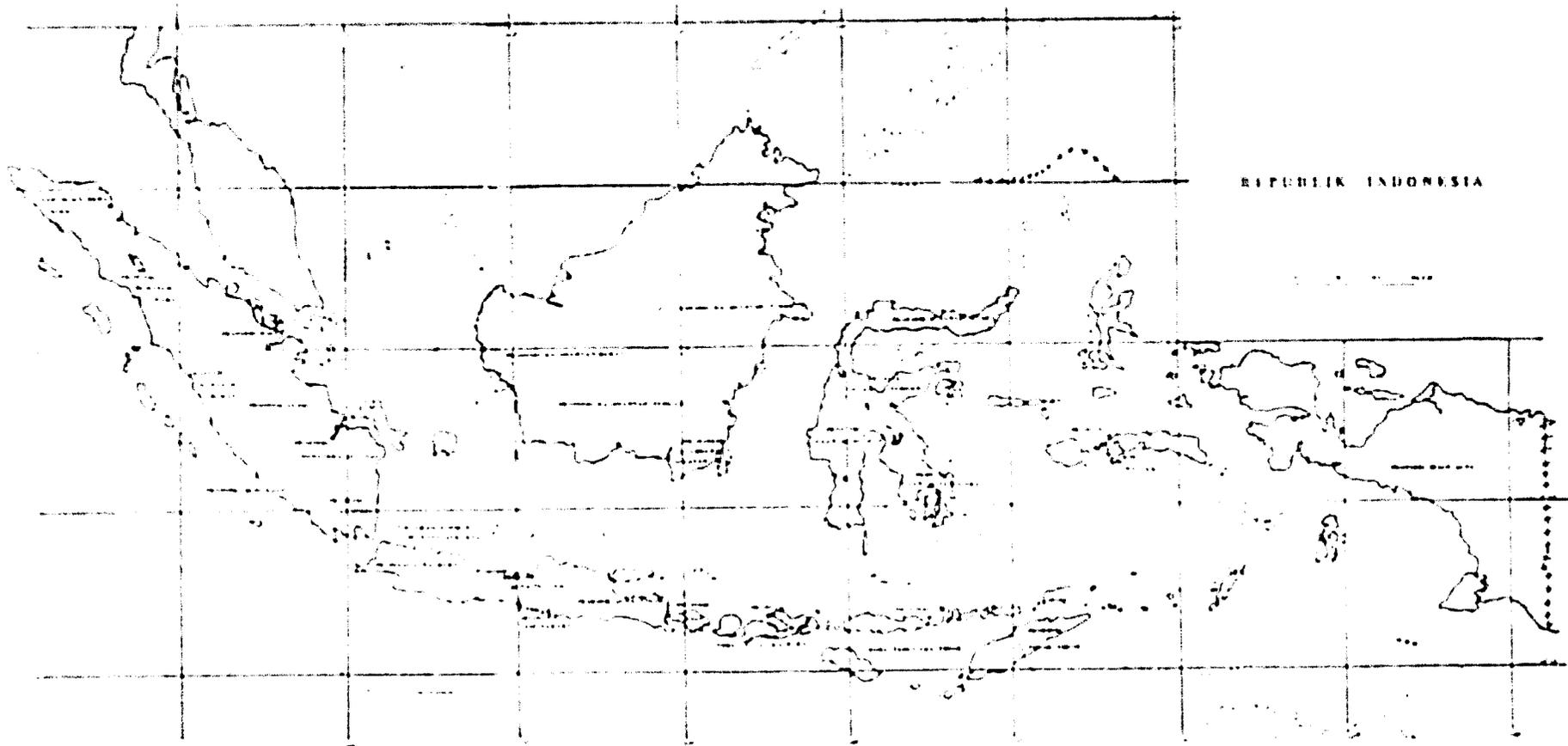
GLOSSARY

1. Gotong Royong : The traditional way of exchange of help among society members, done on the voluntary basis, in constructing each-others, dwelling houses, marriage ceremonies, religious buildings, roads and other civil construction public works.

The individual participation in this case are based more on social participation than on economic participation.
2. Headload : a way of carrying goods by putting the basket full of goods above the head
3. Backload : a way of carrying goods by putting the basket filled goods on the back of the people tied by textile broad cloth to their bodies.
4. Stores : a relatively bigger type of stores selling various convenience goods, such as soaps, tooth-pastes, towels, paper tissues, hair-creams, etc.
5. Shops : a relatively smaller type of stores, selling food-stuffs, bottled drinks, fresh fruits, biscuits, snacks, and also smaller amount of convenience goods.
6. Economic motive participation : a type of participation where the members of the society take part in the project construction with the economic motive of earning money.
7. Social participation : a type of participation, where the members of the society take part in the construction of the project voluntarily with the social motive of getting acceptance from the society (or avoiding social punishment).

8. O j e k

: Public transportation using motor bike as a mean owned by private personal and the payment is based on the distance followed. The passenger ride on the back side of the motor bike after the driver.



PROJECT IDENTIFICATION

1. Country : Indonesia
2. Project Title : Rural Works II
3. Project Number : 497 - 0285
4. Project Implementation: a. First Project Agreement : FY 78
b. Final Obligation : FY 80
5. Project Completion : Final Disbursement : FY 85
6. Project Funding : a. AID Loan US\$ 25,000,000
b. AID Grant US\$ 3,000,000
c. Dutch Government Dfl. 38,500,000
d. Host Country US\$ 76,000,000 (Est)
7. Mode of Implementation: a. Project Agreement between US and Indonesia Governments.
b. AID - financed fixed and cost - plus-fee contracts; New Trans Century Foundation, Trans Century Cooperation, Lembaga Studi Pembangunan and US - Consultants.
8. Evaluations : a. PKGB Evaluation
b. PKGB Socio-Economic Agricultural Assesment 1978
c. Feeder Road Impact Within Rural Works Program 1978.
9. Responsible Mission Officials During Life Of Project : a. Mission Directors
Thomas C. Niblock
William P. Fuller.
b. Project officers :
Charles C. Rheingans
Paul A. Struharik
Wouter Sahanaya.
10. Host Country Exchange : a. Name of Currency : Rupiah (Rp.)
Notes : b. Exchange rate at time of evaluation :
Rp.1006 = US\$ 1.

INTRODUCTION

A "project" which would improve the quality of life of the rural community could be defined as an organization of factor input to produce output and which is intended to solve the problems found in the rural community. What is the problem? When the factual condition of the society differs from the favoured condition desired by the society, we call it that the society is having a problem. The Government of Indonesia has introduced the Padat Karya Gaya Baru (the new style labor intensive) project to solve the problems in the rural area to some extent: such as unemployment problem, low food productivity and low income problems. The projects' main objectives are: 1) to create job opportunities, 2) to increase food production and 3) to increase rural poor income, through the construction of small-scale rural infrastructure such as roads, irrigation canals, flood control canals, terracing, fish-ponds and water reservoirs. The United States Agency for International Development (USAID) has participated in the project since 1974 through the Rural Works I (497-035) and the rural works II (497-0285) project. The Rural Works II project activity completion date is Sept. 20, 1984 and it was necessary to evaluate the impact of this Padat Karya Gaya Baru (PKGB) project.

Under the USAID contract No. 497 - 0285 - C.00 - 3054 - 00 dated June 23rd, 1983 the Lembaga Studi Pembangunan (LSP) was requested to evaluate the various types of Rural Works II sub-project that were implemented between the Indonesian Fiscal Year (Ily) 1979/1980 through 1982/1983.

The total number of subprojects that were implemented during that period is 2735 subprojects and to evaluate those subprojects of different types was a difficult task.

Since all subprojects have been monitored and evaluated by the Department of Manpower project staff and the USAID engineers, the impact of the subprojects upon the subproject influence area has been known to some extent. However, an in - depth evaluation was still needed and to do this evaluation only a small number of subprojects were taken. The evaluation team took only 21 subprojects for the evaluation and the number of the various type of subprojects is proportional to the total number of each type of subprojects that was implemented under the rural works II project. We took 13 road subprojects, 2 irrigation canal subprojects, 3 flood control subprojects, and one each for the fish pond, terracing and water reservoir subprojects for the evaluation. These subprojects were scattered in four main islands of Indonesia: Sumatera, Java, Kalimantan and Sulawesi, where most of the PKGB subprojects were implemented.

Although the number of subprojects was small, we believe that this evaluation, at a minimum, represents the whole project, because most subprojects were implemented in locations with similar agricultural, economic and social, and cultural conditions.

The team evaluated the projects impact on the socio-cultural, agricultural and economic aspect; and for this purpose we followed a logical framework which consisted of subprojects' inputs, outputs, purpose and goal. Data inputs and outputs were gathered from various sources: from villagers, workers, government officials and project staff. The total number of respondents that were interviewed was 405.

Each aspect was carefully evaluated to see whether the impact on the socio-cultural, agricultural and economic aspects was positive or negative for each type of subproject. The analysis of the evaluation of the six types of subproject will be presented in priority order, based on the criterion of success of the subproject with a conclusion, a recommendation and lessons learned at the end. Other supporting data and the evaluation methodology will be fully shown in Appendices A and B.

An in-depth evaluation on six types of subprojects is of course a complex task. The team in the final report will only report significant problems or changes that occurred in the subprojects influence area where each type of subprojects was implemented.

EXECUTIVE SUMMARY

I. Background

Indonesia, with a population of more than 160 million¹⁾ is the 5th most populated country in the world, but consists of only 735,000 square miles of land or about three times the size of Texas. About two - thirds of the people live on the islands of Java and Bali which constitute 7% of the land area, of which only 45% is arable. Java is the most densely populated area of the world with up to 2,000 persons per square kilometer.

More than 125 million people (80%) live in rural areas and attempt to make a living from agriculture and related activities. Continuing pressure on the land and to support a population growth of more than 2% per year is forcing more and more families to seek off-farm employment.

The Government of Indonesia is becoming increasingly aware of the inability of existing and traditional governmental programs to have direct and beneficial impact on the rural poor. In order to control this situation in early 1966 the Department of Manpower began an intensive program of construction of small unsophisticated rural infrastructure construction in Central Java. The purpose of the program is to provide employment and increase income for rural under-employed and increase the economic potential of the poorest areas of Indonesia.

II. History and Development.

In 1969, after three years of experimenting with hiring poor rural people to build small rural infrastructure project using PL 480 Title II commodities as wages, the Government of Indonesia (GOI) instituted a nation-wide food-for-work program (Padat Karya) under the first five-year development plan (Repelita I). The program, implemented by the Department of Manpower, was an effort to overcome the most critical aspects

1) The number population was 147 million according to the census in 1980 with rate of increase of 2,32% annually.

of rural poverty : employment and food. The program was limited to food deficit areas of high rural unemployment. Unfortunately, the program suffered the problems of storage and distribution of large amount of food-stuffs. Therefore, in 1974 the GOI redesigned the program for Repelita II to provide wages for workers rather than food.

Since 1974 the new program, Padat Karya Gaya Baru (PKGB-New style labor intensive), has been implemented in annually selected poor rural kecamatan where there is low per capita income, high population density, and high under-employment and unemployment. The program provides employment for rural people in the labor intensive construction of simple physical infrastructure (such as village roads, canals, and terracing) which will contribute to increased food production and greater economic activity in the area. These subprojects are relatively small, of unsophisticated design; they use local materials and local labor, as much as possible. In order to maximize employment, the program requires that at least 70% of the cost of individual subprojects be used for wages. In Indonesian Fiscal Year (IFY) 1979/80 the average subproject cost about Rp.13,5 million (\$21,600) of which USAID reimbursed the GOI an average of \$ 7,770 (35%) of the cost of completed and approved subprojects. The average length of a road constructed in IFY 1979/80 was 5.3 Km. and that of a canal 5.2 Km.

USAID's participation in the PKGB program began with the signing of the \$ 6.8 million Rural Works I loan agreement in May 1975. The loan provided two US technicians and reimbursement of 38% of the construction cost of subprojects inspected and approved by USAID. Additional project agreements for Rural Works II were signed in April 1979. Grant funding of \$ 3.0 million is providing expanded technical assistance through a contract with the New Trans Century Foundation for six long-term consultants and various short-term consultants. Loan funding of \$ 25.0 million will help finance training, up to 1,800 subprojects and the construction of a Labor Intensive Technology Research and Training Center.

The consultant had collected data on the input, output and impact of the subproject samples by observing the conditions, by interviewing 405 respondents ranging from farmers, village leaders, project laborers and government officials and by collecting published statistical data.

III. The Project.

A. Road Project :

Data were collected from 13 road projects, 0,9% from the total of 1390 road projects constructed during Indonesian Fiscal Year (IFY) 1980/81 through 1982/83, in order to evaluate the impact of the sosio-cultural and the economic aspects of the areas affected by the project. The road projects evaluated by the team are located in the larger islands of Indonesia : Sumatera, Java, Kalimantan and Sulawesi, where most of the Padat Karya Gaya Baru projects are found.

1. Socio-Cultural Impact : The evaluation team found that the most notable change resulting from the road's presence has been a change in socio-cultural value as workers, who are farmers, switched from the social-participation known as the "Gotong Royong" to economic motive participation. Ninety percent (90%) of the workers who participated in the project live in the project area and most of them are working in the agriculture sector for their living. Their income from the agriculture sector are relatively low and to participate in the project provides them with additional cash. It is not surprising that besides working on their farms, farmers must find additional employment and income. However, we encountered clear indication that farmers will be responsible for maintaining the roads if the road brings a better environment, increases the value of land and facilitates new economic activities. The detailed analysis on the socio-cultural aspect is found in the main report.
2. Agricultural Impact : After the road became available, a dramatic change in the number of types of transportation occurred. We found that the number of bicycles has increased by 145%, the number of motorcycles by 941% and the number of buses by 618%. A considerable drop in the transportation costs has occurred and has encouraged farmers to increase their agricultural production. The time required to make one trip from the farm-gate to a market has been shortened since the road became operational.

Given these facts, we were not surprised to find that production of rice in the project area has increased from 1,532 tons a year to 2,235 tons a year or an increase of 46% in rice production. The analysis described in the main report shows that average net benefit in the agricultural sector of each project area has been increased by Rp. 890,300 per farmer in one year. However, it was impossible to quantify the real changes in farmer's income resulting directly from the road construction, during our visits to the road sites.

3. Economic Impact : Before the roads had been improved through the PKGB program, farmers carried their product to market by head load, back load or on bicycles, sometimes, however, they only waited for middle men to buy their produce at a very low price. The quantity of produce sold depended on the distance also. Since the rate of traffic growth has increased and there is a reduction in transportation costs farmers are competing to increase their agricultural produce.

The improved roads did not only effect the farmers agricultural production in the area but encouraged traders to sell other commodities in the village. The villages are no longer categorized as being isolated areas for outside traders. Approximately 65% of farmer daily needs can now be found in the villages.

A small group of villagers has opened new stalls and shops. From our observation we found that number of stalls has increased by 155%, shops by 132%, while types of traders have risen from 62 to 164. The increase of agricultural production, the number of shops and the types business has increased also the opportunity for employment. From these 13 road project sites we have found that approximately 2,181 villagers are now being employed by shop owners, traders and landowners. In addition, 94 out of 102 farmers told us that the land value in the project area has also increased; however, the evaluation team could not find the cost data to analyse the change in land value.

Given that the average construction cost of these 13 road projects is only about \$ 3,000 per kilometer and the changes that have happened after the presence of improved roads are mainly beneficial, we find that, on the whole, the Padat Karya Gaya Baru road projects are good. They are efficient and effective.

B. Irrigation Project :

To evaluate the impact of the irrigation project, the team has visited two(2) project sites : the subdistricts of Karang Ploso and Jabung.

Both are located in Java :

1. Socio-Cultural Impact: The farmers who work on this project did not work on the basis of the traditional gotong royong philosophy but participated in order to receive additional income. However, since the irrigation system has been improved by the PKGB program, farmers could see that result has improved their agricultural production to a certain extent. This situation has led the water users association (P3A) to participate more fully in maintaining the irrigation system. As a result of the improvement where agricultural production has increased considerably, the value of land has also increased and farmers incomes have become higher.

The presence of the PKGB project has not totally changed the gotong royong system. To construct a new house, the owner does not have to hire laborers because all neighbours will help him to erect his new house. The same thing also happens if a farmer will expand his farm or maintain the feeder canals.

2. Agricultural Impact: In Karang Ploso the agricultural land has been expanded by 110 hectares since the irrigation canal was improved. These expanded areas are used for cultivating rice and corn. Areas previously planted with onions were reduced and planted with rice or corn. The team does not know why the farmers preferred rice or corn to onions after the irrigations system become operational. Harvests of rice are usually three times per year in this area and before the presence of the project the yield was 14 tons/Ha. and 22.5 tons per hectare after the irrigation system was improved.

Agricultural land in Jabung has been expanded by 57 hectares since the canal was improved. Rice, corn and peanuts are the preferred crops because these crops are easily sold. Production of rice has been increased by 900 tons a year and corn 623 tons a year.

with the agricultural areas being expanded and with increased in agricultural production, the project has created employment for approximately 1850 villagers..

3. Economic Impact : The team found that investment in irrigation projects is worthwhile because the projects benefit not only the people who work for the project, but also the farmers in the project area, noting that the project should be adequately planned and designed. The two projects that have been visited by the team were well designed and fully functional. The increase of rice production in both projects areas is 1,223 tons or an increase of Rp. 123,000,000 of income a year. This additional income is well distributed among farmers.

With the well designed irrigation canals, irrigation water is also well controlled especially in the rainy season. The cultivated lands are not flooded anymore during the rainy season resulting better production. The team did not obtain detailed information on the role of the P3A. We do know that members of the P 3 A are maintaining the irrigation canal that their production will not be disturbed.

From our observation, we also found that with the better economic condition found in these two areas, new shops and traders established them selves. However, it was impossible for us to verify that the establishment is due to the presence of the irrigation project.

Looking at the impacts obtained from the project and the cost, we could make a conclusion that the irrigation project done by the PKGB are efficient and effective.

The team's full economic analysis is found in the main report.

C. Rice Terracing Project :

The team has visited one rice terracing project implemented through the Padat Karya Gaya Baru program. This project is located in the subdistrict of Teluk Jambe in the province of West Java. This type of project is not usually found in PKGB project selection, and therefore the team was curious to see whether or not the project will have

a large impact on the community. The team's findings are that this type of project had a little positive impact on the environment and the economic condition in the project area.

1. Socio-Cultural Impact : As we found in other types of project location, this project also did not change the social cultural condition in the area, from the gotong royong type to the economic motive of participation, even though a better environment and economic condition have been created due to the presence of the project. The team's full analysis on this aspect is described in the main report.
2. Agricultural Impact : This upland area was planted with rice on 20 hectares of land and some plots were planted with cassava. With the presence of the project, the cultivated land expanded to 50 hectares.

The banks of the terraces were retained with rock beds and were planted with lamtorogung (*Leucaena* Sp) to protect the land from erosion. The team recognizes that farmers are fully aware of the situation and found that farmer's soil conservation practice was well implemented. The area was planted with rice and other secondary crops such as soyabean, corn and mungbeans. However, the planting of corn and soyabeans were not successful and the farmers could not tell what the problem was. Mungbean has yielded 0.4 tons a hectare per year and this success has stimulated them to plant more mungbeans in the next cycle. Rice production has increased to 4.7 ton per hectare. This productivity figure was relatively high compared to the national productivity average per hectare, which reached 2.67 ton in 1981. But compared to the adjacent rice field which enjoyed regular irrigation, their productivity was still lower : the adjacent rice farm reached 5 tons per hectare. One farmer told us that the farmers would like it if a demonstration plot was done so that farmers could know what type of crops are suitable for this upland area. The evaluation team has suggested that cattle raising is one possibility for this area. The banks could be planted with ele-

phant grass which are good for cattle and erosion protection and elephant grass can be kept in good condition in the dry season.

The agricultural impact can also be seen from the crude Benefit Cost ratio which is 6.3 compared to 0.4 of those who did not benefit from the project. The team's analysis on the Benefit Cost ratio is found in the main report.

3. Economic Impact : The harvest was only once a year, the farmers' income was supposed to meet the whole year of consumption need. The team found that this type of project is not so effective because the cultivated land is only rainfed land. During drought, farmers do not have any income. The project has protected land from erosion but did not improve the ability of farmers to plant other crop varieties resistant to drought.

D. Flood Control Project.

Three flood control projects, taken as random samples, were evaluated by the team. The projects are Kali Terong, Kali Galeh and Kali Daha Utara. The first two are in Central Java and the latter in South Kalimantan. The project in Kali Terong was completed in November 1982, and Kali Galeh in December 1981. During our visit to the three project sites, we found that the completed Kali Daha Utara project has been destroyed by flood and therefore it would be impossible to evaluate this project. Time did not permit us to find another site for our evaluation:

1. Socio Cultural Impact : With the presence of the project in Kali Terong and Kali Galeh, we found that the cultural condition, the Gotong Royong, has not been changed, even though payment was provided for farmers who participated in the project. People's houses, religious facilities, and village betterments were implemented by the villagers themselves using the traditional gotong royong system.

During our visit to the sites we have observed that the improved flood control canals in Kali Terong have protected 62 hectare sa-

wah fields and has increased production by 65 tons a year. The same situation applies also in Kali Galeh, where production has also been increased by 65 tons a year. People's health is improving and the price of land is increasing. With the improvements, the social life in the project is changing. More Social Organizations have been established and women who are members of the "PKK" (a Social-Welfare Organization) are more active in their programs.

2. Agricultural Impact : The costs for improving the flood control canals in the the two subdistricts are relatively low compared with the costs for the same type of projects provided by other implementing agencies. For example the unit cost to construct one kilometer flood control canal in Padat Karya is about \$ 3,200 and \$ 7,500 in Inpres Dati II. This low cost project has protected land from regular flood and give a great impact to farmers to cultivate the land and increase rice production by 130 tons a year. Since this project also had a positive effect on the total agricultural land in the two subdistricts, the average yield of rice in ton/ha. has increased to 131.8%. Our calculation shows that the benefit cost ratio in the project area is about 1.45. The team's full analysis on the agricultural aspect is found in the main report.
3. Economic Impact : The team found that investment in flood control canal projects is worthwhile because the projects have brought improvements in farming and increased the income of these two areas to an amount of approximately Rp. 137,324,000 a year or an equivalent of \$ 137,000.

In Kali Galeh the project also protected the roads from flood and has improved communication in the area. Approximately Rp. 3,500,000 or \$ 3,500 equivalent of the road maintenance budget can be preserved in a year. A full analysis on the economic aspects in the project area is described in detail in the main report.

E. Fish Pond Canal Project :

The team has evaluated one fish pond canal project in Rawamerta, a subdistrict in the province of West Java. The canal is 6,300 meter long and has a width of 3.15 meter. The cost to rehabilitate this canal is Rp. 17,530,000 or approximately US \$ 17,500. - This type of project is the type most rarely selected by the Padat Karya Gaya Baru Program. When this project was constructed in IPY 1980/81, there were 2 projects of this type or only 0.3% of the total project constructed in that fiscal year. However, the team has been asked by the implementing agency to evaluate this project and whether or not the project has had a positive or negative impact on the social-cultural, agricultural and economic aspects.

All of these type of projects are brackishwater fish pond projects.

1. Socio-cultural Impact : The team did not find any change resulting from the project in the cultural aspect. Although the project itself provided cash incentives to workers and the workers did not consider this activity a gotong royong project, the people do believe that the traditional culture, the gotong royong, still exists. The people who have been interviewed told us that with the presence of this project, they have also improved some access roads and constructed a mosque both of which were handled in the traditional way, the gotong royong. They work on the project just to get supplementary monetary income.

We did find that the environment has changed due to the presence of the project. The productive fish pond has stimulated farmers to maintain access roads and a small group of villagers has established one transportation service agent or "Ojek" where fish farmers could hire motorbikes to transport their product to markets.

2. Agricultural Impact : the altitude of the project area is about the height of sea level and during high tide sea water infiltrates the canal far upstream. Despite improving of the feeder canals agricultural land has been affected by sea water and the total

output per hectare from the agriculture sector has been decreased. The team members heard that ricepaddy farmers have suffered from this situation. Farmers income has decreased and we also heard that a social conflict now exists between the two group of farmers.

3. Economic Impact : The primary purpose of the fish pond canals built under this PKGB project was to encourage greater production of brackishwater fish by extending and improving the canals. Before the project started, the fish pond canal only covered 60 hectare of land and the harvest was 16 tons per year. The whole operation with the production of 16 tons can be estimated for a investment total cost of Rp. 112 million or about US \$ 112,000- per year. With the presence of the project, fish pond farmers told us that the area of operation was extended to 80 hectare and produces 26 tons of fish per year and the total investment cost increases to Rp. 284 million or \$ 294,000. The net additional income calculated by the team members is approximately US \$ 49,960 a year.

However, the member of people who benefit from the project is small, only the fish pond owners who live away from the project area. The improvement to the fish pond did not bring economic benefit to the area but in fact was detrimental to the agriculturalists in the area.

Analyzing the project cost, the ability to plan such project and the effect of brackishwater on the agricultural land, the team finds that the project itself is efficient enough. However, the project is not effective at all since beneficiaries are few.

F. Water Reservoir Project :

The team visited one water reservoir project in Central Java, in the subdistrict of Tenganan. This water reservoir was rehabilitated in 1FY 1982/83 and cost Rp. 19,795,700 or US \$ 19,760. The non-technically irrigated areas in Java usually catch rain water or water from any available source in the area in order to irrigate cultivated

land in the dry season. This reservoir has a capacity of 7,500,000 liters of water and could irrigate 27.5 hectares of land in "critical" season.

1. Socio Cultural Impact : Farmers from the rainfed agricultural areas usually are very poor. Farmers income in Tengaran is only Rp. 30,000 or US \$ 30 a month and less in the dry season. This condition brought them to a closer communal relationship. With the presence of the project, farmers get additional income. They participate in the project for two reason : (1) to get more income; (2) to survive in the dry season. The team found that the present economic condition does not change the socio - cultural aspect.

The farmers have told the team members that the reservoir will always be maintained by the farmers themselves through the gotong royong system. From the interviews with farmers we found that the farmers expected that the government will provide them with new agricultural information, especially in non-technical irrigation system and will provide them with agricultural extension services in order to improve their economic condition.

2. Agricultural Impact : When the team visited the project site the reservoir was not fully operational due to sedimentation in the reservoir during the recent rainy season. We have inspected the construction and found that construction was technically not sound. Our analysis in the main report shows that the cost to rehabilitate the reservoir was undertimated and consequently the design and specification could not be followed. The project has a negative impact in the agriculture sector since land from the non beneficiary farmers produces more than the land of the beneficiary farmers.

We find that the net-benefit of the beneficiaries are still higher than that non-beneficiaries; a difference of approximately US \$ 298.80 per farmer. This condition was due to the fact that the non beneficiary farmers had to pay for water.

To make this type of project more successful, the government should consider in the planning stage follow up actions such as : (1) maintenance of the reservoir, and (2) protection against sedimentation. The availability of a water users association such as P3A in the project area should also be considered.

3. Economic Impact : This project only provides short-term benefit to farmers who participate during the rehabilitation of the reservoir. If this reservoir is fully operational, it will irrigate 27,5 hectares of agriculture land, provide employment for approximately 275 farm laborers and increase production and farmers income. The team has calculated the cost for improving of this reservoir and came to conclusion that at least Rp. 25 million or US \$ 25,000 should be provided to make the reservoir fully functional.

The Padat Karya Gaya Baru could not agree to this project in the first place because the project could not be implemented under the labor-based method since construction requires higher technology. However, we heard that the selection of this project was decided by higher authorities, the District Head.

IV. Conclusions, Recommendations & Lessons Learned.

The Padat Karya Gaya Baru projects visited by the team have had mixed effects. The projects were intended to provide employment and increase income for the rural under-employed and unemployed and increase the economic potential of the poorest areas of Indonesia. In general, this has most happened. However, with many pressing demands placed in it, the Government of Indonesia Department of Manpower still has had difficulties in coordinating and administering the many types of projects and in carrying out maintenance program. When each projects has been completed, the local government which is under the Ministry of Home Affairs will take over the responsibility for maintaining the project. In less developed countries where the state's development budget is low, usually budget for maintenance is forgotten. Although Indonesia has the traditional "gotong royong" system in which the communities can and do maintain the rural development projects they built to some extent, the responsibility and funding for major maintenance that exceeds the communities resources has not been defined.

A. Road Project

The Padat Karya Gaya Baru road projects are the most successful rural roads projects implemented by Department of Manpower. These labor based rural road construction could compete with other rural road programs in Indonesia such as the Inpres (President Instruction) program which utilizes contractor to built the roads. The aims of the Padat Karya Gaya Baru road projects are to improve communication between villages and health centres market and government facilities and to improve the economic activity in the selected project area.

Substantial immediate benefits are derived from the incremental income received by the farmers who work on the PKGB roads. The beneficiaries of the labor-intensive construction were the marginal farmers landless and unemployed in these communities. They use the additional income to make improvements to house and farm. They also acquired skills while working on the road (cement utilization, leveling, water diversion) which they applied to improve their homes and farms.

Once constructed, these roads brought additional important and lasting social and economic benefits. Most notably these included increased agricultural production and income and access to urban industry.

The "quality of life" improved dramatically in all PKGB road project areas visited, not only because of the increased agricultural and commercial activities, but also because motorized access to and from nearby towns increased social activities and access to services.

One fundamental lesson emerging from the evaluation is that the PKGB roads experience underscores the importance of addressing maintenance problems systematically.

As stated above, although the communities can and do maintain the roads they build under the gotong royong system to some extent, the responsibility and funding for major maintenance that exceeds

the communities resources has not been defined. Any construction project should explicitly resolve the maintenance question. Transferring the responsibility to local government as in all PRGB projects is not enough. One aspect of the solution is education of the farmers as to the importance and needs of preventive maintenance. The other aspect of the solution is establishing a maintenance program within the proposed project.

Since maintenance is still a problem, the team recommended to increase the cost for construction in order to increase the quality of road construction. We also recommended to construct road on the bases of access to markets and to agricultural inputs.

B. Irrigation Projects :

The irrigation projects we have visited achieved the purposes of improving agricultural production and farmers income. The marginal farmers, landless and unemployed farmers are the beneficiaries. The increased agricultural production was due to improved irrigation system where irrigation water is available around the year.

The agricultural expansion areas were established and well irrigated resulting in absorbing employment as farm labor.

Their "quality of life" has improved, not only because agricultural production has increased and the area also has better access - road to transport agricultural production to markets.

Like the road project, the irrigation projects also have problem with maintenance. However, since food is obviously the principle needs for human beings, especially the rural poor, the gotong royong maintenance on the irrigation system was often done to some extent. Since maintenance is still a problem we would recommend that cost of construction should be increased and technical design improved. Future irrigation projects should be designed to define the availability of water users associations and access to agricultural inputs and credit.

C. Rice Terracing Projects :

Although upland rice production has increased, the project failed to introduce new crop varieties which are suitable for the land and new information concerning land practices to protect terraces from erosion. A detailed analysis on upland agricultural and soil conservation has to be conducted before the project is implemented. From this point of view, the Padat Karya Gaya Baru should not too often select a project of this kind although the aim was employment generation.

D. Flood Control Projects :

The protection of areas from flood brought additional important and lasting social and economic benefits. The most important are the increase of agricultural production resulting from better irrigation. Once the project succeeds, the society responds positively. The community starts to establish social organizations which focus on the improvement of the social economic life.

However, with more land protected from flood the market value of land increased. Competition occurred among large farmers and the small farmers were pushed away.

This type of project will not last if no social organization, such as water users association, is established to manage and maintain the irrigation system. Since large maintenance work is not the communities responsibility, as usually stated, we recommended that Padat Karya Gaya Baru should raise the construction quality and therefore increase the cost for construction in order to keep flood control projects functioning.

E. Fish Pond Canal Projects :

Most fish pond activities are located in the coastal area and mixed with agricultural areas. In fish pond canal project, the beneficiaries are the fish pond owners. Their number is small and they live away from the location. Expansion and improvement of these project always had a negative impact on agricultural farmers. Although there was an increase in fish production there is a reduction of income to agricultural farmers.

The design of the brackishwater fish pond canal should be technically sound in order not to disturb agricultural production. The labor intensive method is not adequate for such a project (a capital based project is more suitable) and therefore we recommended that Padat Karya Gaya Baru should not be involved.

F. Water Reservoir Projects :

Communities in rainfed agricultural areas usually construct a water reservoir in order to irrigate farms in the dry season. Once the water reservoir was constructed, agricultural production and farmer's income increased. However, the self made water reservoir is not technically sound and usually collapses in the next rainy season. The labor intensive method introduced by the PKGB to rehabilitate existing water reservoir will not improve the technical quality of those reservoirs. Factors that reduce the life of the reservoir are that water user associations do not exist and fund for maintenance are not available. Such projects cannot be implemented by Padat Karya Gaya Baru since construction should be professionally implemented and a complete analysis regarding socio-economic effectiveness should be conducted.

I. THE ROAD SUBPROJECTS

Thirteen road subprojects were taken as random samples for the purpose of the in-depth evaluation. These road subprojects were implemented in various Indonesian fiscal years as illustrated in the following table.

Road subproject location and year
of Implementation

No.	Project Name	Location	Fiscal Year Implementation
1.	Kepala Sungai - Mangga Road	Secanggang Subdistrict, Langkat District, North Sumatra.	1981/1982
2.	Pantai Cermin - Pematang Cengal	Tanjungpura Subdistrict, Langkat District, North Sumatra.	1981/1982
3.	Rumbia-Tallo Road	Kalara Subdistrict, Jeneponto District, South Sulawesi.	1981/1982
4.	Mancang-Kuala Begunit Road	Selesai Subdistrict, Langkat District, North Sumatra.	1981/1982
5.	Sukamerta-Pasir-kaliki Road	Rawamerta Subdistrict, Karawang District, West Java.	1980/1981
6.	Ngroto-Madiroto Road	Pujon Subdistrict, Malang District, East Java.	1980/1981
7.	Jl.Ds.Merah-Pelajar	Awayan Subdistrict, Hulu Sungai Utara District, South Kalimantan.	1982/1983
8.	Ds.Selan Pematang Danara	Astambul Subdistrict, Banjar District, South Kalimantan.	1980/1981
9.	Tinggi Moncong	Tinggi Moncong Subdistrict, Gowa District, South Sulawesi.	1980/1981
10.	Cikoang-Caikang	Mangara Bombang Subdistrict, Takalar District, South Sulawesi.	1980/1981

No.	Project Name	Location	Fiscal Year Implementation
11.	Poros Daya-Moncong Loe	Biring Kanaya Subdistrict, Ujung Pandang Municipal, South Sulawesi.	1981/1982
12.	Bonto Lebang II	Polongbangkeng Selatan Subdistrict, Takalar District, South Sulawesi.	1980/1981
13.	Bonto Ramba - Bulu Sibatang	Tamalatea Subdistrict, Jene Ponto District, South Sulawesi.	1982/1983

The team collected input and output data on the 13 road subprojects which focused mainly on the socio-cultural, agricultural and economical aspects.

Looking at the purpose of the construction of a road in the rural area, which is to increase the social welfare of the community in the area or its surrounding, there is one factor that should be carefully observed.

That factor is the existing social value system. The team investigated that existing system and whether or not the system had been changed by the road subproject. The other purpose in constructing a road is to increase agricultural production, rural income and job opportunities. Changes in these factors resulting from the road subproject were carefully analyzed.

A. Socio-Cultural Impact :

One of the socio-cultural aspects in rural areas which could be affected by a road subproject is the community participation and its value basis, to the members of that community who took part in the project. In a community that has relatively low income, the participation of the members in the construction of a small scale rural infrastructure is traditionally based on the value of mutual help called the "gotong royong" which fosters appreciations as good members of the community and averts of rejection by the community. Thus a rural area, as the lowest level in the go-

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vernment structure, that lacks cash funds to construct small scale infrastructure for their own economic improvement, but has the available manpower and time, will create a cooperative system as a mechanism to manifest people's desire to receive appreciation. On the other hand, when the rural area is well developed, such a system is rarely to be found.

In the PKGB project, the participation of the rural community is realized in the motive of acquiring cash compensation and therefore the evaluation of the PKGB road subproject is directed to see to what extent social participation in the construction of the PKGB road subproject is affected.

The data showed that 100 % of the PKGB laborers were citizens of the projects neighbourhood. Interviews to the citizens non-workers revealed that 79-% of them supported the PKGB road projects. 79 % of the worker were willing to work with the project if such project were done again at another time. These data showed that people's participation were relatively good.

The level of participation, however, shall not be measured through the numbers of participants as workers and supporters only, but we should also view it from the basic motive of their support. When asked why they took part in the road project, most workers (57 %) answered because of the money incentives, 7 % because they were obligated by the chief of village, and 14 % because of the personal benefits.

The "money oriented participations" was somewhat different from the purely social motive of participation on the mutual help (gotong-royong) value. Our above findings in the 13 PKGB road subprojects are that the participation of the rural people in the construction phase is because the project provides cash incentive to workers as a supplement to their regular income. The economic condition of the subproject area is such that the farmers will participate in any activity that would provide them with an additional income. Most of the PKGB workers are agricultural peasant. 55 % of the respondents who were interviewed told us that their income from

the agricultural sector is not adequate for subsistence so additional income is necessary for them. Without additional work and income they are always in debt to their neighbours or relatives in their efforts to survive. These findings are shown in the following tables.

PKGB worker and society income (in rupiah) :

I n c o m e	Worker	Foreman	Skill worker	Society
N	30	26	22	26
Average	35,000	58,000	49,000	32,000
Sx	19,000	29,000	12,900	12,400
Tx	3,500	5,700	2,700	2,400
Minimum	28,800	46,600	44,100	17,400
Maximum	42,000	69,400	54,900	37,000

Monthly needs (in rupiah) :

N e e d s		Foreman	Skilled worker
N	28	25	19
Average	35,200	42,500	40,300
Sx	13,900	17,900	14,300
Tx	2,600	3,600	3,300
Minimum	30,000	35,300	33,400
Maximum	40,400	49,700	46,600

Furthermore we found that 32 % of the respondents interviewed have other extra work to obtain additional earnings. Besides that, their level of educations is very low and information on farming practice is not easily available so they are only able to work traditionally in the agricultural sector without any improvements. See tables to their production or income.

IP/MD and Dayly Income (in rupian)

	Worker	Foreman	Skilled Worker
IP/MD	711	946	1,311
Income	1,680	2,320	1,980

IP/MD and Dayly Need (in rupian)

	worker	Foreman	Skilled Worker
IP/MD	711	946	1,311
Need	1,200	1,400	1,300

The farmers participation in the subproject is also caused by the fact that their area needs a road. With the improved road implemented by the PKGB project, the economy of the area is developing (which we will explain later) and this condition has lead to another request from the community to build roads in their area even though cash compensation is low. The farmers were well motivated by the village head and Department of Manpower's staff for their participation in the project.

Their participation in the implementation of PKGB road subprojects which lead to an improved economic condition in the subproject influence area did not change the cultural or traditional mutual self help or the gotong royong system. This is because the improved economic condition has not reached a level where it could change the way of life of the people in the villages. Thus, as shown in table A-I-36 in appendix A, the village are working cooperatively, and voluntarily in building local village roads in improving their houses in building new religious centers, or in rehabilitating irrigation canals.

Although the culture has not been changed by the presence of the project, the changes in the economic sector, which will be explained later, have affected the social life of the individuals in the community. The first affect is that there is a deviation in determining the social status of a person. Usually the main determining factor for the degree of seniority in the community is the level of knowledge of several

rules that are valid in that society, especially, the rules that related to religion. Other factors are wealth, landownership, or position in the government, or the person himself is the founder of the settlement area. With the improvement in the economic sectors, the members of the community are commencing to become wealthier in order to obtain a higher status in the society. This situation creates social conflicts such as land problems or problems with the credit systems. These conflicts are not new, because usually problems occur within a family over inheritance.

The positive effect in the social change is the development and increase of several social aspects, such as the development of communal centres for the rural people in the subproject area. Several kind of social activities have been developed leading to better communications among themselves or other people in the subdistrict as well as other people from outside their subdistrict. These activities are usually in sport and/or in arts.

The other effect from the presence of the project is that families increasingly desire to send their children to school, to the highest level of education if possible, in an effort to raise their social status in the society, the status which could dominate the rich or wealthy in the rural community. Thus, the changes in the social life have not altered the existing culture, the gotong-royong, due to the fact that participation in the implementation of the road subproject is some what in line with the gotong-royong system.

B. Agricultural Impact

The evaluation team found that the most notable change resulting from the roads' presence has been a dramatic increase in the number and type of vehicles that operate in the subproject influence area. Tricycles and cowcarts were no longer used by the farmers to carry their agricultural produce to markets. Some farmers have switched from these manual system to motorized transport. The above factors have caused a drop in transportation costs.

The transportation time has also been reduced to approximately 30% and the traffic flow has been increased to 38%. With the rehabilitated

and functional road, the farmers tend to market their agricultural produce outside their village.

However, since the majority of farmers still have pushbikes to carry their agricultural production, and since there are markets within the villages, many farmers prefer to sell in their own village market.

Agricultural production-market Location

Location of Market	Number of Frequency
Outside the village	31
Inside the village	40
Selling at home	25
Selling at neighbours places	6

Total Vehicles after the project by District :

District	Bicycles	Motor-cycles	Cars	B u s
Awayan	16	3	1	-
Astambul	200	13	1	3
Secanggang	4,000	30	-	1
Rawamerta	208	550	19	2
P u j o n	72	177	6	-
Biring Kanaya	300	-	-	-
Kelara	-	125	-	150
Selesai	890	23	-	2
T o t a l	5,686	921	27	158

Total Vehicles Increased :

District	Number of vehicles		Increased	%
	After the project	Before the project		
Bicycles	5,686	2,316	3,370	145
Motor-cycles	921	90	847	941
Cars/Pick-up	27	75	-48	-64 ^{*)}
B u s	158	22	136	618

*) The decrease in number of pick-ups is because of the dramatical increase in the number of buses which have a lower tariff.

Given savings of this magnitude and the savings of the cash incentives received from the project, we were not surprised to find dramatic changes in farming practices which have increase agricultural produce. These improvements lead to the opening of new job opportunities. New shops and stalls have been opened beside the increase in the number of other business and trade.

The saving of cash incentives by the farmers is reasonable because about 74 % of the project cost is for wages. A breakdown of the cost for the 13 subprojects is summarized below.

Costs in the 13 Road Subprojects

Items	Rp. '000	US\$.	%
wages	151,982.6	151,075	73.8
tools	7,991.4	7,945	3.9
materials	43,940.5	43,678	21.5
Survey and Design	1,260.8	1,252	.6
Prasurvey	739.2	735	.4
T o t a l	205,914.5	204,685	100

Each subproject usually recruited an average of 200 workers for 3 months to complete the construction of the road. The additional income for one farmer, who works on the project be about Rp 17,000,00 or (US\$ 17.00) and this amount is a large supplement to their regular income. A more detailed illustration is shown by the following table.

Monthly income from the PKGB Project and Farmers Regular Income
(rupiahs)

Income	Skilled workers	Foreman	Skilled workers	Regular income
Average	35,000	58,000	49,500	32,200
Minimum	28,000	46,600	44,100	27,400
Maximum	42,000	69,400	54,900	37,000

The real benefit and cost data of the farming area before the road subproject was implemented was not available, however, a rough computation of the crude benefit cost ratio could be made with the data collected after the subproject was completed. From a rough estimation we found that the benefit cost ratio is 4.10 but we would not consider this figure to verify the efficiency of the farming system in the subproject-influence area.

The net benefits of the farming system within the road subproject influence area is illustrated below and the conclusion is that most road subprojects that have been implemented by the PKGB project have indirectly improved the farmers income.

The net Benefit of Farming System in Road Subproject
(Rp. 000)

Kecamatans	Wages	Input	Other Costs	Total Costs	Total Benefits	Net Benefits
1. Secanggang	151.8	25.2	65.6	242.6	1,100.1	857.5
2. Tanjung Pura	615.0	63.0	157.4	835.4	7.7	- 827.7
3. Kalara	-	14.8	6.2	21.0	347.5	326.5
4. Selesai	383.4	55.8	30.7	469.9	2,178.4	1,708.5
5. Rawamerta	90.1	39.9	14.5	144.5	528.3	383.8
6. Pujon	210.0	239.5	40.0	489.5	3,226.0	2,736.5
7. Awayan	567.5	17.4	-	584.9	339.5	- 245.4
8. Astambul	239.2	57.6	10.0	306.8	710.3	403.5
9. Tinggi Moncong	20.0	25.2	7.5	52.7	1,074.0	1,021.3
10. M. Bombang	-	23.8	6.5	30.3	2,846.2	2,815.9
11. B. Kanaya	53.2	96.2	121.5	271.2	457.5	186.3
12. Polong.B.Sel.	110.0	26.2	65.0	201.2	1,770.6	1,569.4
13. Tamalatea	60.0	25.5	3.0	88.5	726.5	638.0
M e a n				287.6	1,177.9	890.0

C. Economic Impact :

1. Increased at working opportunity.

Since the inception of the PKGB labor based road building program more than a decade ago, the rural areas in Indonesia (where the sub projects are located) have enjoyed a rapid rate of economic growth. The growth of domestic demand for agricultural products has brought about a transformation in rural areas.

The PKGB road network is an important element in the growth of rural areas. PKGB standard road allow all-weather access and thus have had significant economic effect on many rural communities.

Among the more readily quantifiable effects of the roads are the drop in cost of transportation, the fluency of economic development, the fluency of transporting goods and the rate of traffic, the work opportunities and the opening of isolated areas.

Other economic effects of the PKGB roads are difficult to measure, but, in their total impact, are probably much more important than the fall in transport cost and the increase of the number of vehicle and traffic frequency that operate in the subproject influence areas.

The PKGB roads create their own momentum of change. Most of farmers daily needs can now be found in the villages. New shop and stalls are opened in the village. Production of rice has been increased from 1,532 tons to 2,235 tons a year.

Besides the number of shops and stalls, the numbers of entrepreneurship has also increased. Also the work opportunities have increased in the subproject influence area.

Increased of Work Opportunity

Type of Activities	Total Increased	Total person employed
Agricultural	702 ton	1,847
Shops	74	148
Stalls	42	84
Entrepreneurs	102	102

As stated before, there has been a dramatic change in transportation. We believe that messages that are carried along with the increasing traffic of pickups between villages and markets are more effectively transmitted by word of mouth along the road than via other means. This may account for what appears to be a dramatic increase in modern ideas and practices in formerly isolated areas.

2. The Impact of Road Construction.

The task of constructing a Padat Karya Gaya Baru road consist essentially of: (1) excavating and removing cut material from inadequate slope for road construction; (2) building and compacting the road base; (3) spreading a stone layer for the driveway and compacting the final surface; (4) constructing small bridges and culverts for drainage and (5) sodding the embankments as a prevention against erosion.

To manage the construction of the road project, a development team is established which consisted of a project manager from the Department of Manpower, local government staff as advisors and trained technicians. The laborers are farmers who came from the subproject area and they are hired to complete the project within a stipulated time. Skilled laborers found in the subproject area are hired to construct bridges or install culverts.

The average unit cost for building the PKGB roads is approximately \$ 3,000 per kilometer road. The total project costs for the 13 road subprojects was Rp. 212,207,000 or approximately US \$ 212,000 and approximately 71 kilometers roads were constructed.

Total Project Cost(Rp.000)

Sub Districts	Survey & Design	Cash Incentive	Material	Tools	Total Cost
Awayan	300	17,214	6,985	4,976	29,475
Astambul	300	11,148	1,900	500	13,845
Secanggang	300	10,572	4,705	375	15,952
Rawamerta	200	12,405	1,700	1,000	15,305
Pujon	250	9,084	3,944	546	13,824
Tanjung Pura	300	12,507	4,087	375	17,269
Tinggi Moncong	300	9,098	2,125	434	11,957
Mangara Bombang	300	9,236	2,125	434	12,095
Biring Kanaya	300	11,973	3,900	961	17,134
Kelara	300	12,069	3,600	1,209	17,178
P. Bangkeng Sel.	300	9,656	2,125	434	12,515
Selesai	300	10,572	4,705	375	15,952
Tamalatea	300	16,514	2,039	850	19,703
T o t a l	3,750	152,048	42,940	12,469	212,207

The total cost for cash incentive payment was about 74% of the total project cost and cash incentive was paid to workers on a daily basis similar to the practice in the agricultural sector. Cash incentive for unskilled laborers, skilled labourers and foreman were different as shown in the following table.

District	Worker	Chief of Group	Skilled Worker
Awayan	1,150	1,300	2,500
Astambul	750	900	1,500
Secanggang	700	850	1,400
Rawamerta	525	1,100	1,050
Pujon	525	625	1,050
Tanjung Pura	700	850	1,400
Tinggi Moncong	675	1,500	1,050
Mangara Bombang	500	750	1,050
Biring Kenaya	525	850	1,500
Kelara	750	900	1,050
Polong Bangkeng	750	675	1,050
Selesai	700	850	1,400
Tamalatea	1,000	1,100	1,050
T o t a l	9,250	12,300	17,050
Average	711	946	1,311
Sx	189	242	405
Tx	52	67	112

The cash incentive for each district differ because it is based on the prevailing agricultural wages in that area, however lower in order not to compete with the activities in the agricultural sector.

The road selection procedure follow a process where the technical and the socio-economic aspects are weighted and placed in priority order. The criteria include : the road should be located in a density populated area, have economic potential, have available construction material and labor and the area must be poor and/ or isolated.

For the 13 roads the concept for the projects originated with the villagers, however the final decision was made by the district chief since the selection was given to the area with the highest score on the socio economic aspect.

The PKGB workers were remarkably consistent in their description of how they used the income earned on the road. Most mentioded:

- 1) Improved housing, including new roof, floors and walls;
- 2) Repayment of debts; particularly the agricultural credit facility;
- 3) Purchase of fertilizer
- 4) Increased recreation and consumption of goods, such as clothes, radios and better quality kerosene lamps.

The skills they learned while working on the roads were applied to improving their houses, erecting fences and installing retaining walls.

3. Road Maintenance.

After completion of the roads the responsibility is transfered to the Ministry of Home Affairs. Public works at the district level under the coordination of the district government is the institution to maintain roads within the district territory. However since the budget for maintenance is generally inadequate, priority is given to mantaning only district arterial roads. Only PKGB rural roads that have been upgraded by the INPRESS program are likely to be maintained by the local government public works.

The communities are maintaining the roads they have built under gotong royong system. When funding for major maintenance exceeds the communities resources, the road will not be maintained unless the responsibility is fully taken by the local district government.

The list below shows the different on combination of sources used to maintain the 13 subprojects visited by the team, followed by the frequency with which they maintain the road in a year.

Maintenance Practice in the 13 Road subproject

District	Maintenance practice		
	Gotong Royong	Region authority	Public works
Awayan	x		
Astambul	x		
Secanggang	x		
Rawamerta	x		
P u j o n	x	x	x
Tinggi Moncong	x		
Mangara Bombang	x	x	
Biring Kanaya	x		
K e l a r a	x		
Polong Bangkeng Selatan	x		
S e l e s a i	x		
Tamalatea	x	x	
T o t a l	13 (76%)	3 (18%)	1 (6%)

How frequent the road were maintained under
the Gotong Royong System

District	Frequency per Annu-				
	1x	2x	3x	4x	12x
Awayan	-	-	-	x	-
Astambul	x	-	-	-	-
Secanggang	-	-	x	-	-
Rawamerta	x	-	-	-	-
P u j o n	x	-	-	-	-
Tanjung Pura	x	-	-	-	-
Tinggi Moncong	-	x	-	-	-
Manggara Bombang	-	-	-	x	-
Biring Kanaya	x	-	-	-	-
M e l a r a	x	-	-	-	-
Polong Bangkeng Selatan	x	-	-	-	-
S e l e s a i	-	-	-	-	x
Tamalatea	-	-	-	x	-

II. THE IRRIGATION SUBPROJECT

Observing the impact of irrigation subprojects implemented under the PKGB program, two irrigation subprojects were taken for the purpose of our evaluation. These subprojects are the irrigation subproject in Jabung and Karangploso, located in the district of Malang in the province of East Java.

Location of Subproject and year of Implementation:

Province	District	Subdistrict	I F Y
East Java	Malang	Jabung	1981/1982
East Java	Malang	Karangploso	1981/1982

Size of the Subproject Area :

Subdistrict	Area	Population
J a b u n g	126.80 Km ²	49,924
Karangploso	75.75 Km ²	49,900

A. Socio-Cultural Impact :

Rural people will participate in a labor-based project in their area if the project activity is closely related to the existing social value practice of that area. To some extent, they would participate on the basis of the gotong royong system; because if they did not participate, they would not be respected by other members of the community. On the basis of this condition, the team studied the impact of the subproject with regard to the socio-cultural aspect.

We found that the participation of the farmers in the PKGB irrigation subproject was primarily because they needed additional income and the project provided cash-incentive for the workers. The farmers committed themselves to participate in any rural development activities even though cash compensation for their labor was low; and this situation made the PKGB irrigation project a success. Furthermore, the type of subproject in its relationship to agriculture encouraged them to participate in the project. This condition did not lead to any change in their basic cultural system, the traditional gotong royong system, but strengthened the system for the improvement of their economic condition.

However, the presence of the PKGB, irrigation subproject which has improved and increased agricultural production, per capita income and the value of land, has to some degree affected the social life of the community. Farmers tend to shift to a higher status in the community through purchasing more land to cultivate or through competition to get a certain position, social or political, in the community. However, the most respected persons in the area are those who are "haji" or "ulamas", the religious people. The competition to reach a higher level in the community has led to social dispute.

However, since their existing culture is so strong, those problems could be solved easily by the respected men, the 'hajis' or 'ulama'.

B. Agricultural Impact :

It was hoped that this project will have impact on the increasing of farm production and the net benefit of the farmers. The data collected by the evaluation team showed that the objectives were well fulfilled. The total cultivated land had been increased, the per hectare productivity was raised and higher priced type of plants were farmed.

The total cost for these two PKGB irrigation subprojects was Rp.44,400,425 or approximately US\$ 44,400. This was for cash-incentives, material and tools, and survey and design. It break down of these costs is illustrated below.

Cash Incentive for Laborers :

Kecamatan	Dimension (m)	Target (Rp.)	Actual (Rp.)
Karangploso	4,000	14,182,275	14,182,275
Jabung	7,845	17,192,550	17,192,550
T o t a l	11,845	31,374,825	31,374,825

Material and Tools Costs :

Kecamatan	Target (Rp.)	Actual (Rp.)
Karangploso	6,203,000	6,203,000
Jabung	6,552,600	6,552,600
Total	12,755,600	12,755,600

Survey and Design Costs :

Kecamatan	Survey		Survey Design		Total	
	Target (Rp)	Actual (Rp)	Target (Rp)	Actual (Rp)	Target (Rp)	Actual (Rp)
Karangploso	139,200	139,200	110,800	110,800	250,000	250,000
Jabung	158,400	158,400	141,600	141,600	300,000	300,000
Total	297,600	297,600	252,400	252,400	550,000	550,000

Summary of costs in irrigation subproject (int) :

Items	Karangploso (%)	Jabung (%)
Wages	69.7	71.5
Materials	29.1	27.2
Survey design	.5	.6
Survey	.7	.7
Total	100 % or (Rp. 20,355,275.-)	100 %, or (Rp. 24,045,150.-)

Approximately 70% of the costs in this labor-based project provided for laborers, with the intention of generating employment. The two subprojects have rehabilitated almost 12 km of tertiary irrigation canals and have improved 254 ha of irrigation land in Karangploso and 138 ha of irrigation land in Jabung.

The cropping pattern remains unchanged in both areas, however, farmers have increased the area of cultivated land for crops such as corn, onions, peanuts, cassava and sweet potatoes.

In Jabung, farmers have increased the area land for planting peanuts from 3 ha to 5 ha and corn from 238 ha to 274 ha. These hectareage increases are due to the improved agricultural development in the area and to the information on agricultural extensification given during their labor intensive work in the project.

The table below shows the agricultural land use in Karangploso and Jabung, before and after the project. Land cultivated for onions has been reduced in Karangploso because Rice fields have been well irrigated by the project. Sweet potatoes in Jabung were not extensified because peanuts are more favorable in terms of market price.

Agricultural land in Karangploso
and Jabung, before and after PKGB

Items	Before PKGB (ha)	After PKGB (ha)	Growth rate (%)
<u>Karangploso :</u>			
1. Paddy	3,475	3,558	2.4
2. Corn	369	410	11.1
3. Onion	537	523	- 2.6
<u>Jabung :</u>			
1. Paddy	249	254	2.0
2. Corn	238	274	15.1
3. Peanut	3	5	66.7
4. Cassava	26	30	15.4
5. Sweet potato	17	17	0
T o t a l			

The average area harvested in the two subdistricts for farms with or without the project are shown in table A.II.1 and A.II.2. in appendix A and it was concluded that the farms affected by the PKGB project increased harvests by more than double of farms not affected by the project.

Information on dry rice production was not available, and therefore the calculation on the production is based on wet rough rice production. In Karangploso the rice production on farms effected by the project (wet rough rice) has increased, from 16 tons/ha to 22,5 ton/ha per harvest or an increase of approximately 60%. The farms not affected by the project have only increase their production by 2 %.

In Jabung, the rice yield (wet rough rice) on the two types of area has increased by 14 and 7 % respectively.

A crude benefit-cost ratio (B/C ratio) has also been computed to analyse the efficiency of the project.

Based on the calculation of the mean benefits and costs of the two types of farms, we found that the B/C ratio are 4.9 and 1.8 respectively.

We concluded that the projects are efficient, because they have improved the activity in the agricultural sector and have immediately increased farmer's per capita income. The gross domestic product per capita of the farmers in the subproject influence area has been calculated and our analysis shows that the increase is quite high.

Gross Domestic Product Per Capita of the People in the project area :

Items	Before PKGB (Rp)	After PKGB (Rp)	% - increase
<u>Karangploso :</u>			
1. Kepuharjo	979.67	4,910.60	401.2
2. Tasikmadu	1,194.10	1.561.67	30.8
<u>Jabung :</u>			
1. Sidorejo	2,816.47	1,636.34	- 41.9
2. Sukapuro	3,123.88	3,224.72	3.2

The PKGB irrigation projects were a good investment in the project areas because the projects benefitted not only the farmers and dependents who worked directly on the project, but also other farms affected by the project.

C. Economic Impact :

The improved irrigation system in Karangploso has irrigated another 50 ha of rice fields and therefore has benefited another 102 households. The project also stimulated the farmers to plant other crops on areas which could not be irrigated by the system. Due to the economic development in the area, the team also found that entrepreneurship was growing in the subproject influence area which has increased the amount of long-term employment available.

Number of Entrepreneurs Before and After the PKGB Project:

T y p e	Before	After
S t o r e s	3	4
O j e k	-	48
Handicraft	2	8
Furniture Making	-	5
Workshop for Auto- mobile Battery Charging	-	2
T o t a l	5	67

In the subdistrict in Jabung, the improved irrigation system has increased the agricultural hectarage from 91 ha to 135 ha and rice yields have been 7 tons per hectare per harvest.

The project has benefited 236 family heads and also to their dependents. (These figures are based on the rice farm farmers only). The project also stimulated the farmers to increase production of other crops.

The increase of agricultural production in the subdistrict of Jabung is illustrated below.

Agricultural Production in Jabung Before and After
the PKGB Project *)

Type of Crups	Before (in Tons)	After (in Tons)	Increase (in Tons)
R i c e	11,961	12,861	900
C o r n	11,689	12,500	623
Cassava	4,147	4,200	53
Planit	18	20	2

*) Total production from the area, including production from farms affected and from farms not affected by the project.

The increase of rice production from the two subdistricts calculated in terms of cost is Rp.123,300,000 per year.

Increase of Rice Production (in Rupiah) :

Subdistrict	Tons/year	Perce (Rp/Ton)	Total Price (Rp)
Karangploso	350 tons	100,000	35,000,000
J a b u n g	883 tons	100,000	88,300,000
T o t a l	1,233 tons	200,000	123,300,000

The investment in the two irrigation subproject is Rp.44,680,000 and therefore the multiplier effect is about 2.76 which is almost as high as the national multiplier effect figure which is 2.85. This means that an irrigation project is a good investment in rural areas.

II. The Impact of Irrigation Canal Construction :

The construction of the irrigation canals in the subdistricts in Karangploso and Jabung consisted of: (1) Widening and Deepening the existing canals; (2) Constructing better banks to protect the canals from leakage and erosion; (3) Improving the water flow; (4) Building new diversion boxes and gates; and (5) Sodding the embankments.

Farmers learned from the project, how to construct a good canal which would improved their agricultural production. This project has stimulated them to maintain the canals after sub-project completion. The established P3A (water users Association are more active in organizing themselves to maintain the irrigation system.

Construction materials and tools that were used on the projects were purchased from small suppliers in the area. The total procurement cost for materials and tools was about Rp.12,755,000, or US\$ 12,700 which was a considerable sum for the small suppliers in that area.

To this extent, the project has benefited small enterprises in the area.

III. RICE TERRACING SUBPROJECT

The evaluation team has visited one rice terracing subproject, implemented by the PKGB project. The subproject is located in the sub-district of Teluk Jambe in the province of West Java, an area of approximately 2,300 Ha with a population of 81,834 people. This type of subproject is rare in the PKGB project, however we have been requested by the implementation agencies to evaluate this type of subproject in order to see whether or not the subproject had any impact on the community and on the agricultural and economic condition of the area.

A. Socio-Cultural Impact :

The presence of the rice terracing subproject has improved the economic condition of the subproject influence area. There was an increase in the value of land, and transportation of agricultural products from the subproject area to markets.

The people of the area are building new shops and stalls and a group of villagers has established the "Ojek" transportation service.

The changes resulted from the subproject did not effect the socio-cultural condition in the area due to the fact that the subproject did not make a dramatic change in economic conditions especially to the farmers' incomes.

All of the respondents who were interviewed stated that their way of life has not been changed by the subproject.

Their participation in the implementation of the subproject stemmed from the fact that they were requested by the village headman (a very respected person in a village) and their participation was an obligation to him.

The subproject only benefited a small number of villagers who own the terraced land but the majority of the farmers who worked on the subproject felt that they could not receive the benefit from this subproject because they do not own or work on the terraced farms. This fact has lead them to retain their style of living i.e the gotong-royong.

B. Agricultural Impact :

The total cost of this subproject was Rp.20,897,200 or approximately US\$.20,000. A detailed breakdown of the costs is given in the following tables and they show that about 76 % of the total costs was for labor and the remaining costs were for purchasing material and tools, and for survey and design.

Total Costs - Rice Terracing Subproject :

I t e m s	C o s t s	
	Rp. '000	C o s t %
Cash Incentive	15,797.20	75.59
Material and Tools	4,800.00	22.97
Survey and Design	300.00	1.44
T o t a l	20,897.20	100

Cash-Incentive - Rice Terracing Subproject :

L a b o r e r	C a s h I n c e n t i v e	
	Rp. '000	%
Foreman	929.20	5.9
Inskilled	14,868.00	94.1
T o t a l	15,797.20	100

Material & Tool Costs - Rice Terracing Subproject:

Items	Cost (Rp.'000)	Cost %
Tools	850.00	17.7
Materials	3,950.00	82.3
Total	4,800.00	100

Survey & Design Cost - Rice Terracing Subproject :

Items	Cost (Rp'000)	Cost %
Pra-Survey	50.00	16.7
Survey	250.00	83.3
Total	300.00	100

The existing 20 hectares of terraces were improved and expanded by another 10 hectares.

The banks of the terraces were retained with rock beds and a drainage system was constructed and the edges of the banks were planted with "lamtorogung" (*Leucaem Sp*) to protect the land from erosion.

Before the subproject was implemented, only a small part of the area was planted with rice, and cassava and the remaining part was overgrown with grass.

With the presence of the subproject, the terraces were cultivated with other crops (besides rice and cassava) such as soyabeans, corn and mungbeans.

The farmers told us that the planting of soyabeans and corn was not successful but they could not tell what the problem was. The team assumed that the main problem was the lack of information from the agricultural extension workers, because we found that farming practice in the area is not appropriate for these crops.

Mungbean has yielded 5.0 tons per hectare per year and since this was the first harvest and trial, the yield was high compared with the yield of 0.3 tons per hectare of farms not affected by the project. The production of rice was successful because the yield became 13 tons per hectare compared with 2.5 ton / ha of farms not affected by the project.

Farmers saw the success with mungbeans and plan to plant more mungbeans in the next cycle. We found that farmers need to be provided with some agricultural information from the extension worker because probably other secondary crops are also suitable for planting on these terraces.

Data on rice farming was available and the team has calculated the benefit cost ratio only for the rice farms on these terraces. The benefit cost rates is 6.3 for farms affected by the project and only 0.4 for farms not affected by the project.

The Crude Benefit - Cost Ratio in Rice Terraces :

F a r m s	Benefits (Rp.'000)	Costs (Rp.'000)	Crude B/C ratio
Farms with a project	1,883.3	297.5	6.3
Farm without a project	70.5	193.0	.4

C. Economic Impact :

With the terraces area expanded by 50 %, the project shows a net benefit of approximately US\$ 1.6 million or about US\$ 1.600 a year. The net benefit is extremely high if we compare it with the net benefit acquired from farms without a project.

The Net Benefit of Farms With and Without
the project

F a r m s	Benefit (Rp.'000)	Costs (Rp.'000)	Net Benefit (Rp.'000)
Farms with a project	1,883.3	297.5	1,583.8
Farms without a project	70.5	193.0	- 125.5

Although the team did not compute the number of the number of the direct and indirect beneficiaries, we have observed that the net benefit has been indirectly felt by the farmers who live in the subproject influence area. We conclude that farmers' purchasing power is higher, since more shops, stalls and "warungs" (eating places such as small restaurants) were established in the area.

Transportation from village to village or to market towns has improved, since small entrepreneurs developed a local transportation service such as the "ojek". With the presence of these new activities in the area, the subproject would have provided some longterm employment to the unemployed.

We found that if the farmers are left to their traditional farm practice without the support of the agricultural extension workers, the farmers will not work their land as effectively as possible. They do not know what kind of crops should be planted in order to gain the maximum benefits.

This kind of project, if possible, should be visited after one year to see the net benefit and compare it with the present calculation. By doing so, we could come to some conclusion as to whether or not this kind of project is intensive, or effective and/or efficient.

Our concluding about this kind of subproject, will be summarised later.

IV. THE FLOOD CONTROL SUBPROJECT

Three flood control subprojects, taken as random samples, were evaluated by the team.

The subprojects are Kali Terong and Kali Galeh in Central Java and Kali Daha Utara, located in South Kalimantan. The subproject in Kali Terong was completed in November 1982 and Kali Galeh in December 1981. During our visit to the three subproject sites, we found that the completed Kali Daha Utara subproject had been destroyed by flood and therefore the team did not include this subproject for the evaluation. Time did not permit us to find another subproject site of the same kind for our evaluation.

The population of the district of Ambarawa is approximately 71,342 and the district covers an area of 142 square kilometers. The rain intensity is high in the area and usually in a large part of the area suffers from flooding. In Kali Terong alone, 1.21 Km² are always flooded which affects 2,880 farmers. The total area that suffers from flooding is about 6.5 Km². The purpose of these flood control canals was to minimize the flooded areas and at the same time to increase food production.

The team will evaluate the impact of the subprojects, specifically from the socio-cultural, agricultural and economic aspects.

A. The Socio-Cultural Impact :

Most of the workers who participated in the PKGB project consisted of agricultural and fish farmers. Their earnings from these sectors are low due to the environmental conditions. In order to survive, the farmers are forced into debt. (This is shown by the data on table A.IV.13).

The presence of the project has enabled them to earn additional income and this has caused them to participate in the implementation of the subproject. The farmers did not consider this PKGB project a mutual self help or a gotong royong activity, however we found that the project did not change the existing culture. The culture is very strong because it is directly connected to the social values they hold. Furthermore, the flood control canal subprojects benefited these farmers in many ways, which we will discuss later.

The people in the subproject influence area tend to improve all activities through the gotong royong system. The improved economic condition have enabled them to take advantage of other opportunities to improve their income. Not only the subproject influence area has been affected by the project but also the surrounding areas. The project has stimulated other areas to protect their agricultural land from flood.

We found that the culture has not been changed, however, the improved economic condition have changed farmers' social life. With their improved income, farmers tend to participate in more social activities such as "the arisan" (an activity where people deposit an amount of money and each member will collect the sum in turn - not gambling), women's meetings and religious activities.

The improved condition in the area resulting from the project, did not effect the feelings of solidarity of the people. Approximately 93 % of the respondents who were interviewed by the team stated that the people are getting along with each other although problems arise among them.

The form of problems are just quarrels between children to more serious problems such as land disputes. These problems are usually solved by those involved in their traditional deliberation way. If the problem originates from outside the area, such as stealing or robbery, the solidarity of the people becomes stronger in order to protect their area.

The improved conditions did not change the social structure in terms of class. People from a lower class still respect the upper class people in that society even though the lower class people have improved their income to a better level until they could either send their children to school or allow them to go further with their education.

We found that the PKGB flood control canal subproject has to some extent solved the problem faced by the people in the subproject area and has brought the area the promise of a better future.

B. Agricultural Impact :

The total cost to rehabilitate the two flood control canals, which have a total length of 12 km, is more than Rp. 48 million or approximately US\$ 48,000. The costs consist of the cost for survey-design, material and tools, and cash incentive as illustrated below.

T o t a l C o s t s :

	Kali Terong	Kali Galeh	Total
Survey and Design	Rp 412,000	Rp 412,000	Rp 824,000
Material and Tools	" 7,577,500	" 874,000	" 8,451,500
Cash Incentive	"27,624,250	"11,306,850	" 38,931,100
T o t a l	Rp. 35,613,750	Rp. 12,592,850	Rp. 48,206,600

The flood control canals were well rehabilitated. In Kali Terong, 62 hectares of rice fields were protected from flood and in Kali Galeh the feeder roads were protected from flood and now function well, resulting in better communication and transportation of agricultural products.

The two areas that always suffered from flood now have a better rice production yield. There has been an increase from 2.265 tons to 5.25 tons per hectare of rice or an increase of 132 %. Areas without the PKGB project have also increased their rice production but by only 10.8 %.

The PKGB flood control subproject has increased not only the amount of farm employment, but also the number of entrepreneurs. In other words the project has improved the economy in the subproject influence area.

The flood control subproject has also increased the efficiency of the farming system in the subproject influence area. The crude benefit cost ratio that has been calculated by the team shows that the ratio for farms with and without a PKGB - project are 1.45 and 1.04 respectively. The B/C ratio is not high but we could assume that the farmer condition was worse than the present situation. Rice production has increased from 2,165 tons to 6,000 tons a year and this improvement means a lot to the farmers.

Farmers are now improving their practices in the agricultural sector and, especially in Kali Galeh, farmers are cultivating their land twice a year and all of their land is being used for maximum benefit in order to obtain the optimum income for each farmer.

C. Economic Impact :

The 62 hectares in Kali Terong that have been protected from flood have increased production of rice in the area from 360 tons to 425 tons a year. In Kali Galeh the increase of rice production has also been 65 tons a year. The increase of income generated from the improved agricultural production has given a positive impact to trade and transport businesses.

Approximate Income Increase (in US\$) :

Subproject Area	Investment	Income Increase
1. Kali Terong	US\$ 35,000	US\$ 101,000
2. Kali Galeh	US\$ 12,500	US\$ 35,500
T o t a l	US\$ 47,500	US\$ 136,500

Communication and transportation of the agricultural products from the subproject influence area to market or consumers has been improved since the access roads in the subproject influence area have not been destroyed by flood. The frequency of road repairs has dropped from 5 times to 3 times a year and at the same time the time required for maintenance has been reduced to same degree due to the improvement.

This means that farmers who do the maintenance work with the gotong royong system have more time to work on their farms.

As the project purpose, which is to protect the land from flood and increase agricultural production, has been achieved, the team found that this kind of subproject is effective.

V FISH POND CANAL SUBPROJECT

Only one PKGB fish pond canal subproject was evaluated by the team because the number of this kind of subproject is small compared to the other kinds of subprojects. There are only about 0.4% of these subprojects that were implemented during the IFY 1979/80 to 1982/83. The subproject that was visited by the team is the Rawamerta fish pond canal subproject, located in the subdistrict of Rawamerta in the province of West Java. The cost to construct or to improve the 6,300 meter canal of 3.15 meter width in the coastal area of Rawamerta was approximately US\$ 17,500.-.

The PKGB program is expanding its activity into subprojects other than roads and irrigation canals, and one of the new kinds is the fish pond which has a broader objective, to create productive employment. For this reason we have been asked by the implementing agencies to evaluate the impact of this particular subproject in regard to the socio-cultural, agricultural and economic aspects.

A. Socio-Cultural Impact :

The location of the fish pond subproject is located in the northern coastal area of West Java, in the subdistrict of Rawamerta. Brackish water fish breeding is not a traditional activity in this area. The farmers in the area are agricultural farmers

who never realized the economic potentials of fish breeding. Outsiders take advantage of the coastal area to breed brackish water fish. The outsiders became the fish pond owners and a small number of the agricultural farmers became the fish farm laborers.

During the construction of the feeder canals for the fish ponds, farmers from the subdistrict of Rawamerta were motivated by the village headman to participate in the implementation of the subproject for obtaining supplementary income during the slack season in the agricultural sector.

When the subproject was completed and brought an increase in fish production, only the fish pond owners benefitted while the agricultural farmers still suffered from a poor economic situation. Because there was no change in the agricultural sector from the subproject, farmers income are still low and this situation has encouraged them to keep their traditional gotong royong system intact. The social life in the area has not changed either.

The positive impact of the subproject is that the productive fish ponds have stimulated fish farm laborers to maintain access roads. The subproject also has stimulated a small group of villagers to establish a transportation service agent or ojek, where fish farmers can hire motorcycles to transport their products to markets.

Some conflicts occur between fish pond farmers and agricultural farmers. Because the area was expanded for brackish water fish production, the nearby agricultural fields were intruded by sea water which has lowered rice production of the area.

The selection of the site is inappropriate because on one hand only a small number of farmers receive the benefit of the project, and on the other the project brings disadvantages to the agriculture farmers.

B. Agricultural Impact :

Approximately 80 % of the subproject costs were used to pay the PKGB workers. Even though each unskilled worker received only Rp.525 or US\$ 0,53.-per day, this additional income to some extent, helped them to survive. The agricultural farmers participated in the work to improve the production of the fish ponds but their own cultivated land was destroyed by the intrusion of sea-water due to the expansion of the fish pond area from 60 to 80 hectares.

The fishponds are harvested twice a year and production has been increased to 42 tons or an increase of 26 tons a year. This improvement has benefited the fishpond owners only and the fish farm laborers but did not benefit the people who live in the subproject area who are agricultural farmers.

C. Economic Impact :

The intention of a PKGB fish pond subproject in the Rawamerta subdistrict was to increase the income of the poor people. However, the incremental income resulting from the improved fish pond subproject did not reach the agricultural farmers who live in the subproject influence area. The incremental income has only pleased the fish pond owners who live in another area.

The net additional income calculated by the evaluation team is approximately US\$ 49,960 a year.

This type of subproject, when constructed in an inappropriately selected area was not effective at all since the beneficiaries were few. The fish pond subproject in most cases in the PKGB project, did not bring direct economic benefit to the area but, in fact, were detrimental to the agriculturalists in the area. However in Rawamerta, the subproject has stimulated fish farmers and their laborers to improve the village access roads in order to speed up transportation of their produce. Indirectly, the improved roads also give some benefit to the agricultural farmers.

VI. WATER RESERVOIR SUBPROJECT

The team visited one water reservoir subproject in Central Java in the subdistrict of Tengaran. The water reservoir which has a capacity of approximately 75,000 cubic meters and can irrigate 27.5 hectares of land. This subproject was rehabilitated in IFY 1982/1983 and the total cost of the project was Rp.19,795,700.- or approximately US\$ 19,760.- At full capacity, the agricultural area could be well irrigated and produce a reasonable harvest, although the area is non-technically irrigated.

This kind of subproject is seldom selected, however the PKGB project is trying to select subprojects which will create as much employment as possible in areas of poor economic condition.

This subdistrict was selected using the PKGB standard selection procedures. However the standard lacks some important engineering factors which are critical for water reservoir construction.

To evaluate this subproject, the team has observed the impact on the socio-cultural, agricultural and economic aspects of the subproject influence area.

A. Socio-Cultural Impact :

Most workers who participated in the implementation of the subproject were agricultural farmers who earn about Rp.30,000 or approximately US\$ 30.- a month. Their regular income is very low and their participation in the subproject implementation was a great opportunity for them to obtain some supplementary income. All respondents who were interviewed stated that their participation was based on the cash-incentive that was provided by the project.

The subproject did not change the socio-cultural values of the community, although the rehabilitated water reservoir has improved various socio-economic aspects in the subproject influence area and although some farmers become richer than others.

This is due to the strong religious traditions in the area where people respect each other and will not act contrary to the existing system.

The manner of carrying out local activities is based on the gotong royong system, for example: the maintenance of access roads, the building or renovating of people's houses or any activity which will improve their togetherness in the society. We found that with the presence of the subproject, there were some conflicts among farmers about water distribution. These conflicts were solved in the traditional way.

B. Agricultural Impact :

The work involved in this water reservoir subproject consisted of (1) deepening the reservoir to 7.50 meter so that the full capacity will be 75,000 cubic meters and so that the area could be irrigated in the dry season; (2) rehabilitating the embankments from erosion; and (3) minimizing the amount of sedimentation in the reservoir. The total cost for this kind of subproject is about Rp.19.8 million or approximately US\$.19.800. The total costs covered cash-incentives for laborers, materials and tools, and survey and design, as illustrated below.

Total Subproject Costs :

I t e m s	Rp.(000)	%
1. Cash-Incentive	13,403.25	67.7
2. Material & Tools	5,980.50	30.2
3. Survey & Design	412.00	2.1
T o t a l	19,795.75	100

Cash-Incentive for Laborers :

Laborers	Cash-Incentive	%
Foreman	707.25	5.3
Skilled labor	1,380.00	10.3
Unskilled labor	11,316.00	84.4
T o t a l	13,403.25	100

Material & Tools Cost :

I t e m s	Cost Rp(000)	%
T o o l s	890.00	14.9
Materials	5,090.50	85.1
T o t a l	5,980.50	100

Survey & Design Cost :

I t e m s	Cost Rp(000)	%
Prasurvey	50.00	12.1
Survey & Design	362.00	87.9
T o t a l	412.00	100

We found that this kind of subproject could not be implemented using the labor-based method since some important engineering factors should be considered in the design and in its implementation. The work that was done could not stop the occurrence of sedimentation in the reservoirs and the embankments were not well compacted resulting in erosion. This subproject will not last for two years; however, when we visited the site (one year after completion) there were some improvements in the agricultural aspect.

The average area harvested is double the average area on farmers not affected by the project. However, the yield of paddy per hectare is lower than the average yield of paddy on farmers not affected by the project.

The average area harvested :

F a r m s	Paddy (ha)	Corn (ha)
With Project	1.15	0
Without Project	.40	.25

The Average Yield of Paddy & Corn
per Hectare :

F a r m s	Paddy (ton/ha)	Corn (ton/ha)
With project	5.3	-
Without project	6.0	3.0

But because the area (27.5 hectares) that could be cultivated as a result of the subproject is larger than the area that could be cultivated on farmers not affected by the project, the net benefit would be higher.

This increase will not tell us that this is a good subproject. We calculated the crude benefit cost ratio of the farming system in the subproject area and found that the B/C ratio for farms affected by the project was lower than for farms not affected by the project. The net benefit and the B/C - ratio are summarized below.

The Crude B/C ratio and Net Benefit for farms with and without a project :

F a r m s	Benefits (Rp.' 000)	Costs (Rp.' 000)	Net Benefits (Rp.' 000)	B / C Ratio
With Project	766.40	19.0	568.4	3.9
Without Project	384.00	91.2	292.8	4.2

We found that the subproject did not change the efficiency of the farming system in the subproject area and the subproject is not effective.

C. Economic Impact :

The subproject did not bring any change to the economic condition of the area. The level of unemployment remains unchanged and there were no indications that the subproject has improved the economic aspect of the area.

This subproject was proposed by the villagers, as indicated by the answers of the respondents, and this is a good start towards decentralization.

However, project authorities should be careful in their planning and decision making. The funds available under the PKGB system are inappropriate for such big subproject, and this kind of subproject should be implemented using the capital-based method.

We have estimated that approximately Rp. 25,000,000.- or US\$. 25,000.- would be needed to complete the subproject and make it functional.

VII. CONCLUSIONS, RECOMMENDATIONS, AND LESSONS LEARNED

A. Conclusion :

The Padat Karya Gaya Baru subprojects visited by the team have had mixed effects. The subprojects were intended to provide employment and increase income for the rural under-employed and unemployed and increase the economic potential of the poorest areas of Indonesia. In general, this has mostly happened.

The selection criteria used in the PKGB program for each individual subproject are excellent. The criteria are :

1. The subproject location must have low per-capita income, high under/unemployment rate and high population density.
2. The work must be labor-intensive.
3. The subproject must use local manpower and materials.
4. The subproject must stimulate increased local participation in development process.
5. The subproject must be technically sound and must yield rapid benefits in production or services.
6. The cash incentive wage must be slightly below the local rate of unskilled labor.
7. The subproject must be planned and supervised by available local staff and must be completed within one year.

We have concluded that by using these established criteria for each individual subproject, the cultural value or the gotong royong system will not be affected by the presence of a PKGB subproject. On the contrary the selected PKGB subprojects will provide a positive impact on the socio-economic aspects. However,

with many pressing demands placed on the PKGB program, the Government of Indonesia Department of Manpower has still had difficulties in coordinating and administering the many types of subprojects. We found that several types of subprojects were not adequate for implementation using the PKGB criteria.

The fishpond canal, water reservoir and rice terracing subprojects are examples of the above. We concluded that the road, irrigation and flood control subprojects were the best PKGB subprojects because they make dramatic changes in the socio-economic aspects in each subproject influence area, create long-term employment, and provide a large number of direct and indirect beneficiaries.

The PKGB road subprojects are the most successful projects implemented by the Department of Manpower. This labor based rural road construction could compete with other rural road programs in Indonesia such as the INPRES (President Instruction) program which utilizes contractors to build the roads. Once a PKGB road is constructed, the road brings additional important social and economic benefits. Most notably these include increased agricultural production and income resulting from sharply reduced transportation costs and access to urban industry. The "quality of life" improved dramatically in all PKGB road subproject areas visited because of the increased commercial activities, motorized access to and from towns, increased social activities and access to services.

While PKGB road subprojects have improved agricultural production, the PKGB irrigation canal subprojects have stimulated the beneficiaries to improve access roads to transport agricultural production to town markets.

Although the irrigation subproject is a good type of subproject to be implemented by the PKGB, we found two things which are lacking. These are the role or the establishment of the water users association and access to agricultural credit. Irrigation subprojects without the existence of a water user association usually will have problem with maintenance, water distribution and lack of information on agricultural intensification. No access to agricultural credit will slow down farmers' efforts to increase production. These two input factors are also important for the flood control subprojects. Once the area is protected from flood, farmers tend to compete in cultivating their land.

Water distribution should be well organized and information on how to cultivate their land should be provided.

The type of subprojects which have been selected but with little prior study of the socio-economic participation and environmental aspects should be reduced. The first is the Rice terracing subproject, where farmers are trying to plant other crops without knowing which crops are the best crops to be planted and their poor farming practice results in low yield. The second example is the fish pond subproject where fish pond owners are outsiders and agricultural areas were intruded by sea water. The third example is the water reservoir subproject where water distribution is not well organized, resulting in poor participation for maintenance. Poor land practice on terraces, inadequate selection of the location of fishponds and poor management in water distribution in water reservoir subprojects create negative impact on the environmental aspects and furthermore reduce the likelihood of farmers participation in the implementation of future rural development projects.

The quality of most PKGB subprojects construction was reasonable. The construction quality should be raised to an even higher standard by increasing the amount available for construc-

tion. We found that the wage rate for the PKGB workers were very low compared with the local agricultural prevailing wage rate, rather than slightly lower than the local rate as stated in criterion 6. The lesson we learned here was that the PKGB workers tend to reduce their work productivity in order to obtain more cash incentives but then the subproject could not be completed in the stipulated time.

One fundamental lesson emerging from the evaluation is that the PKGB project experience underscores the importance of addressing maintenance problems systematically. Although the communities can and do maintain the PKGB subprojects under the traditional gotong royong system to some extent, the responsibility and funding for major maintenance that exceeds the communities resources has not been defined.

B. Recommendation and Lessons Learned :

The following are our recommendations :

1. A wage survey should be conducted annually in order to establish the PKGB daily wage rate for each province. The PKGB daily wage rate should be at least 80 % of the local agricultural prevailing wage rate.
2. To raise the quality of construction of each PKGB subproject, the material unit cost should be raised by changing the percentage proportion : 55 % of the total cost should be for labor and the remaining for material and tools.
3. Any construction subproject should explicitly resolve the maintenance question. One aspect of the solution is motivation and education of the communities as to the importance and means of preventive maintenance. The other aspect of the solution is creating a maintenance program with Public Works at local level since PKGB project has the trained manpower.

4. Farmers should get involved in subproject planning and monitoring in order to increase their participation in the maintenance of the subproject.
5. In road subproject, selection should also be based on one important aspect which is that the road should link the farm gates and village markets when transportation facilities are lacking, rather than link to urban industry.
6. Like the road subprojects which automatically create short and long-term employment and increase the number of beneficiaries the irrigation subprojects should be extended and continued with improved technical design.
7. With the limited project personnel in the Department of Manpower, it is recommended to reduce some of the subproject types which could not be implemented using the PKGB method.

These are : a) the fish pond and water reservoir subproject which require highes cost and technical engineering quality to implement; and b) the terracing subproject which require a broader integrated approach in their implementation.

8. The Department of Manpower should conduct an internal evaluation of each individual subproject and therefore the established internal evaluation system should be further improved.

APPENDIX A.

I. Road Sub-Project.

A.I.1. Kilometer Road Rehabilitated by PKGB (km).

K e c a m a t a n	Section need ed for Rehabilitation	Section Rehabilitated by PKGB
1. Secanggang -----	8.0	4.3
2. Tanjung Pura -----	4.2	4.7
3. Kalara -----	10.0	5.0
4. Selesai -----	5.1	5.1
5. Rawamerta -----	7.3	8.0
6. Pujon -----	6.0	4.0
7. Awayan -----	5.7	5.7
8. Astambul -----	4.5	7.0
9. Tinggi Moncong -----	5.0	5.0
10. Mangara Bombang -----	4.0	7.0
11. Biring Kanaya -----	5.0	5.0
12. Polong Bangkeng Selatan -----	7.0	7.0
13. Tamalatea -----	7.0	7.0
	78.8	74.8

A.I.2. Summary of costs in road sub-project :

I t e m s	Rp. 000	%
Wages -----	151,982.6	73.8
Tools -----	7,991.4	3.9
Materials -----	43,940.5	21.3
Survey design -----	1,260.8	6
Survey -----	739.2	4
T o t a l	205,914.5	100.0

A.I.3. Total Actual Cash - Incentive Payment by Sub-project.

District	Total C.I	Length of road	C.I/metres
Awayan	17,214,000	5,700 meters	3,020
Astambul	11,148,600	7,025 meters	1,586
Secagang	10,572,000	4,700 meters	2,458
Rawamerta	12,405,118	3,000 meters	4,135
Pujon	9,098,250	4,000 meters	2,271
Tanjung Pura	12,507,450	4,700 meters	2,661
Tinggi Moncong	9,098,250	6,000 meters	1,516
Mangara Bombang	9,236,250	7,000 meters	1,319
Biring Kanaya	11,973,000	5,000 meters	2,394
Kelara	12,069,825	5,000 meters	2,413
P. Bangkeng Selatan	9,659,475	7,000 meters	1,379
Selesai	10,572,800	5,100 meters	2,073
Tamalatea	16,514,375	7,000 meters	2,359
Total =			29,584
Average =			2,275
Sx =			766
Tx =			212

A.I.4. Total Cash-Incentive Payment by Sub-Project Target vs Actual

Kecamatan	Target (Rp.000)	Actual (Rp.000)	% of target
Secanggang	10,572.8	10,572.8	100.0
Tanjung Pura	12,507.4	12,507.4	100.0
Kelara	12,069.8	12,069.8	100.0
Selesai	10,572.8	10,572.8	100.0
Rawamerta	12,455.3	12,405.1	99.6
Pujon	9,084.5	9,084.5	100.0
Awangan	14,948.0	17,214.0	115.2
Astambul	11,148.6	11,148.6	100.0
Tinggi Moncong	9,098.2	9,098.2	100.0
Mangara Bombang	9,236.2	9,236.2	100.0
Biring Kanaya	11,973.0	11,973.0	100.0
P. Bangkeng Selatan	9,656.5	9,656.5	100.0
Tamalatea	16,514.4	16,514.4	100.0

A.I.5. Materials cost (in rupiah).

District	Materials Cost	Length of road	Materials Cost/metres
Awayan	6,985,000	5,700 meters	1,225
Astambul	1,900,000	7,025 meters	270
Secanggang	4,705,000	4,300 meters	1,094
Rawamerta	1,700,000	3,000 meters	566
Pujon	3,944,500	4,000 meters	986
Tanjung Pura	4,087,000	4,700 meters	869
Tinggi Moncong	2,125,000	6,000 meters	345
Mangara Bombong	2,125,000	7,000 meters	303
Biring Kenaya	3,900,000	5,000 meters	780
Kelara	31,600,000	5,000 meters	720
P. Bangkeng Selatan	2,125,000	7,000 meters	303
Selesai	4,705,000	5,100 meters	922
Tamalatea	2,039,000	7,000 meters	219

A.I.6. Equipments cost (in rupiah)

District	Equipment Costs	Length of road	Equipment Cost/metres
Awayan	4,976,000	5,700 meters	872
Astambul	500,500	7,025 meters	71
Secanggang	375,000	4,300 meters	87
Rawamerta	1,000,000	3,000 meters	333
Pujon	546,000	4,000 meters	136
Tanjung Pura	375,000	4,700 meters	79
Tinggi Moncong	434,000	6,000 meters	72
Mangara Bombang	434,000	7,000 meters	62
Biring Kanaya	961,000	5,000 meters	192
Kelara	1,209,375	5,000 meters	241
P. Bangkeng Selatan	434,000	7,000 meters	62
Selesai	375,000	5,100 meters	73
Tamalatea	850,000	7,000 meters	121

A.1.7. Costs for purchasing tools in road subproject :
Target us Actual

Kecamatan	Target (Rp.000)	Actual (Rp)	% of Target
Secanggang	375.0	375.0	100.0
Ianjung Pura	375.0	375.0	100.0
Kalara	1,209.4	1,209.4	100.0
Selesai	375.0	375.0	100.0
Kawamerta	1,000.0	1,000.0	100.0
Pujon	546.5	546.5	100.0
Awayan	567.0	497.0	87.7
Astambul	500.5	500.5	100.0
Tinggi Moncong	434.0	434.0	100.0
Mangara Bombang	434.0	434.0	100.0
Biring Kanaya	961.0	961.0	100.0
P. Bangkeng Selatan	434.0	434.0	100.0
Tamalatea	850.0	850.0	100.0

A.1.8. Road overhead cost (in rupiah)

Road length	District	Survey cost	Survey Design	Overhead Cost
5.700 mtr.	Awayan	50.000	250.000	300.000
7.025 mtr.	Astambul	50.000	250.000	300.000
4.300 mtr.	Secanggang	50.000	250.000	300.000
3.000 mtr.	Rawamerta	50.000	150.000	200.000
5.000 mtr.	Kelara	50.000	-	-
4.700 mtr.	Ianjung Pura	50.000	-	-
6.000 mtr.	Tinggi Moncong	50.000	-	-
7.000 mtr.	Mangara Bombang	50.000	-	-
5.000 mtr.	Biring Kanaya	50.000	-	-
4.000 mtr.	Pujon	139.200	110.800	250.000
7.000 mtr.	P. Bangkeng Sel.	150.000	-	-
5.100 mtr.	Selesai	50.000	250.000	300.000
7.000 mtr.	Tamalatea	50.000	-	-

A.I.9. Total Number of Mandays^{*)}

District	Worker	Foremen	Skilled worker	total
Awayan	15,600	6,800	300	20,700
Astambul	12,797	654	200	13,651
Secanggang	13,825	691	220	14,736
Rawamerta	21,335	1,067	462	22,862
Pujon	15,335	767	107	16,207
Tanjung Pura	13,991	700	92	14,783
Selesai	14,420	720	118	15,258

*) No data were available for the remaining 6 road subprojects.

A.I.10. Total Number of Mandays per Meter Road.

District	total MD	Length of road	total MD/meters
Awayan	20,700	5,700 metres	3,6
Astambul	13,651	7,025 metres	1,9
Secanggang	14,736	4,300 metres	3,4
Rawamerta	22,862	3,000 metres	7,6
Pujon	16,207	4,000 metres	4,0
Tanjung Pura	14,783	4,700 metres	3,1
Selesai	15,258	5,100 metres	3,0

A.I.11. Number of Vehicles Before and After Subproject.

	Before PKGB	After PKGB
Bike	1978	812
Tricycle	275	-
Cow wagon	85	-
Motor bike	22	152
Car	4	5
Small truck	70	16
truck	11	32

A.I.12. Transportation means in use.

A.6

District	Before the project				After the project			
	Carrying pool	Human Back	by cycle	Car Cow	By cycle	Car Cow	Motor cycle	Mobile
Awayan	x	-	-	-	x	-	x	x
Astambul	x	x	-	-	-	-	-	x
Secanggang	x	-	x	-	x	-	x	x
Rawamerta	x	x	x	-	x	-	x	x
Pujon	x	x	x	x	x	-	x	x
Tanjung Pura	-	-	-	-	-	-	-	-
Tinggi Moncong	-	-	-	-	x	-	x	x
Mangara Bombang	x	-	x	x	-	-	-	x
Biring Kanaya	x	-	x	-	x	x	-	x
Kelara	-	-	-	-	-	-	-	-
P. Bangkeng Sel.	x	-	-	-	x	-	-	-
Selesai	x	x	x	x	-	-	x	x
Tamalatea	x	-	x	x	-	x	x	x

A.I.13. The duration of cruising time per 10 km (in hours)

District	by cycle		Motor cycle		Mobile	
	Before project	After project	Before project	After project	Before project	After project
Awayan	2,6	0,8	1,2	0,4	1,7	0,2
Astambul	2,5	0,6	1,2	0,3	2,5	0,5
Secanggang	3,4	0,5	1,2	0,2	1,7	0,5
Rawamerta	4,6	0,8	1,6	0,3	2,4	0,6
Pujon	1,2	0,6	0,6	0,2	1,2	0,5
Tanjung Pura	3,5	1,4	1,4	0,7	2,1	0,7
Tinggi Moncong	3,3	1,2	1,6	0,8	1,2	0,8
Mangara Bombang	4,2	1,4	2,8	0,7	2,8	1,0
Biring Kenaya	4,4	2,2	1,1	0,6	2,2	1,1
Kelara	4,0	1,0	2,0	0,5	3,0	0,6
P. Bangkeng Selatan	2,8	2,0	1,4	0,3	2,1	0,7
Selesai	2,5	0,9	1,9	0,4	1,9	0,5
Tamalatea	2,8	0,7	1,4	0,3	1,7	0,7
Total	42,1	13,0	19,3	5,7	26,5	8,4
Average	3,2	1,0	1,5	0,4	2,0	0,6
Sx	0,9	0,5	0,1	0,05	0,2	0,06
Tx	0,3	0,1	0,1	0,05	0,2	0,06

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A.I.14. Road condition after the project

District	Road length	Road width	Deterioration	
			Often	Not Often
Awayan	5,700 mtr	6 mtr		x
Astambul	7,025 mtr	4 mtr		x
Secanggang	4,300 mtr	7 mtr		x
Rawamerta	3,000 mtr	3 mtr	x	-
Pujon	4,000 mtr	6 mtr		x
Tanjung Pura	4,700 mtr	6 mtr		x
Tinggi Moncong	6,000 mtr	6 mtr		x
Mangara Sombang	7,000 mtr	7 mtr		x
Biring Kanaya	5,000 mtr	- mtr		x
Kelara	5,000 mtr	6 mtr		x
P. Bangkeng Selatan	7,000 mtr	- mtr		x
Selesai	5,100 mtr	4 mtr		x
Tamalatea	7,000 mtr	6 mtr		x

A.I.15. Frequency of Transport of Agricultural Produce to market location.

Location of market	Number of frequency
Out of village	31
In the village	40
At home	25
Neighbors	6
No sell	4

A.I.16. PKGB worker and society income (in rupiah)

Income	Worker	Foreman	Skill worker.	Society
N	30	26	22	26
Average	35,000	58,000	49,500	32,200
Sx	19,000	19,000	12,900	12,400
Tx	3,500	5,700	2,700	2,400
Minimum	28,800	46,600	44,100	27,400
Maximum	42,000	69,400	54,900	37,000

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A.I.17. Jobs of PKGB worker & society.

	Labour peasant	Rubber plantation worker	dairy man	merchant	sundries	Job less
Worker	2	2	2	-	5	16
Foreman	2	2	2	-	6	14
Skilled worker	1	-	1	-	2	18
Society	4	-	-	2	-	20
Total	10	4	5	2	13	68
v	10	4	5	2	13	68

A.I.18. Monthly needs (in rupiah)

Needs	worker	Foreman	Skilled worker
N	28	25	19
Average	35,200	42,500	40,300
Sx	13,900	17,900	14,300
Tx	2,600	3,600	3,300
Minimum	30,000	35,300	33,400
Maximum	40,400	49,700	46,600

A.I.19. IP/MD and Dayly Income (in rupiah)

	Worker	Foreman	Skilled worker
IP/MD	711	946	1,311
Income ,	1,680	2,320	1,980

A.I.20. IP/MD and dayly need (in rupiah)

	Worker	Foreman	Skilled worker
IP/MD	711	946	1,311
Need	1,200	1,400	1,300

A.I.21. Unit cost of road subprojects.

District	Length of road	Total Cost	Total Cost/m.
Awayan	5,700 mtr.	29,475,000	5,171
Astambul	7,025 mtr.	13,848,000	1,971
Secanggang	4,300 mtr.	15,952,000	3,709
Kawa Merta	3,000 mtr.	15,305,000	5,101
Pujon	4,000 mtr.	13,824,000	3,456
Tanjung Pura	4,700 mtr.	17,269,000	3,674
Tinggi Moncong	6,000 mtr.	11,957,000	1,992
M. Bombang	7,000 mtr.	12,095,000	1,727
B. Manaya	5,000 mtr.	17,134,000	3,426
Kelara	5,000 mtr.	17,178,000	3,435
P. Bangkeng Sel.	7,000 mtr.	12,515,000	1,787
Selesai	5,100 mtr.	15,952,000	3,127
Tamalatea	7,000 mtr.	19,703,000	2,814
		Total	41,590
		Average	3,183
		Sx	1,134
		Tx	314
		Minimum	2,355
		Maximum	5,811

A.I.22. Total number of increase of long term employments

Business varieties	Total increase	Manpower	Total manpower
Agricultural	702 ton	2,63	1,847
Shops	74 ea	2	148
Tokos (bigger shops)	42 ea	2	84
Trades	102 trd	1	102

The increase of business can receive the works opportunity ca. 2,181 manpower. While the whole population in the district of the whole project is 565,366 peoples. Thus the project can create occupation field 0,38%.

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A.I.23. Origin of Respondents
 PEGS Road Project (n = 102)

District	Original Place			Total
	Original from same local	Other Village	Other Regency, Province	
Awayan	5	1	-	6
Astanoul	5	-	1	6
Secanggang	3	2	2	8
Tanjung Pura	6	2	1	8
Pujon	5	-	-	5
Rawa Merta	5	-	-	5
Tinggi Moncong	5	-	-	5
Manggara Bombang	9	-	-	9
Biring Manaya	5	-	1	9
Selesai	5	-	1	9
Kalara	5	-	-	5
P. Mangleng Selatan	5	-	-	5
Tamalatea	5	-	-	5
T o t a l	91	4	6	102

A.I.24. Reason of moving to the locality where the PEGS Project is Provided (n = 11)

Reason	Absolute	%
Seeking for job	5	-
Follow wife/husband	4	-
Follow parent	2	-
T o t a l	11	-

A.1.25. Respondents reason for their Participation PEGB Road Projects (n = 102) :

District	Reason of Respondents				
	Compensation	Following mass	Obligation	Beneficial	no comment
Awayan	3	-	-	3	-
Astambul	3	-	-	3	-
Sacanggang	4	-	-	-	4
Tanjung Pura	4	-	1	-	3
Pujon	1	2	1	1	3
Kawa Merta	1	-	2	3	2
linggi Moncong	5	-	-	1	2
Manggara Bombang	5	-	-	2	2
Biring Kanaya	3	-	1	2	3
Selesai	2	-	4	1	1
Kelara	5	-	-	2	1
P. Bangkeng Selatan	-	5	-	3	-
Tamalatea	4	2	-	2	-
T o t a l	40	9	9	23	21

SA

A.I.26. Regular job of PKGB Road Project Respondents (n = 102)

District	PKGB Worker			PKGB Skilled Wk.			Foreman			Farmer Non PKGP			Total
	Agrc. wkr.	Far-mers	Sndr.	Agrc. wkr.	Far-mers	Sundr skilled wkr.	Agrc. wkr.	Far-mers	Sndr.	Agrc. wkr.	Far-mers	Sndr.	
Awayan	1	-	1	-	-	-	-	1	1	-	2	-	6
Astambul	-	2	-	-	-	-	-	2	-	-	2	-	6
Secanggang	2	-	-	-	1	1	-	2	-	-	2	-	8
Rawa Merta	2	-	-	-	-	2	-	2	-	-	2	-	8
Pujon	-	2	-	-	1	1	-	2	-	1	1	-	8
Tanjung Pura	1	1	-	1	-	1	-	1	1	-	2	-	8
Ringgi Moncong	-	2	-	-	-	2	-	1	1	-	2	-	8
Manggara Bombang	-	3	-	-	2	-	-	1	1	-	2	-	9
Biring Kanaya	-	3	-	-	-	2	-	1	1	-	2	-	9
Selesat	2	-	-	-	-	2	-	2	-	-	2	-	8
Kelara	-	2	-	-	-	2	-	2	-	-	2	-	8
P. Bangkeng Selatan	-	2	-	-	-	8	-	2	-	-	2	-	8
Tamalatea	-	2	-	-	2	-	-	2	-	-	2	-	8
T o t a l	8	19	1	1	6	15	-	21	5	1	25	-	102

Description : Agric.wkr : 8
 farmer 19
 Sundries 1
 1 6
 1 21
 15
 5
 10 21

A.1.27. Side job of PKGB Road Project respondents.

District	Sorts of Side Job					Total
	Farm worker	Rubber plant. worker	Dairyman	Sundries	None	
Awayan	1	1	2	-	2	6
Astambui	-	1	-	-	5	6
Secanggang	1	-	-	-	7	8
Rawa Merta	-	-	-	-	8	8
Pujon	2	-	3	-	3	6
Tanjung Pura	4	-	-	2	2	8
Tinggi Moncong	-	-	-	3	5	8
Manggara Bombang	1	-	-	2	6	9
Biring Kanaya	-	-	-	2	7	9
Selesai	-	-	1	-	7	8
Keiara	-	-	-	2	6	8
P. Bangkeng Selatan	-	-	1	-	7	8
Tamalatea	1	-	-	4	3	8
Total	10	2	7	15	68	102

Notes : Workers with side job 12 pers (46%) with the following specification.

1) Farm worker	3	
2) Rubber plant. worker..	2	
3) Dairyman	2	
4) Sundries	5	
	12	(46 %)
5) None	16	(54 %)

A.1.28. Education of Pkg Road Project worker (n = 102)

Education	Respondents				TOTAL
	PKGB worker	Foreman	Skilled worker	Farmer Non-PEGB	
1. Never	7	2	-	2	9
2. Element Sch. Drp.Out	11	6	2	5	24
3. Element Sch. Fin.	14	10	-	8	32
4. Seend. Sch. Drp. Out	1	1	-	2	4
5. Seend. Sch. Fin.	1	1	-	-	2
6. High Sch. Drp. Out.	-	1	-	-	1
7. High Sch. Fin	1	-	-	1	2
8. No comment	4	4	10	8	26
	39	25	12	26	102

A.1.29. PKGB Road Project Respondents Religious Education (n = 102)

Degree of rel. education	R e s p o n d e n t s				TOTAL
	PKGB Worker	Foreman	Skilled Wkr.	Farmer non PKGB	
1. Never	6	2	3	5	14
2. Reciting Al Qur'an	20	17	6	9	52
3. Rel. Element Sch.	2	6	3	1	12
4. Rel. Educ. Campus	2	1	1	2	6
5. Sundries	2	4	4	8	18
T o t a l	32	30	17	23	102

A.I.50. Respondents' opinion about income and their effort done to fill their deficiency in 1921

D I S T R I C T	Respondents' opinion				Effort being done to fill the deficiency				Note
	More Sufficient	Sufficient	Not Sufficient	Very insufficient	Borrowing	Ask for aid from relatives	Sell anything	Sundr.	
Awayan	-	4	2	-	4	2	-	-	n. 6
Astambul	-	4	2	-	4	-	2	-	n. 6
Secanggang	-	8	-	-	8	-	-	-	n. 8
Rawa Merta	-	2	5	1	4	2	-	2	n. 8
Pujon	-	8	-	-	2	4	-	2	n. 8
Tanjung Pura	-	4	5	1	8	-	-	-	n. 8
Tinggi Moncong	-	4	4	-	6	2	-	-	n. 8
Manggara Bombang	-	3	4	2	4	5	-	-	n. 8
Biring Manaya	-	-	6	5	5	4	-	-	n. 8
Selesat	-	-	5	5	-	2	6	-	n. 8
Kelara	-	2	6	-	-	-	8	-	n. 8
Polong Bangkeng	-	2	5	1	2	6	-	-	n. 8
Tamalatea	-	5	3	-	5	5	-	-	n. 8
T o t a l	-	46	42	15	50	52	16	4	12

A.I.31. Respondents intention for next year if there will be a PKGB again in the village/district (n = 102)

Respondent intention	Absolute	%
Participate again	95	94%
Do not participate	7	6%
T o t a l	102	100%

A.I.32. Respondents opinion about social support toward PKGB Project (n = 102)

Respondents opinion	Absolute	%
The society supports	102	100%
The society doesn't	-	-
T o t a l	102	100%

A.I.33. Factors that inspire social support toward PKGB Project (n = 102)

Respondents opinion	Absolute	%
A feeling of duty	41	40%
For the wages	9	9%
Beneficially	52	51%
T o t a l	102	100%

65

A.1.34. Respondents take/not take part for the maintenance of PKGB Road Project and their reason
 (n = 102)

Respondents Participation	Respondents reason.						Total
	D u t y	get income	Forced by chief of village	Sundr.	Let be done by regular labour	Far from Project	
Take part for the maintenance	34	38	4	31	-	-	97
Do not take part	-	-	-	-	4	1	5
t o t a l	34	38	4	31	4	1	102

A.1.35. Existence of Gotong Royong, after PKGB Road Project
(n = 102)

Respondent opinion	Absolute	%
Still exist	102	100%
Not exist	-	-
T o t a l	102	100%

A.1.36. Type of activity done through the Gotong Royong System.

Type of Activity	Absolute	%	Discription
build houses	88	100 %	From 102 respon- dents.
build mosques	82	81 %	- " -
build conduits	77	71 %	- " -
build/maintain roads	80	80 %	- " -

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A.1.37. Respondents opinion about environmental condition (n = 102).

Environment condition	Respondents opinion		Total
	To be better	To be poor	
Altered	100	2	102
Constant	-	-	-
T o t a l	100	2	102

A.1.38. Respondents opinion about the value of land after
PKGB Road Project (n = 102)

Land Value	Absolute	%
Increase	94	92%
S a m e	-	-
I g n o r e	8	8%
T o t a l	102	100%

A.1.39. Whether or not new economic activities and kind of new economy emerges after PK&B Road Project (n = 102)

Respondents opinion	Sorts of new economical activity				
	Motor cycle Transpbusiness	New shop	Petrl. kiosk	Workshop	Sundries
New activities emerge	52	53	34	38	8
N o n e	-	-	-	-	-

Discription : Each from n = 102

Because the reply is one more respondent

A.I.40. Determination factor for some ones position in the social structure (n = 102)

Determination factor	Absolute	%
Money	14	14
Position in the government	29	28
Honesty	22	22
Good manners	33	32
Sundries	4	4
T o t a l	102	100

A.I.41. Respondents opinion about the cause/source of conflict

Source of Conflict	Absolute	%
Children	47	47
Inheritance	25	25
Policy	4	4
Land	29	18
Borrowing and lending	6	6
Jealousy	1	1
T o t a l	102	100

A.I.42. Respondents opinion about social change after PKGB

Sorts of changes	Absolute	%
Increase of Al-Qur'an recites	57	21 %
Presence of new arts	26	10 %
Sports activities	48	18 %
Women meeting	38	14 %
Presence of cooperation	41	15 %
Presence family welfare	46	7 %
Education	18	
T o t a l	274	100 %

Note : Total n = 102, but because there is one respondent replied more then once, the total is 274.

A.I.43. Desire for children education (n = 102)

Respondents opinion	Absolute	%
The highest education level	66	65 %
Religious school only	8	8 %
As long as can read and write	2	2 %
Up to the children	26	27 %
T o t a l	102	100 %

II. Irrigation SubprojectA.II.1. Total Subproject Cost (Rp.)

	Karang Ploso	Jabung
- Survey	139,200	158,400
- Survey design	110,800	141,600
- Incentives (UPK)	14,182,275	17,992,550
- Materials	5,123,000	6,152,600
- Equipment	1,080,000	400,000
T o t a l :	20,635,275	24,045,150
Length of irrigation	4,000 metres	7,845 metres
Costs / 1,000	5,158,000	3,065,000
Planned costs	20,635,275	24,045,150

A.II.2. Total Cash-Incentive for Laborers

	Karang Ploso	Jabung
- Worker	12,728,775,--	15,612,000,--
- Group leader	823,500,--	975,750,--
- Skillful worker	<u>630,000,--</u>	<u>604,800,--</u>
- Total Realization	14,182,775,--	17,192,550,--
- Length of canal	4,000,--/metres	7,845,--/metres
- Total/1,000 metres	3,545,000,--	2,191,000,--
- Total Planned	14,182,275,--	17,192,550,--

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D. The Impact of Irrigation Canal Construction :

The construction of the irrigation canals in the subdistricts in Karangploso and Jabung consisted of: (1) Widening and Deepening the existing canals; (2) Constructing better banks to protect the canals from leakage and erosion; (3) Improving the water flow; (4) Building new diversion boxes and gates; and (5) Sodding the embankments.

Farmers learned from the project, how to construct a good canal which would improved their agricultural production. This project has stimulated them to maintain the canals after sub-project completion. The established P3A (water users Association are more active in organizing themselves to maintain the irrigation system.

Construction materials and tools that were used on the projects were purchased from small suppliers in the area. The total procurement cost for materials and tools was about Rp.12,755,000, or US\$ 12,700 which was a considerable sum for the small suppliers in that area.

To this extent, the project has benefited small enterprises in the area.

III. RICE TERRACING SUBPROJECT

The evaluation team has visited one rice terracing subproject, implemented by the PKGB project. The subproject is located in the sub-district of Teluk Jambe in the province of West Java, an area of approximately 2,300 Ha with a population of 81,834 people. This type of subproject is rare in the PKGB project, however we have been requested by the implementation agencies to evaluate this type of subproject in order to see whether or not the subproject had any impact on the community and on the agricultural and economic condition of the area.

A.II.6. Respondents

Source of workers on PKGB Project.

(n = 14)

Respondents Residence	Absolute	%
- Native neighbourhood	14	100
- From other neighbourhood	-	-
- From other Rukun Warga (RW)	-	-
- From other Village	-	-
- Others	-	-
T o t a l	14	100

A.II.7. Respondents' Reason on Participation in The New Style of labor intensive (PKGB) Project

(n = 14)

Respondent's Reasons	Absolute	%
Incentives	8	57
Village Chief's force	1	7
Duty	-	-
Beneficial	2	14
Others	3	21
T o t a l	14	100

A.II.8. Respondents' fixed and additional income (n = 14).

A kind of income got as	Fixed Income		Additional Indome	
	Absolute	%	Absolute	%
Brick layer	1	7	1	7
Farmer incl. peasant	10	71	3	24
Administrator	3	21	-	-
Coolie	-	-	2	14
Jobless	-	-	8	57
T o t a l	14	100	14	100

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A.II.9. Respondents' opinion on Income (n = 14)

Respondents' opinion	Absolute	%
Insufficient	11	79
Sufficient	3	21
Minimum	-	-
Below the minimum	-	-
T o t a l	14	100

A.II.10. Respondents' Effort to Suffice Needs (n = 14)

Respondents' Effort	Absolute	%
Debt to Neighbour	11	79
Aids from family	1	7
Temporary work	1	7
Aids from son/daughter	1	7
T o t a l	14	100

A.II.11. Respondents' Participation on a new PEGB Project
(n = 14)

Respondents' Plan	Absolute	%
Participate	11	79
will not participate	1	7
Others	2	14
T o t a l	14	100

A.II.12. Respondents' Opinion on the Social Supports toward PEGB Project (n = 14)

Respondents' Opinion	Absolute	%
Support	11	79
Unsupport	-	-
Don't know	3	21
T o t a l	14	100

A.II.13. Participation in Maintaining PKGB Project
(n = 14)

Participation in Maintaining	Absolute	%
Y e s	7	50
No	4	29
Others	3	21
T o t a l	14	100

A.II.14. Participation and Duty of Water users Organization on
Irrigation Maintenance (n = 14).

Participation and Duty	Absolute	%
Y e s	14	100
N o	-	-
Others	-	-
T o t a l	14	100

A.II.15. Irrigation Canal Maintenance Practice
(n = 14)

Maintenance Practice	Absolute	%
Periodical Gotong Royong	7	50
Maintained by the owner	4	29
Maintained by the responsible agent and Mutual help	3	21
T o t a l	14	100

A.II.16. Kinds of Activities Done Through Gotong Royong
(n = 14)^{*}

Kinds of Activities	Absolute	%	Clarification
Building House	8	19	*]n's answer more is than one answer.
Construction of water canals	12	28	
Agriculture enterprises	12	28	
Construction village road tracks	12	28	
T o t a l	44	100	

A.II.17. The Changes of Physical Condition after PKGB Project
(n = 14)

Changing Condition	Condition of Physical Environment			Total
	Better	Bad	The same as before	
Changed	10	-	-	10
Unchanged	-	-	-	4
T o t a l	10	-	-	14

A.II.18. The Change on the Condition in Subproject Area.

Respondents' Reason	Absolute	%
Production increased	3	12
Income increased	8	32
Better Invironment	3	12
More houses	3	12
Improved Dams	1	4
Well managed Irrigation	4	16
T o t a l	22	100

A.II.19. Respondents Opinion Concerning Land Value After PKGB Project (n = 14).

Respondents' Opinion	Absolute	%
Rising	12	86
The same as before	1	7
Don't know	1	7
T o t a l	14	100

A.II.20. Respondents' Opinion on the Economic Life
After the Implementation of the PKGB Project (n = 14).

Respondents' Opinion	Respondents' Reason				Total
	Production increased	Income increased	Stability of Price-Rice	The same as before	
Rising	8	3	-	-	11
Notrising	-	-	-	3	3
Don't know	-	-	-	-	-
T o t a l	8	3	-	3	14

A.II.21. Decisive Factor of Position after PKGB Project
(n = 14)

Decisive Factor	Absolute	%
Decisive factor Position/Occupation	10	71
Decisive factor	4	29
T o t a l	14	100

A.II.22. Source of Dispute and Solution After PKGB Project

Sources of Dispute	Absolute	%
Children	2	14
Inheritance	8	57
Politic	1	1
land	1	1
Jealousy	1	1
Others	1	1
T o t a l	14	100

A.II.23. The Solution of Dispute after PKGB Project
Based on Respondents (n = 14)

Coped by :	Absolute	%
Kinshah	8	57
Ulama's efforts	3	21
Village Administrator efforts	3	21
T o t a l	14	100

A.II.24. The Changes of Social Condition based on Respondents
(n = 14)

Respondents opinion	Absolute	%
Changed	-	-
Unchanged	14	100
T o t a l	14	100

A.II.25. Respondents Opinion on the Intention to send their
children to School after PKGB Project (n = 14)

Respondents Opinion	Absolute	%
Increasing	9	65
Not Increasing	2	14
Just the same	3	21
T o t a l	14	100

III. Rice Terracing Subproject

A.III.1. Total Subproject Cost

I t e m s	Rp.'000	(%)
W a g e s	15,797.2	75.59
M a t e r i a l s	4,800.0	22.97
S u r v e y d e s i g n	250.0	1.20
S u r v e y	50.0	0.24
T o t a l	20,897.2	100.00

A.III.2. Cash Incentive for Laborers

L a b o r e r	Cash - Incentive	
	(Rp'000)	(%)
Group leader	929.2	59
Unskilled labor	14,868.0	94.1
T o t a l	15,797.2	100

A.III.3. Cost for Materials and Tools

I t e m s	Target (Rp'000)	Actual (Rp'000)	%
T o o l s	850	850	17.7
M a t e r i a l s	3,950	3,950	82.3
T o t a l	4,800	4,800	100.0

A.III.4. Cost for Survey and Design

I t e m s	Target (Rp'000)	Actual (Rp'000)	(%)
Survey design	250	250	88.3
Survey	50	50	16.7
T o t a l	300	300	100.0

A.III.5. The average area harvested in rice-field terracing subproject

F a r m e r s	Paddy (ha)	Green pea (ha)
With/project farms	2.85	-
Without/project farms	0.50	-50

A.III.6. The average yield per hectare of paddy and green pea
Rice field terracing subproject

F a r m e r s	Paddy (ton/ha)	Green pea (ton/ha)
With/project farms	4.7	5.0
Without/project farms	4	3

A.III.7. The crude B/C-ratio in the rice-field terracing subproject

Farmers	Benefits (Rp.'000)	Costs Rp'000)	Crude B/C ratio
with/project farms	1,885.5	297.5	6.3
without/project farms	70.5	193.0	0.4

A.III.5. The net benefits of the farmers in the rice-field terracing subproject

Farmers	Benefits (Rp.'000)	Costs (Rp'000)	Net Benefits (Rp.'000)
with project farms	1,885.5	297.5	1,588.0
without project farms	70.5	193.0	- 122.5

A.III.9. Origins of the project respondents
Rice terracing PKGB (n = 6)

Origin	Absolute	%
Own village	6	100
Different village	-	-
Others	-	-
T o t a l	6	100

A.III.10. Reasons for joining the PKGB project (n = 6)

Reasons	Absolute	%
Compensation	-	-
Forced labour	1	17
"Obligations"	3	50
Beneficial	1	17
Others	1	17
T o t a l	6	100

A.III.11. Respondents economic life PEGB Project (n = 6)

Respondent	Fixed job			Side job		
	Prt. farmer	Farm hand	Blank	Prt. farmer	Farm hand	Blank
Plant worker	-	2	2	-	-	-
Group leader	-	2	-	-	-	-
Total	-	4	2	-	-	-

A.III.12. Existence of Gotong Royong System

n = 6

Respondents Comments	Kind of mutual help				
	house building	canal building	farming affairs	road building	Blank
Exist	3	3	-	5	-
Not Exist	-	-	-	-	-
Don't know	-	-	-	-	-
Total	3	3	-	5	-

A.III.13. Respondents thoughts on the physical changes
in the surrounding (n = 6)

Respondent thoughts on the change	Physical life changes			TOTAL
	Better	Worse	Blank	
Total changes	3	1	1	5
No change	-	-	1	1
T o t a l	3	1	2	6

A.III.14. Thoughts of the respondents on the things that make
their life better (from 3 questions) :

Respondents thoughts	Absolute	%
1. The example on how to raise production and prevent erosion.	1	33
2. The appearance of village transport	1	33
3. B l a n k	1	33
T o t a l	3	100

A.III.15. Respondents thought on the value of the land after the PKGB Project

Respondents thoughts	Absolute	%
B e t t e r	4	67
The same	-	-
B l a n k	2	33
T o t a l	6	100

A.III.16. Respondents thoughts of the changes of their traditional lifestyle :

Respondent thoughts	Absolute	%
Changed	6	100
No change	-	-
B l a n k	-	-
T o t a l	6	100

A.III.17. Respondents thoughts on the behaviour of the people according to their religion and traditions
(n = 6)

Respondents thoughts	Absolute	%
Fitting	4	67
Un-fitting	-	-
Not-fitting	2	33
T o t a l	6	100

A.III.18. Respondents thought on the methods used to change a person status in the village :

Respondents thoughts	Absolute	%
Money	2	33
Position	1	17
Honesty	1	17
Respect	1	17
Blank	1	17
T o t a l	6	100

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A.III.19. Respondents thought on the causes of disputes

Respondents thoughts	Absolute	%
Because of children	1	17
will disputes	1	17
Political problems	2	33
B l a n k	2	33
T o t a l	6	100

A.III.20. Respondents thought on solving these disputes

Respondents thoughts	Absolute	%
Family spirit	5	83
In court	-	-
B l a n k	1	17
T o t a l	6	100

A.III.21. Number of neighbours known to the respondents

Neighbours known by Respondents	Absolute	%
All	5	83
Most	-	-
Few	-	-
B l a n k	1	17
T o t a l	6	100

A.III.22. Actions of respondents if neighbours are attacked by outsiders

Respondents actions	Absolute	%
Help to get rid the attackers	4	67
Shout for help	1	17
B l a n k	1	17
T o t a l	6	100

A.III.23. The state of the security in the village
after the PKGB project according to the respondents
(n = 6)

Village Security	Absolute	%
Safer	-	-
The same	5	85
More unsafe	-	-
B l a n k	1	15
T o t a l	6	100

A.III.24. Respondents thoughts on the economic state
after the rice terracing PKGB Project
(n = 6)

Economic state	Respondents reasons				Total
	Addi- tional stalls	More work	"Ojeg"	Blark	
Increased	2	1	1	1	5
No Increase	-	-	-	-	-
B l a n k	-	-	-	1	1
T o t a l	2	1	1	2	6

A.III.25. Solving disputes after the PKGB project according to the respondents (n = 14)

Solved by	Absolute	%
Family	8	57,14
Help of a religious man	3	21,43
Village administrator	3	21,43
T o t a l	14	100

A.III.26. Changes in the social conditions according the respondents (n = 14)

Respondents thought	Absolute	%
There is a change	-	-
Not change	14	100
T o t a l	14	100

A.III.27. Respondents thought on the level to which they can educate their children after the PKGB project.

Respondents thought	Absolute	%
Increased	9	65
Not increase	2	14
The same	3	21
T o t a l	14	100

IV. Flood Control Subproject

A.IV.1. Total Subproject Costs

I t e m s	Kali Terong Subproject:	Kali Golek Subproject:	Total (Rp.)
Survey and Design	412,000	412,000	824,000
Cash-Incentive	27,624,250	11,306,850	38,931,100
Tools	840,000	874,000	1,714,000
Materials	6,757,000	-	6,757,000
T o t a l	35,613,250	12,592,850	48,206,100
Length of Canals	8.0 km	4.0 km	12.0 km
Unit Cost	4,451/km	3,148/km	4,017/km (average)

A.IV.2. Survey & Design Cost (Rp.)

I t e m s	Kali Terong Subproject:	Kali Galeh Subproject:
Pra-survey	50,000	50,000
Survey & Design	362,000	362,000
T o t a l	412,000	412,000

A.IV.3. Cash-Incentive for Laborers (Rp.)

L a b o r e r s	Kali Terong Subproject:	Kali Golek Subproject:
Unskilled Labor	25,639,000	10,101,000
Skilled Labor	1,080,000	356,500
Foremen	905,250	949,350
T o t a l	27,624,250	11,306,850

A.IV.4. Material and Tools (Rp.)

I t e m s	Kali Terong Subproject:	Kali Golek Subproject:
Materials	6,737,500	-
T o o l s	840,000	874,000
T o t a l	7,577,500	874,000

A.IV.5. Total Mandays

L a b o r e r s	Kali Terong Subproject:	Kali Golek Subproject:
Unskilled	12,540	16,835
Skilled	900	463
Foremen	1,207	1,044
T o t a l	14,647	18,342

A. IV. 6. Physical measurement of the Canal

Length	Kali Terong	Kali Goleh
Length	5,000 mtr.	4,000 mtr.
Top width	5,5 mtr.	10 mtr.
Bottom width	5 mtr.	8 mtr.
Depth	1 mtr.	2,6 mtr.

A. IV. 7. Approximate income increase (in rupiah)

	Investment	Income increase
Kali Terong	35,613,000	101,497,000
Kali Goleh	12,592,000	35,887,000
T o t a l	48,205,000	137,384,000

A. IV. 8. The origins of respondents PEGH canal project
Flood prevention (n = 25)

Respondent origins	Absolute	%	Explanation
From local neighbourhood	25	100	Includes the workers who were not PEGH members.
From outside the neighbourhood	-	-	
From outside the village	-	-	
Others	-	-	
T o t a l	25	100	

A.IV.9. The reasons for joining the project of the PKGB
(n = PKGB workers 18).

Respondents reasons	Absolute	%
For compensation	15	100
Forced by the village chief	-	-
A necessity	3	-
For the benefits	-	-
Others	-	-
T o t a l	18	100

A.IV.10. Respondents fixed income in the PKGB project (n = 23)

Respondents fixed yield as	Absolute	%	Explanation
Farmers	18	100	All of them are PKGB members.
Fishermen	-	-	
Private farmers	-	-	
Small shop	5	-	
Others	-	-	
T o t a l	23	100	

A.IV.11. Unfixed yield in the PKGB project

Respondents unfixed yield	Absolute	%	Explanation
Farmers	1	-	Group leader vil- lage people PKGB workers.
Animal farmers	3	-	
Fishermen	2	-	
Without unfixed yield	18	100	
T o t a l	24	100	

The results are more than a because some answered more than one question.

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A.IV.12. Respondents comments on their income (n=PKGB workers=18)

Respondents comments	Absolute	%
Not enough	14	100
Enough	2	-
Unsatisfactory	-	-
Very unsatisfactory	-	-
T o t a l	18	100

A.IV.13. Respondents methods to improve their situation (n=18)

Respondents methods	Absolute	%
Borrowing from neighbours	14	100
Ask help from fellow worker	2	-
Others	-	-
T o t a l	18	100

A.IV.14. Respondents plans if there is another PKGB project
(n = 18)

Respondents plans	Absolute	%
Joint in again	18	100
Not joint again	-	-
Others	-	-
T o t a l :	18	100

A.IV.15. People doubts or no doubts about the PKGB project according to the PKGB workers (n = 25)

Respondents comments	Respondents reasons			
	Benefits	Compensation	Obligatory	Other
Having doubts	23	-	-	-
Having no doubts	-	-	-	-
Don't know's	-	-	-	-
T o t a l	23 (100%)	-	-	-

A.IV.16. Respondents comments on the tradional mutual help (n = 23)

Respondents comments	Absolute	%
Still in use	23	100
Not in use	-	-
Don't know's	-	-
T o t a l	23	100

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A.IV.17. The types of Gotong Royong known to the respondents.

Type of mutual help	Absolute	%	Explanation
building a house	23	100	From n = 23
Making a village road	23	100	"
Making water canal	9	100	"
Carrying out social activities	23	100	"
Farming business	1	100	"

A.IV.18. Respondents comments on the physical surrounding changes and their reasons (n = 23)

Respondents comments	Respondents reasons			Total
	surrounding improved	Bad change	Same	
Noticeable change	17	-	-	17
No change	-	-	6	6

A.IV.19. Respondents comments on the state of the land after the PEGB project (n = 23)

Respondents comments	Absolute	%
An improvement	13	100
Same as before	3	-
Don't know's	7	-
T o t a l	23	100

A.IV.20. Respondents comments on their economic life after
the PKGB project (n = 18) (only new workers)

Respondents comments	Absolute	%
Improvement	16	100
The same	2	-
Don't know's	-	-
T o t a l	18	100

A.IV.21. Respondents comments on the improvement of their
economic condition (n = 16)

Respondents comments	Absolute	%
Better harvest	5	100
Ability to improve their home	4	-
Improved boat activity	4	-
Improved farming	2	-
T o t a l	16	100

A.IV.22. Respondents comments on the social changes

(n = 18 PKGB workers)

Respondents comments	Respondents reasons				Total
	women's meetings	Religious teachings	Social activities	Others	
Definite changes	8	3	-	-	18
No changes	-	-	-	-	-
Don't know's	-	-	-	-	-
T o t a l	8	3	-	-	18

A.IV.23. Total of the neighbours that the respondents know well

(n = 25)

Know neighbours	Absolute	%
Know all of them	20	100
Know most of them	2	-
Know some of them	1	-
Others	-	-
T o t a l	25	100

A.IV.24. The source of legal actions and the way the PKGB workers solve these problems.

Source of dispute	Solving method		
	Family help	Religious help	Other
Children	3	-	-
Will	12	-	-
Land problems	3	-	-
Loans	8	2	-
Jealousy	10	-	-
Others	3	-	-

A.IV.25. The response of the respondents if their neighbours were attacked (n = 23)

Respondents response	Absolute	%
Help to disperse attackers	18	100
Shout for help	5	-
Ignore	-	-
Others	-	-
T o t a l	23	100

A.IV.26. Respondents comments about the security of their village after the PKGB project (n = 23)

Respondents coments	Absolute	%
S a f e r	1	100
The same security	22	-
Not safe now	-	-
Others	-	-
T o t a l	23	100

A. IV. 27. Respondents comments on the social structure and the deciding factor (n = 23)

Respondents Comments	Deciding factor			
	Money	Class	Seniority	Other
No change	2	3	18	-
Change	-	-	-	-
Other	-	-	-	-
T o t a l	2	3	18	-

A. IV. 28. Respondents hopes for their childrens education

Respondents hopes	Absolute	%
The highest education level	17	100
Only religious schooling	-	-
As long as they can read and write	-	-
Up to the child	4	-
No family as yet	2	-
T o t a l	23	100

V. Fishpond Subproject

A.V.1. Total Subproject Cost

I t e m s	C o s t (R p .)
Cash-Incentives	13,845,825
Material & Tools	1,085,000
Purchasing of fingerlings	2,000,000
Survey and Design	600,000
T o t a l	17,830,825

A.V.2. Total Cash-Incentives paid to Laborers

L a b o r e r s	Cash-Incentives (R p .)
Foremen	816,900
Unskilled	13,028,925
T o t a l	13,845,825

A.V.3. Fish harvesting per year

	Before PKGB	After PKGB	Fish pond
Fish pond area	60 hectares	80 hectares	20 hectares
Fish harvested	1 x year	2 x/year	1 x / year
Total produced/ha	16 tons	42 tons	26 tons
Total value (in million)	112	294	184

Notes: 1. 7,000 seeds are cultivated in 1,5 hectare.

2. 1,5 hectares yields 400 kilograms.

3. Price sale is Rp.7,000 / kilograms.

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A.V.4. Origins of Respondents of fish pond canal project
(n = 7)

Origin	Absolute	%
Own village	4	57
Different village	-	-
Outside sub district	2	24
Outside district	1	14
T o t a l	7	100

A.V.5. Reasons to participate in PKGB project

Reasons	Absolute	%
Compensation	-	-
Forced labour	1	14
Obligation	3	43
Beneficial	1	14
Rashly	1	14
Being in needs	1	14
T o t a l	7	100

A.V.6. Respondents' Economic life PKGB project

Respondent	Fixed Job			Side Job		
	Farmer	Trailer	Labour	Farmer	Trailer	Labour
Community members	2	-	-	1	1	-
Head group	1	-	-	-	1	-
PKGB Labour	1	-	1	-	-	2
Farmer without PKGB project	1	-	-	-	1	-
T o t a l	5	-	1	1	3	2

A.V.7. Kinds of Gotong Royong equinted.

Mutual help	Absolute	%	Explanation
House establishment	1	7	Total derived from n = 7.
Irrigation construction	5	36	
Farm business	-	-	
Village road construction	6	43	
Mosque establishment	1	7	
Blank	1	7	

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A.V.8. Physical changes after PKGB Project (n = 7)

Respondent	Physical condition			
	Better	Bad	Blank	Total
Changes	5	-	-	5
Nochanges	-	1	-	1
Blank	-	-	1	1
Total	5	1	1	7

A.V.9. Causes which make the physical condition better

Opinion	Absolute	%
Benefit	1	14
Better canal	1	14
Fish pond operated	1	14
Road constructed	1	14
Blank	3	43
Total	7	100

A.V.10. Respondents' Opinion land value after PKGB implementation (n = 7)

Respondents' Opinion	Absolute	%
Improved	6	86
Remain unchanged	-	-
Blank	1	14
Total	7	100

A.V.11. Respondents' opinion on people's conduct under the bases of religious and Habit (n = 7) :

Respondents	Absolute	%
Fitting	4	57
Unfitting	2	29
Not fitting	-	-
Blank	1	14
T o t a l	7	100

A.V.12. Respondents' perception or Desicive Factors that stratify person :

Devisive factors	Absolute	%	Explanation
M o n e y	3	33,33	More than one Response n = 7
Occupation	1	11,11	
Conduct	2	22,22	
Knowledge	1	11,22	
Blank	2	22,22	
T o t a l	9	100	

A.V.13. Respondents' perception on conflict Source :

Source conflict	Absolute	%	Explanation
Children's problems	1	10	More than one response
Inheritance	2	20	
Land	1	10	
Debt	2	20	
Blank	4	40	
T o t a l	10	100	

A.V.14. Respondents' perception on Problem solving (n = 7) :

Respondents	Absolute	%
Friendship	5	43
Blame	-	-
Courts	-	-
Blank	4	57
Total	7	100

A.V.15. Total neighbors acquainted (n = 7) :

Neighbors acquainted	Absolute	%
Help to drive away	6	86
Shout to ask help	1	14
Silent	-	-
Total	7	100

A.V.16. Respondents' perception on village safety after PRRB project (n = 7) :

Respondents' perception	Absolute	%
Safer	2	29
Same	4	57
Unsafer	-	-
Blank	1	14
Total	7	100

A.V.17. Village Safety before PKGB Project implementation
(n = 6) :

Village safety	Absolute	%
S a f e s	-	-
Remains safe	5	83
Unsafes	-	-
B l a n k	1	17
T o t a l	6	100

A.V.18. Respondents' perception on Economic life after PKGB
implementation (n = 6) :

	R e a s o n s				Total
	Stall- added	New employ- ment created	Oils	Blank	
Increased	2	1	1	1	5
Decreased	-	-	-	-	-
B l a n k	-	-	-	1	1

VI. Water Reservoir Subproject

A.VI.1. Total Project Cost

I t e m s	Rp. '000	%
W a g e s	13,403.25	67.7
Materials & Tools	5,980.50	30.2
Survey design	362.0	1.8
Survey	50.0	.3
T o t a l	19,795.75	100.0

A.VI.2. Total Cash Incentives Payment

L a b o r e r s	W a g e	
	(Rp. '000)	(%)
Group leaders	707.25	5.3
Skilled Labors	1,380.0	10.3
Unskilled labors	11,316.0	84.4
T o t a l	13,403.25	100.0

A.V.3. Total Material & Tool Cost

I t e m s	Rp. '000	%
T o o l s	890.0	14.9
Materials	5,090.5	85.1
T o t a l	5,980.5	100.0

A.VI.4. Physical measures of the Water Reservoir

Description	Measurements
Water depth	750 cm
Banks height	4,8 m
Foudnation length	100 m
Foundation width	30 cm
Locks (sluice gates)	2 ea
Overflow outlet height	3 m
Overflow outlet width	40 cm
Dividers	2 ea

A.VI.5. The average area harvested in reservoir subproject

I t e m s	Paddy (ha)	Corn (ha)
With/project farms	1.15	-
Without/project farms	.40	.25

A.VI.6. The average yield per hectare of paddy and corn
Reservoir Subproject

I t e m s	Paddy (ton / ha)	C o r n (ton / h a)
With/project faras	5.3	-
Without/project farms	6.0	3.0

A.VI.7. The crude B/C-ratio of the farming system in the

I t e m s	Benefits (Rp. '000)	Costs (Rp. '000)	Crude B/C ratio
With / project farms	766.4	198.0	3.9
Without / project farms	384.0	91.2	4.2

A.VI.8. The net benefit of the farmers in the reservoir
sub project :

I t e m s	Benefits (Rp. '000)	Costs (Rp. '000)	Net benefits (Rp. '000)
With / project farms	766.4	198.0	568.4
without / project farms	384.0	91.2	292.8

A.VI.9. Origins of respondents dam project workers (n = 6) :

O r i g i n s	Absolute	%
Residents of the district	6	100
New comers	-	-
T o t a l	6	100

A.VI.10. Respondents reason for joining the PKGB project (n = 6) :

R e a s o n s	Absolute	%
Compensation	3	50
Benefits	3	50
T o t a l	6	100

A.VI.11. Income of PKGB workers and farmers; Non PKGB :

Respondents	Fixed income as	Unfixed income as	Approximate income per month
	Hands	farmers	
Workers	6 (100%)	-	Rp. 30,000,--
Non PKGB farmers	-	2 (100%)	Rp. 31,250,--

A.VI.12. Education levels of respondents of the PKGB project and farmers (n = 8) :

R e s p o n d e n t s	Type education and subjects taken						
	General education				Religious education		
	Never went to school	Never finished JS	Finished JS	High School	Never	Intensive Muslim learning	Subject
W o r k e r s	1	3	2	-	5	1	-
Non PKGB farmers	-	-	2	-	-	2	-
T o t a l	1	3	4	-	5	3	-

A.VI.13. Respondents feelings about the income and means of carrying out the ways of farmers and PKGB workers :

Respondents	Respondents feelings		Means of carrying out	
	Enough	Not enough	Borrowing	Help from field
PKGB workers	2	4	5	1
PKGB farmers	2	-	2	-
T o t a l	4	4	7	1

A.VI.14. Respondents plans to join the same project next year :

Respondents	Absolute	%
Join	5	83,3
Not to join	1	16,6
T o t a l	6	100

A.VI.15. People support of the PKGB project according to Non PKGB farmers and PKGB workers (n = 8) :

Respondents	To have		Not have	
	Absolute	%	Absolute	%
PKGB workers	6	75	-	-
Non PKGB farmers	2	25	-	-
T o t a l	8	100	-	-

A.VI.16. The support of the PKGB workers and non PKGB farmers in the maintenance of the project and their reasons (n = 8):

Respondents	Respondents feelings		Reason	
	Help to maintain	Not help to maintain	Oblig	Benefits
PKGB workers	6	-	4	2
Non PKGB workers	1	1	-	1
Total	7	1	4	3

A.VI.17. Feelings of respondents of PKGB workers and non PKGB farmers on traditional Gotong Royong (n = 8):

Respondents	Respondents feelings	
	Still kept up	Not kept up
PKGB workers	6	-
Non PKGB farmers	2	-
Total	8	-

A.VI.18. Types of Gotong Royong known to the workers and the PGGB farmers (n = 8) :

Type of mutual help	Workers feeling	Non PKGB farmers
House building	6	2
Water canal building	1	-
Making village roads	6	2
T o t a l	13	4

Explanation: n = 6 workers
n = 2 farmers

A.VI.19. Respondents feelings on the physical changes (n = 8) :

Respondents	Surrounding changes		Surrounding conditions	
	Has	Non have	Better	Worse
PKGB workers	6	-	6	6
Non PKGB farmers	2	-	2	2
T o t a l	8	-	8	8

Explanation: n = 6 workers
n = 3 farmers

A.VI.20. Respondents feelings on the surrounding conditions that has already change (n = 8) :

Respondents	Better Surroundings			Worse Conditions		
	water source is bigger	Place for rice	Many rice field waters	Just like before	Not func- tional	Explana- tion
PKGB workers	4	3	4	2	4	n = 6
Non PKGB farmers	-	-	2	2	-	n = 2
T o t a l	4	3	6	4	4	

A.VI.21. Respondents feelings on the views of the local people before and after project from the religious and traditional point of view (n = 8) :

R e s p o n d e n t s	Before the Project		After the Project		Explanation
	Ideal	Not ideal	Ideal	Not Ideal	
PKGB workers	6	-	6	-	n = 6
Non PKGB farmers	2	-	2	-	n = 2
t o t a l	8	-	8	-	-

A.VI.22. Respondents feelings on the methods to fix the position on person in the district (n = 8) :

R e s p o n d e n t s	Factor Used to fix Position			Explanat ion
	Money	Function	Behaviour	
PKGB workers	-	-	6	-
Non PKGB farmers	-	-	2	-
T o t a l	-	-	8	-

A.VI.23. Respondents on the problems and solution to the problems before and after the project (n = 8) :

Respondents	Begore the Project					After the Project				
	Will source	Jealous-ly	Water dis-putes	Family solution	Court	Will source	Jealous-ly	Water dis-putes	Family solu-tion	Court
PKGB workers	6	2	4	6	-	6	2	4	6	-
Non PKGB farmers	2	-	-	2	-	2	-	-	2	-
T o t a l	8	2	4	8	-	8	2	4	8	-

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A.VI.24. Responden feelings on the security of the village before and after PKGB (n = 8) :

Respondents	Before PKGB		After PKGB		Explanation
	Safe	Not PKGB	Safe	Not PKGB	
PKGB workers	6	-	2	-	n = 6
Non PKGB farmers	2	-	2	-	n = 2
T o t a l	8	-	4	-	

A.VI.25. Respondents reactions if their neighbours were attacked, or their village (n = 8) :

Respondents	Respondents reaction			Explanation
	Get rid of attackers	Shout for help	Ignore	
PKGB workers	6	-	-	n = 6
Non PKGB farmers	2	-	-	n = 2
T o t a l	8	-	-	

A.VI.26. Number of neighbours known to the respondents in their village (n = 8) :

Respondents	Number of neighbours			Explanation
	All of them	Some of them	Only by them	
PKGB workers	6	-	-	n = 6
Non PKGB farmers	2	-	-	n = 2
T o t a l	8	-	-	

A.VI.27. Respondents feelings on the present economy after the PKGB
(n = 8) :

Respondents	State of economy		Reason for saying the economy had improved			No improvement
	arise	no arise	Road stalls	Bike pool	Recreation	
PKGB workers	6	-	6	4	-	-
Non PKGB farmers	2	-	2	4	2	-
T o t a l	8	-	8	8	2	-

A.VI.28. Hopes of the respondents about the PKGB (n = 8) :

Respondents	Respondents hopes		
	Government help needed	Dam maintenance	Peoples life attention
PKGB workers	4	1	1
Non PKGB farmers	2	-	-
T o t a l	6	1	1

A.VI.29. Respondents aims in educating their children (n = 8) :

Respondents	Respondents aims			Explanation
	Highest possible education	Childs choice	Don't know	
PKGB workers	5	-	1	n = 6
Non PKGB farmers	1	-	1	n = 2
T o t a l	6	-	2	

EVALUATION METHODOLOGY

There are six types of subprojects under the rural Works II/Padat Karya Gaya Baru project that will be evaluated by the team. These are: road, irrigation canal, flood control, water reservoir, fishpond and terracing subprojects.

The task of evaluating the impact of these type of subprojects on the socio-cultural, agricultural and economic aspects and visiting six main islands in Indonesia seems at first a difficult assignment.

However, the following methodology will simplify the evaluation. Generally we used the logical framework to evaluate these PKCB subprojects; the GPOI-Goal, Purpose, Output and Input.

We collect data in this order for each type of subproject and indicators of problems on the socio-cultural, agriculture and economic aspects are further broken down and analysed. Before we collect the data, we will find the means of verification of each aspect of each type of subproject.

The data were collected from 21 subprojects and from 405 interviewed respondents.

In brief, the methodology is as follows:

LOGICAL FRAMEWORK OF SOCIO-CULTURAL ASPECT

FRAMEWORK	OBJECTIVELY VARIABLE INDICATOR	MEANS OF VERIFICATION
1	2	3
<p><u>Input</u></p> <p>Base of participation to the PKGB project</p> <p>The emergence of new social values related to economic life.</p>	<p>a. Participation based on economic motive.</p> <p>b. Social participation.</p> <p>c. Political participation.</p> <p>The existence of new attitudes toward life pattern of the society especially in economics.</p>	<p>1. The money motive as base of participation (money remuneration per unit of time).</p> <p>1. The social value based of participation (solidarity) on the common purpose projects.</p> <p>1. The degree of participation to make decision on the project their degree of support to the project.</p> <p>The existence of more rational system in resource allocation.</p>
<p><u>Output</u></p> <p>Change of environment.</p> <p><u>Purpose</u></p> <p>Social security created.</p> <p><u>Goal</u></p> <p>To intensity communities lives in term of quality as well as quantity.</p>	<p>Change of physical environment.</p> <p>Change of socio-environment.</p> <p>Responsibility for social interests of community.</p> <p>Development and increase of social facilities at community psychologically.</p>	<p>The better condition of physical means of life.</p> <p>The change in socio relationship and the emergence of new made and organization, as a better system.</p> <p>Reducing social conflicts brought about by resources domination, some solution to cope with conflicts.</p> <p>Development and increase of educational facilities, health services under the bases of community's perspectives ideally practically. Facilities increased means the quality and quantity of knowledge acquisition.</p>

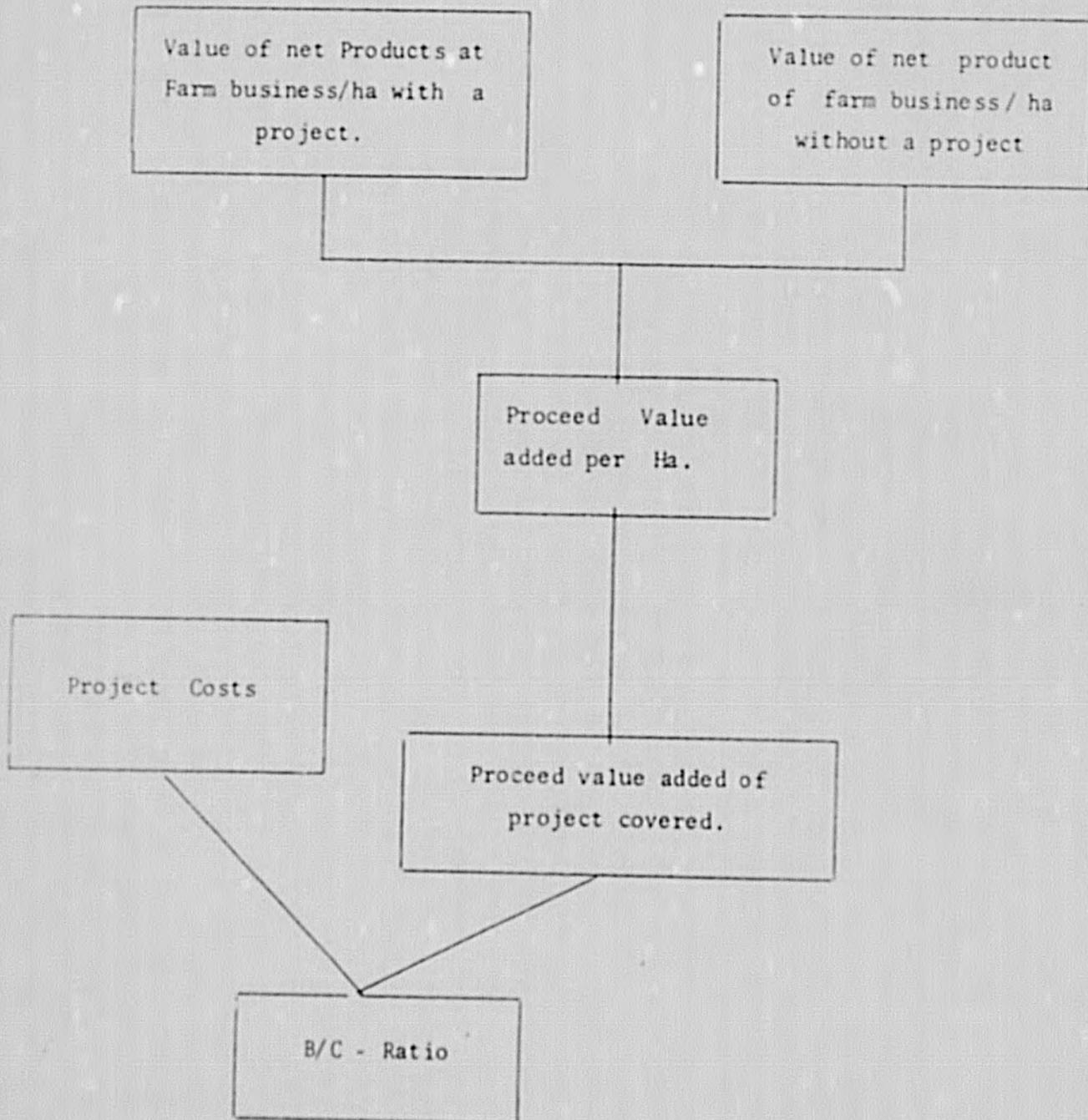
Logical Framework of Agricultural Aspects

1	2	3
A. <u>IRRIGATION:</u>		
I. <u>Goal:</u> To promote community's prosperity farmer's around the project.	Farm Business and Community's income developed and increased.	Production value promoted, perspectives increased. Increase of the standard of living before and after projects.
II. <u>Purpose:</u> 1. Rate production increased per Ha. 2. To intensify the effectiveness and efficiency.	The increase of harvested products per Ha. The increase of value added of Farm business.	The percentage at product rate increase per Ha. B/C Ratio.
III. <u>Output:</u> 1. Farm business increased on the target areas per certain year/period. 2. The increase of sales form business products. 3. Irrigation facilities. 4. Production facilities.	A lot of Farmers are able to intensify enterprise. Proceed value added of Farm business products. The acreage watered, length. The utilization of fertilizer, insecticide, etc.	The increase of acreage products per Ha. The increase of proceed value added of products. The intensification of production utilization. The Intensification of production utilization.

1	2	3
<p>IV. <u>Inputs:</u></p> <p>1. Costs for irrigation construction, workforce, materials, etc.</p> <p>B. <u>DRAINAGE</u></p> <p>I. <u>Goal:</u></p> <p>Good physical environment.</p> <p>II. <u>Purpose:</u></p> <p>1. To avoid flood.</p> <p>2. Diseases reduced.</p> <p>3. To avoid road destruction.</p> <p>III. <u>Output:</u></p> <p>1. Changes of living environment.</p> <p>2. Facilities of.</p> <p>IV. <u>Input:</u></p> <p>Costs, materials, for</p> <p>C. <u>ROAD</u></p> <p>I. <u>Goal:</u></p> <p>Social prosperity increased.</p>	<p>Cost value paid, Total Labours.</p> <p>The change, of living environment.</p> <p>Flood danger reduced.</p> <p>Diseases suffered by families.</p> <p>The length of good road, one sided road destruction.</p> <p>Length of drainage, the cope of drainage affordability.</p> <p>Value, Labours, etc.</p> <p>People benefitted road project.</p>	<p>Material price, wages, salary facilities reduced, etc.</p> <p>Data on base areas reduced, well healthy areas increased, the total population within well healthy areas increased.</p> <p>Flood frequencies, reduced.</p> <p>Acreage safed from flood danger.</p> <p>Reducing suffered people from disenes.</p> <p>Cost of road rehabilitation reduced, the length of bad road reduced, etc.</p> <p>Reducing destruction caused by matres flows uncontrolled.</p> <p>Stream water reduced.</p> <p>Percentage, wage, salary, kilogram, material, etc.</p> <p>Cost of farm business Reduceds Production and its facilities increased community income increased.</p> <p>Total community members increased farm business before and after the project.</p>

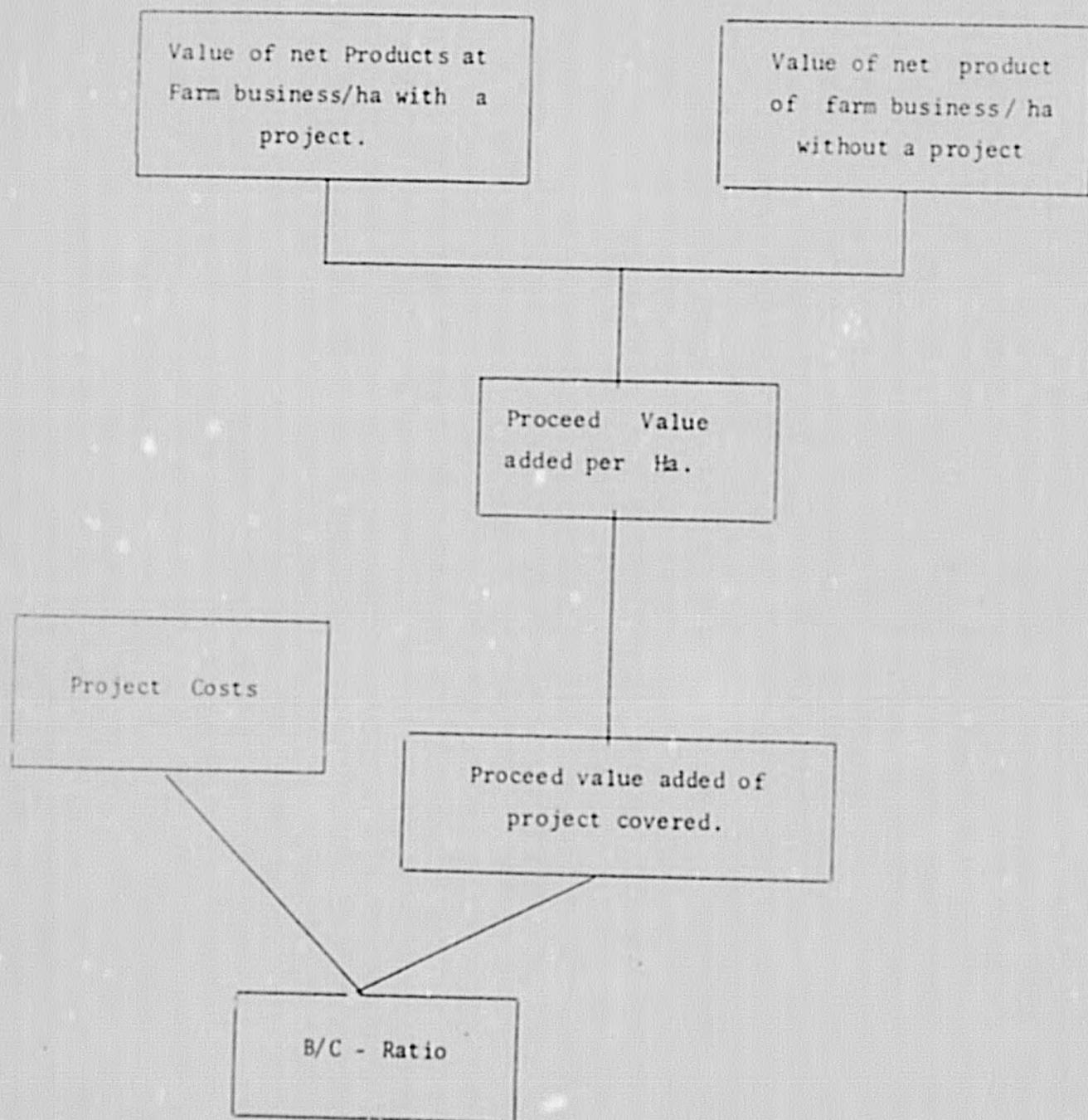
1	2	3
<p>II. <u>Purpose:</u></p> <p>1. To facilitate farm business distribution and production facilities.</p> <p>2. Total farmers benefitting road facilities.</p> <p>III. <u>Output:</u></p> <p>1. Road facilities.</p> <p>2. Transportation facilities.</p> <p>3. Guidance on agriculture.</p> <p>IV. <u>Input:</u></p> <p>Costs, materials, people (workforce).</p>	<p>The quality of transportation improved.</p> <p>Total farmers families benefitting road to transport farm business production facilities.</p> <p>The length of road constructed through PKGB.</p> <p>Transportation vehicles.</p> <p>Visits of field workers CPPLS or Special Workers on agriculture.</p>	<p>Total transportation and Travel frequency added, Time spent to travel is little.</p> <p>The frequency of transporting product and production facilities, the total people benefit road increased.</p> <p>Changes of road facilities and transportation vehicles increased.</p> <p>Changes of transportation vehicles and the increase of transportation.</p> <p>Frequency of field workers' visits and Review of PPL and other special workers.</p>

FRAMEWORK ANALYSIS OF AGRICULTURAL
ASPECT TO OBTAIN B/C - RATIO.



1	2	3
<p>II. <u>Purpose:</u></p> <p>1. To facilitate farm business distribution and production facilities.</p> <p>2. Total farmers benefitting road facilities.</p> <p>III. <u>Output:</u></p> <p>1. Road facilities.</p> <p>2. Transportation facilities.</p> <p>3. Guidance on agriculture.</p> <p>IV. <u>Input:</u></p> <p>Costs, materials, people (workforce).</p>	<p>The quality of transportation improved.</p> <p>Total farmers families benefitting road to transport farm business production facilities.</p> <p>The length of road constructed through PKGB.</p> <p>Transportation vehicles.</p> <p>Visits of field workers CPPLS or Special Workers on agriculture.</p> <p>-</p>	<p>Total transportation and Travel frequency added, Time spent to travel is little.</p> <p>The frequency of transporting product and production facilities, the total people benefit road increased.</p> <p>Changes of road facilities and transportation vehicles increased.</p> <p>Changes of transportation vehicles and the increase of transportation.</p> <p>Frequency of field workers' visits and Review of PPL and other special workers.</p> <p>-</p>

FRAMEWORK ANALYSIS OF AGRICULTURAL
ASPECT TO OBTAIN B/C - RATIO.



Logical frame work of Economic Aspects :

G o a l	OBJ.Verifiable Indicators	M e a n s	Questions
1. Income Increased	Multiplier KxAIO	Product Domestic Regional Bruto - Province and District.	District office 1971 - 1981 Respectively.
2. Employment Opportunity.	% Reduced at the ages unemployed.	New enterprise created and its extension, people growth (Reduction).	
3. Equality	Total population stentifies and classified under the bases of income.	Total population growth based high, middle, low income.	Secondary data.

D r a i n a g e :

1. Disease reduced.	Comparison between suffered total population & total population growth.	Data of public health care, population data.	
2. Maintenance costs reduced.	Costs for road rehabilitation.	Data from public health care, population data at Kecamatan.	
3. Flood	Area flooded	Local data.	

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Purpose	Objectively Verifiable Indicators	Means	Questions
1. Labor market / work opportunity opened.	1. Total working people. 2. Total working hours. 3. Equipment used.	Data obtained from village/ sub district.	

Output	Objectively verifiable Indicators	M e a n s	Questions
1. R o a d	1. Road Length 2. Width 3. Road Construction 4. Total Transportation Vehicles.	Data obtained from village/sub district.	
2. Irriga - tion	1. Length 2. Depth / Width 3. Water height 4. Rice field irrigated.	Data obtained from village/ kecamatan.	
3. Drainage	1. length 2. Depth / Widtn 3. Total benefit- ing families. 4. Water height.	1.Data obtained from village/ sub district. 2.Meter mea- surement.	

INPUT	Objectively Verifiable Indicators	Means	Questions
<u>MAN :</u> 1. Total Labours 2. Mandays	Persons Days	Local data	
<u>MACHINES :</u> 1. Hoc 2. Crowbar 3. 'Pengki'	- -	Local data - -	
<u>MATERIAL :</u> 1. Stone 2. Coral 3. Sand 4. Cement 5. Soil M3 M3 M3 Zack M3	Local data	

PURPOSE	Objectively verifiable Indicators	Means	Questions
1. Employment opportunities created	1. Total people employed 2. Total working hours. 3. Facilities utilized.	Data from village / sub district.	

Sistematically, Evaluation Methods take as follows :

Project Evaluation Goal.

Evaluation : Aims at improving the project design

Monitor : Aims at investigating project implementation under the bases of project planning, budget planned, labour (workforce), schedule activities and problems.

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Project : Organizing production aspects
 (man, money, materials, management, market, machine/tools)
 as inputs to produce outputs as a means to solve community's
 problems.

Social/community problem : It the facts does match the goal.

Such as :

Dynamic Conditions of community	Fact 1982	Goal 1985
Community's Income	US \$ 500/ Capita	US \$ 600/ Capita
Unemployment	5% of High School Graduates	3% out of High School graduates

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METHODS OF ANALYSIS

Means Ends Analysis IF input THEN output
 IF output THEN purpose
 IF purpose THEN Goal

Then Goal	Economic goal Social goal Agricultural goal Cultural goal	GDRP, Employment Social welfare Better crop Better living value
Then Purpose	higher harvest Better transport Cleaner physical environment	Crop per Ha Lower transport time Less disease
Then Output	Irrigation Drainage R o a d (physical)	10 Km 5 Km 10 Km
If Input	M o n e y Manpower Materials	Rupiah, US \$ Mandays Cement, stones

P K G B

G P O I - LOG FRAME

GOAL	Economics Socio cultural Agricultural Social	Objective Indicators	Projects Road Irrigation Drainage
PURPOSE	Economic Socio cultural Agricultural Social	Objective Indicators	Projects Road Irrigation Drainage
OUTPUT	Economic Socio cultural Social	Objective Indicators	Projects Road Irrigation Drainage
INPUT	Economic Socio cultural	Objective Indicators	Road Irrigation Drainage

Collecting data was conducted after the logical frame works has been justified. Data were collected through interviewing respondents (40s respondents) using questionnaires.

Seen the respondents stratified location, questionnaires were directed to respondents groups.

- KR - 1. a. Staff of the office of man power Department.
 b. Officials of Public works.
 c. Officials of statistics office
 d. Rural/Economic Development.
 e. Chief of sub district
 f. Chief of village

- KR - 2. a. Labourers
 b. Leader group
 c. Skilled Labourers

- KR - 3. a. Benefitting farmers
 b. Unbenefitting farmers

- KR - 4. Informal leaders

Aspect ; A.1. Economics
 A.2. Agricultural
 A.3. Socio cultural.

Kinds of Projects :

- P - 1. Road
 P - 2. Irrigation
 P - 3. Water Reservoir
 P - 4. Fish pond canal
 P - 5. Terracing fields
 P - 6. Flood control scheme

Data obtained through interviews, statistical data, reports will be processed through manual tabulating. The result of tabulating was filed by LSP which cover ;

- Tabulation at Road project data
- " " flood control scheme's data
- " " Irrigation's data
- " " water Reservoir data
- " " Terracing rice field's data
- " " Fish pond canal's data.

Those tables will be served on the report in appendix. A.

LIST OF RESPONDENTS

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PROVINCES	REGENCIES	KINDS OF PROJECT	RESPONDENTS									TOTAL
			Labourers	Farmers		Society Leaders	Village District Chief		Regency Staff	Province Staff	Central Govt. Staff	
				Project Ben	Non Ben Project		Chief	Chief				
North Sumatera	Langkat	Road	6	3	2	2	2	1				57
		Road	6	3	2	2	2	1	5	2	2	
		Road	6	3	2	2	2	1				
South Kalimantan	Hulu S.Selatan Hulu S.Utara Banjar	Flood Control	6	3	2	2	2	1	5			65
		Road	6	3	2	2	2	1	5	2	-	
		Road	6	3	2	2	2	1	5			
Sulawesi	Goa	Road	6	3	2	2	2	1	5			118
	Jane Ponto	Road	6	3	2	2	2	1	5			
	Jane Ponto	Road	6	3	2	2	2	1	-			
	Kodya U.Pandang	Road	6	3	2	2	2	1	-	2	-	
	Takalar	Road	6	3	2	2	2	1	5			
	Takalar	Road	6	3	2	2	2	1	5			
West Java	Karawang	Road	6	3	2	2	2	1				55
	Karawang	Rice Terracing	6	3	2	2	2	1	5	2	-	
	Karawang	Fish pond	6	3	2	2	2	1				
Central Java	Semarang	Flood Control	6	3	2	2	2	1				55
	Semarang	Flood Control	6	3	2	2	2	1	5	2	-	
	Semarang	Dam	6	3	2	2	2	1				
East Java	Malang	Road	6	3	2	2	2	1				55
	Malang	Irrigation II & III	6	3	2	2	2	1	5	2	-	
	Malang	Irrigation II	6	3	2	2	2	1				
TOTAL	11 Regencies	21 Projects	126	63	42	42	42	41	55	12	2	405

LIST OF
PICS PROJECT SAMPLES

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PROVINCE	DISTRICT	KINDS OF PROJECT	CLASSIFICATION	FISCAL YEAR	PROJECTS LOCATION	LENGTH	NOTES
1. North Sumatera	1. Langkat	Road	Fair	1981/1982	Sub-district Selesai, Langkat district, Jl. Mancang - Kuala Begunit.	5,100 metres	
	2. Langkat	Road	Fair	1981/1982	Selanggang sub-district, Langkat district, Jl. Kepala Sungai - Mungga.	4,100 metres	
	3. Langkat	Road	Fair	1981/1982	Tanjungpura sub-district, Langkat district, Jl. Pantai Cernin - Pematang	4,700 metres	
2. South Kalimantan	1. Hulu Sungai Selatan	Flood control	Fair	1981/1982	Daha Utara sub-district, Hulu Sungai District, Jl. Desa Pasungan	6,500 metres	
	2. Hulu Sungai	Road	Fair	1982/1983	Awayan sub-district, Hulu Sungai Utara District, Jl. Desa Merah - Pelajar	5,700 metres	
	3. Banjar	Road	Fair	1980/1981	Astambul sub-district, Hulu Banjar district, Desa Selan Pematang Danara	7,025 metres	
3. South Sulawesi	1. Gowa	Road	Fair	1980/1981	Tinggi Moncong sub-district, Gowa District.	6,000 metres	
	2. Jene Ponto	Road	Fair	1982/1983	Tanalatea sub-district, Jene Ponto, Jl. Banta Ranba - Bulu sibatang	7,000 metres	
	3. Jene Ponto	Road	Fair	1981/1982	Kelara sub-district, Jene Ponto, Jl. Rumbia - Tallo	5,000 metres	
	4. Ujung Pandang Municipal	Road	Fair	1981/1982	Biring Kanaya sub-district, Ujung Pandang Municipal, Jl. Paras Luyu - Mancangloe	3,000 metres	
	5. Takalar	Road	Fair	1980/1981	Polongbangkeng Selatan sub-district, Takalar district, Jl. Banta Lorong II	7,000 metres	
	6. Takalar	Road	Fair	1980/1981	Manggara Bombang sub-district Takalar district, Jl. Cikwang - Gaiking	7,000 metres	
4. West Java	1. Karawang	Road	Fair	1980/1981	Rawanerta sub-district Karawang district, Jl. Sukanerta - Pasir Kaliki	3,000 metres	
	2. Karawang	Rice field terraced	Fair	1982/1983	Teluk Jembe sub-district Karawang	20 hectares	
	3. Karawang	Fish Canal	Fair	1981/1982	Rawanerta sub-district Karawang district, Jayanegara village	6,500 metres	
5. Central Java	1. Semarang	Flood Control Canal	Good	1981/1982	Anbarawa sub-district, Semarang district, Caled-river	4,500 metres	
	2. Semarang	Flood Control Canal	Fair	1982/1983	Anbarawa sub-district, Semarang district, Terong river	4,000 metres	
	3. Semarang	Reservoir	Fair	1982/1983	Tenggaran sub-district, Semarang district, Senjoyo Reservoir	1,750 metres	
6. East Java	1. Malang	Road	Good	1980/1981	Pujon sub-district, Malang district, Jl. Ngoto - Nudun	4,000 metres	
	2. Malang	Drainage II & III	Good	1982/1983	Jabung sub-district, Malang district, Sukopuro canal	7,845 metres	
	3. Malang	Drainage II (irrigation)	Fair	1981/1983	Karangploso sub-district, Malang district, Turi canal	4,000 metres	

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TIMES SHEDULE RESEARCH ON THE EVALUATION
 OF PKGB PROJECT IMPACTS
 JUNE 27, 1983 - MARCH 27, 1984

PROGRAM : STUDY & RESEARCH
 PROJECT : EVALUATION ON THE P K G B
 PROJECT IMPACTS

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NO.	ACTIVITIES	JULY	AUGUST	SEPT	OCT.	NOV	DEC	JAN	FEB	MARCH	NOTES	
1	Liberial Studies	-----									June 27 - July 31, 1983	
2	Questionares Preparation		-----								July 24 - August 21, 1983	
3	Field works recruitment/ lay out		-----								August 7- August 27, 1983	
4	Duplicating questionares			-----							August 28 - September 2, 1983	
5	Research Implementation			-----							September 4 - September 20, 1983	
6	Observation			-----							September 15 - October 7, 1983	
7	Tabulating & Analizing				-----						October 8 - December 10, 1983	
8	Draft Report					-----					December 11, 1983 - March 6, 1984	
9	Seminar									-----		March 11 - March 14 1984
10	Final Report									-----		March 15 - March 20 1984
11	Duplicating Report									-----		March 21 - March 26 1984
12	Handing over Final Report									-----		March 27, 1984.

rural Works II 497-0285
 Loan No. 497-T-056
 Short Term Benefits

Outputs.

I F Y	Kecamatans	T o t a l Sub projects	Average Workers per Sub project per day	Total Mandays of employment	Number of Workers Employed	
					M a n	Women
1979/80	499	499	286	13,174,469	278,427	7,378
1980/81	599	599	206	11,128,003	288,890	8,605
1981/82	742	742	221	14,746,745	371,500	19,800
1982/83	895	895	281	22,613,389	447,500	23,700
T O T A L	2,735	2,735	249	61,662,636	1,386,317	59,483

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Rural Works II 497-0285

Loan No. 497-T-056

Beneficiaries

Outputs.

<u>A. Direct beneficiaries :</u>	<u>No.</u>
a) Immediate laborers on the sub projects	1,445,800
their dependents	6,144,660
b) Remaining population of villages directly affected by sub projects	9,009,540
c) Labourers who have become skilled.	91,000
<u>B. Indirect Beneficiaries :</u>	
The remaining population of sub districts directly affected by sub projects	15,893,000

Rural Works II 497-0285

Loan 497-1-056

Average Supplemental Income Received Per Person Per Year.Outputs.

I F Y	Labor Cost (\$000)	Total Workers Employed	Average Supplemental Income Received Per Person Per Year
1979/80	7,602	285,805	\$ 26.60
1980/81	9,395	297,495	\$ 31.60
1981/82	14,217	391,300	\$ 36.33
1982/83	20,724	471,200	\$ 44

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Rural Works II 497-0285

Loan 497-T-056

In Country TrainingOutput.

I F Y	Persons trained	Number	Person Month of Training	
1979/80	PIPs (Construction Supervisors)	654	228	Construction Techniques
	DMP Province & District Staff	394	55	Sub project Selection
	PKGB technicians	37	8	Technical training
	DMP Central Staff and Province Project Officers	12	1	Project Management/Technical Training (LIT)
1980/81	PIPs	1,000	500	Construction Techniques and Management. L T T
	DMP Province & District Staff	960	154	
1981/82	PIPs	1,121	560	Construction Techniques and Management L T T
	DMP Province & District Staff	345	35	
	PKGB Technicians	84	129	
1982/83	PIPs	834	445	Preservice and Formal Techni ques Training
	DMP Province & District Staff	365	73	Construction Techniques and Management L T T
	PKGB Technicians	144	225	Preservice and Formal Techni ques Training Instructors Training
	PKGB Technician Instructors	105	21	
	PKGB Evaluators	123	246	
	Total to date	6,178	2,680	Internal Evaluation System

Rural works II 49 - 0285

Loan No. 497-I-056

Overseas Training

Output.

I F Y	Persons trained	Number	Person Month of Training	Subject
1979/80	DMP Project Officers	6	12	Integrated approach to Rural Department
1980/81	DMP Project Officers	2	4	Training conducted at the International Institute of Rural Re- construction (IIRR), Cavite, Philippines.
	DMP Central Office Staff	1	2	
1981/82	DMP Project Officers	5	6	
1982/83	DMP Project Officers	2	4	
	DMP Central Office Staff	1	2	
	Total to date	15	30	