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MODERNIZATION WITHOUT DEVELOPMENT IN RURAL JAVA

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a paper contributed to the study on changes in agrarian
structures, organized by F.A.O. of the
U.N., 1972-73.

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MODERNIZATION WITHOUT DEVELOPMENT IN RURAL JAVA.*)

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1. Introduction

1.1: Farm-size, cropping-pattern and labour

In 1963, with 66 million people in Java the Agricultural Census (a sample survey) found that 52% of farms was under 0.5 ha and 21% over 1.0 ha; with a population density of 496 persons per sq. km., the average farm-size was 0.71 ha.(1)

The same characteristic of small-farm size distribution in Java has been observed 60 years earlier. An extensive survey on rural poverty in 1903 found⁽²⁾ that 45% of farms was under 0.5 ha and 22% over 1.0 ha; Java's population was then less than 29 million and population density 219 persons per sq. km. (Table 1.)

One often hears that rural people in Java have some definite measure of small farming, deemed to be adequate for some level of plain living and within the hand-labour capacity of a household: 1 "bau" (0.7 ha) of farmland.

But even in 1903 the majority (71%) did not attain that level. With more intensive farming in the 1960's (some 40% in wet paddy), farms under 0.5 ha (average 0.27 ha) are definitely undersized for an adequate living, especially if it is mainly non-irrigated land. In 1963 this was the fate of 4.0 million farmers. The viable farms are those over 0.5 ha: 3.8 million farmers who farm 80% of rural farmland form the backbone of Java's rural economy (average 1.2 ha). If the 1963 Agricultural Census had also taken into account of the 2.0 million households who farm "less than 0.1 ha" and the landless households (probably another 2 million), this would have pointed more convincingly to

*) a paper contributed to the study on "changes in agrarian structures" organized by the F.A.O. of the U.N. (numbered notes refer to sources: see Appendix)

Java's problem of "not enough land" for the growing population. In 1971 the rural population had grown to 62.3 million, 85% of total population in Java.

In Java's sedentary farming, smallholders have gone, by necessity, into mostly food crops. "Sawah" (bunded wet paddy fields) is the most intensive form (3 million ha). On two-thirds of "sawah" area which is irrigated, one can either double-crop with rice or, in case of less water, have "palawija" (non-rice crops) in the dry season for multiple-cropping diversification: corn, peanut, soybean, sweet potatoes and vegetables. In 1963 an average "sawah" plot was 0.44 ha. Upland farming (5 million ha) is occupied by "pekarangan" (homeyard) on 10% of upland area: an average 0.08 ha in 1963 when 6 million out of 7.8 million farmers included this form in their farming area. The 2.0 million households with less than 0.1 ha, who in 1963 were excluded from the Agricultural Census, most probably have only "pekarangan" where a household has its house site. Especially Central and East Java farmers have intensive forms of "pekarangan" with annual and many layers of perennial crops, not only supplying additional proteins and vitamins but also daily cash in a money economy. Per square meter a farmer may get more income from "pekarangan" than from his wet paddy. The other important type of upland is "tegalan", a rather intensive form, in both seasons for rainfed "palawija"; the same non-rice annual crops that have found a place on "sawah" land in the dry season.

When one looks at the growth of Java's cropping pattern in the half century before the Pacific War, it is clear that the largest increases of cultivated area by smallholders occurred in the first two decades of this century (Table 2) with larger increases in "tegalan" (10%/year) than "sawah" area (1%) in 1900-1915.⁽²⁾ It has also meant large increases in harvested areas in "palawija" (non-rice) crops: 21%/year in 1903-1920. This early diversification in its food crop farming by smallholders in Java is rather unique for Indonesia or Southeast Asia: it was pushed that road by its population growth.

If in 1888 harvested area by smallholders was for 35% in "non-rice crops", in 1920 it was 49% and in 1938 55%. The pattern is here to stay: in 1968 non-rice crops were on 52% of harvested area. With 3.8 million "sawah" paddy and 0.4 million ha upland paddy harvested, non-rice crops were: 2.3 million ha of corn, 1.4 million ha of tubers (mainly cassava) and 0.8 million ha of pulses (peanut and soybean).

With a rural population of 62.3 million in Java the 1971-Population Census found a labour force of 21.0 million "economically active" in agriculture. Outside the category of "unpaid family-workers" (7.8 million), two other categories who are needing each other are the 7.5 million farm operators and 5.7 million farm labourers; in this latter category 3 out of 7 are women. So, roughly there are 3 farm operators to 2 farm labourers, showing the abundant source of farm labour in Java.

At the farm level this is best shown in Java's "sawah" wet paddy farming enterprise. In an extensive study of rice farming in 20 villages in the main irrigated rice areas in Java (1969-71) the Agro-economic Survey found that 97 to 100% farmers in its sample (operating 0.62 to 0.83 ha wet paddy) were using wage labour for 72 to 84% of pre-harvest labour; the remaining was own household labour. Pre-harvest labour for wet paddy was found a high 217 to 253 man-days per ha, showing the high labour intensity of wet paddy farming. (3)

Some comparative data are available from East Java in the 1920's and 1930's. (4) Rice farms "over 0.58 ha size", mostly in the same river basins studied in 1969-71, then had a level of 151 man-days per ha of pre-harvest labour (range 105 to 240 man-days/ha). An average 59% (range 41 to 72%) of that labour was hired labour. It seemed that in the course of 4 decades rice farming has become more labour intensive in Java and it was not due to the adoption of new IRRI type high-yielding rice varieties which came in 1968.

With data from the 1930's Vink showed that a high labour intensity of (on average) 1,500 man hours/ha of manual labour and 120 cattle hours/ha, the average income of a rice farm enterprise in Java was 1 kg (milled) rice per man-hour.

1.2: Tenancy

The majority of Java's farmers are owner-operators. The 1963 Agricultural Census showed three categories:

- a. 59% operated only their own land ("milik"-rights) (average 0.67 ha);
- b. 34% operating owned plus other land, by renting, sharecropping or other arrangements: an average 0.83 ha, out of which 0.46 ha was non-owned land, that is 124% additional land beyond one's own land;
- c. 6% operating wholly non-own land: those who are in the non-landowning group (average 0.48 ha)

If the two latter categories may be grouped as one 40% of farmers are thus "tenat-farmers". A little more than half of them (23.5%) are renting-in or sharecropping-in on 13.5% of total farm land. Renting-in was found to be a little more wide-spread than sharecropping. This was more distinct in Central and East Java while the reverse was true in West Java.

In renting arrangements, on more than 90% of total rented land the rent was paid in money, before the use of the land for one or more seasons. In West Java where sharecropping more common, on 46% of total rented land the rent (in 1963) was paid in kind after harvest and so resembles some of sharecropping rules.

A farmer who rents-in land will be, in principle, his own decision-maker on the rented land he will be farming. But in sharecropping, a tenant who leases-in, may or may not be a full farm manager, autonomous in his farm decisions vis-a-vis his landlord to whom he will pay a "rent" in a fixed, agreed upon

proportion of the harvest. The formalized, traditional model procedure in sharecropping ("sakapan") is that of "maron" (half and half) for landlord and tenant. The two "halves" may not, however, be equal. Their respective shares depend on a settlement between the two parties concerning responsibilities for inputs (seed, labour from man and cattle, land taxes), adjusted to types of land and crops and also on one's relative position.

In overpopulated rural Java with not enough land for all, most probably a for larger proportion (but unrecorded) of sharecropping arrangements has put tenants into a farm labourer's status and role. The landlord thus remains as the farm manager who also takes care of inputs, while the "sakapan" holders are assigned contracted phases of pre-harvest work (especially in wet paddy farming) with shares of one-fourth, one-fifth or less of the harvest. Larger shares (equal halves) mean that the tenant is in a rather privileged position, with close ties to the landlord. Or it means the tenant's stronger bargaining position in cases where the land owner is an absentee owner who cannot have his land farmed in other ways. The 1963 Agricultural Census however, did not have any classification of sharecropping arrangements into different shares for tenants (one-half, one-third or one-fourth, etc.).

The 1960 Law on Sharecropping was enacted to regulate food crop farming in particular; it has called for a general measure of 50% minimum crop shares for tenants in wet paddy out of net harvested produce, that is: after inputs (except land and labour) have been returned to each party who contributed. In the case of non-rice food crops and upland farm produce the tenant's share was to be 66% of net output. Written agreements had to be filed with the village government. This rule and a stated intention to have landlords accept a longer term lease of five years for a tenant's right to work the land, had not been pursued very effectively to say the least, even during the heyday of proclaimed national policies of land reform in the early 1960's.

The new Basic Agrarian Law of 1960 gave farmers titled ownership of land ("milik") as the most secure form of tenure for individuals, with a rather liberal ceiling: on a family unit basis 5 ha wet paddy in densely populated areas to 15 ha in less populated areas. Regulating share tenancy was to strengthen the general policies of "land to the tiller".

In its concepts, the Sharecropping Law had its weak points: while outlining the sharing of outputs (that is: net output) it did so without relating to any operational rules on the sharing of inputs by landlord and tenant. Or, if this was intended to be decided on the local scene, with village and sub-district committees and the sanctions of a District head, it had not produced workable solutions for the Sharecropping Law. It was confounded by the political bickering of the times (1960-65) among political parties, each siding with interested groups, in and outside responsible government agencies.

Through the Sharecropping Law was launched in the same period that the first large-scale government program for rice production intensification was put into operation (the Paddy Center Program, 1959-62), none of the concerns to regulate sharecropping in more advantageous ways to tenants, was in any way integrated with the policies of supplying production credit to rice farmers: a separation of politics from political economy.

Table 1. : Farm size distribution in Java: 1903 and 1963

Farm size Class	(1)	(2)	
	1903	1963 Agricultural Census "Published Data"	"Adapted Data"
1. Less than 0.5 ha:	a. % farms: 45%	52%	61%
	b. average: no data	0.27 ha	0.20 ha
2. Less than 1.0 ha:	a. % farms: 78%	79%	84%
	b. average: no data	0.43 ha	0.33 ha
3. More than 0.5 ha:	a. % farms: 55%	48%	39%
	b. average: no data	1.20 ha	1.20 ha
4. More than 1.0 ha:	a. % farms: 22%	21%	16%
	b. average: no data	1.87 ha	1.87 ha

Notes: 1) Source: C. Geertz: Agricultural involution (Un. of Calif. Press, 5th pr., 1971) page 98, footnote;

2) "published data": following the Census definition of "farming": "operating more than 0.1 ha";

"adapted data": by adding those "with less than 0.1 ha", or 2 million households, to the 7.8 million farmers;

Table 2. : Java's food cropping patterns: 1888-1938
(Source: Table 4, page 93 from
C. Geertz, op. cit.)

	Estimated increase(%) in cultivated area:	
	"sawah" (paddy)	"togalan" (upland)
1888-1900 1)	8	24
1900-1915 1)	16	150
1916-1928	10	26
1928-1938	3	5

	Estimated % increase of harvested area:	
	Wet paddy	"Palawija" (upland crops, including upland rice)
1888-1904 1)	7	32
1903-1920	15	191
1916-1928	13	81
1928-1938	19	16

Note: 1) Exclude "principalities" and "particuliere landerijen"; were these included, figures would be probably slightly lower.

2. Rice-intensification programs and tenure relations (1959-72)

2.1: Program organization and implementation

A national policy for sufficiency in rice, the staple food, has pushed the first efforts: the "Paddy Center" program (1959-62). A special authority, the "PERTANI", a state corporation, was created to implement an integrated program to deliver a better technology package to rice farmers with intensive extension services and credit, in kind (fertilizer, local improved seed, pesticides) and in cash, to be repaid by farmers in kind (paddy) after the harvest. This latter was part of a policy in rice procurement for a national rice stock. The program had pushed a chemical fertilizer "revolution" in Indonesia's rice fields. In a short period annual importation of fertilizer had reached some 300,000 ton or 2 to 3 times more than prewar (1936-41) volumes, and with a difference: in the new program fertilizer supply for rice farming under a government subsidy, surpassed that for big plantations, planting perennial and annual crops, as sugarcane and tobacco.

The program however came to a halt, due to problems in management as the program was pushed to cover large areas too soon without enough personnel of the right kinds, for a new organization to carry so many functions. Also the strain of national war efforts in the early 1960's to get Dutch occupied West Irian back into the fold of the Republic after years of civil war (1958-60) had resulted in severe inflation. This has made the financing of the program difficult. The program was a financial loss: farmers in their credit repayment did not contribute much to the national rice stock, too many were in default.

The second "wave" was the Bimas rice-intensification program* (1964-67). It involved the "mass guidance, or education, of farmers" and was based on

* An acronym in Indonesian, for "mass guidance".

a small prototype field project by staff and students of Bogor Agricultural University in three villages in West Java in one season (1963/64). With close and intensive extension work by students who lived six months in the village, farmers showed 100% higher yields than what they used to get. With many more students in the program in later years the program came to be implemented by the Agricultural Extension Service. In each region it was supported by the Civil Service, the People's Bank and the "PERTANI" corporation for fertilizer distribution. But "mass guidance" became diluted when students and other village level workers had to cover whole sub-districts, or village clusters as working units rather than small groups of 50 or so farmers. In most cases "better farming also did mean better business" to the involved farmers. Newly founded "farmers co-ops" in the process became local trials in developing new rural institutions.

The third program came after the 1965-67 political struggle, sparked by the 1965 coup d'etat's efforts that misfired, had pushed a New Order government with a new president. The new program came with several elements of foreign relations' influence of the new times. In the "first five year development plan" (1968/69-1973/74) sufficiency in rice was again top priority in the agricultural field to be supported by the long overdue rehabilitation of the infrastructure of irrigation works, mostly in Java. "Agricultural policy makers" had just accepted the new IR-rice varieties, (IR-5 and -8) which were regarded more responsive to fertilizer than the traditional or locally improved varieties. They were convinced by the earlier Bimas programs that "farmers will do the job if given the tools and the incentives". The "economic" planners were just to start the new government's foreign-loans-plan to help finance the five year development plan; so the decision then was to accept short-term credit and management aid from foreign companies for the

Gotanepayong ("Mutual Aid")-Bimas program, as the third "wave" of rice programs (1968-1970) was called.

It lasted only two years before it was terminated: in its two years and 4 season crops it had covered a total of some 1.8 million ha of wet paddy (mostly in Java) with 0.5 million ha in the first dry season and 0.8 million ha (its peak) in the second wet season. The vast area to be covered in such a short time again seemed to overtax all the agencies involved: invariably too much of "planning from above" was "pushed down" to village headmen and to farmers. In the involved regions concerned local officials, keen on targets of the plan, were pushing for its implementation and farmers felt its requirements being "straitjacketed" to them. Extension people were too busy allocating materials (fertilizer, etc.) and had too little time left for educating farmers. Both the People's Bank and "PERTANI" which earlier had played an important role were pushed aside in the process, as were "farmers' co-ops". Farmers were required to repay the credit in kind, earlier one-sixth of harvest, later in a fixed volume. They did so, seemingly in proportion to their experienced benefits and many were defaulting. But also mismanagement of the repaid credit, in the hands of village headmen and others, was responsible for losses.

The fourth "wave" of a Bimas rice program. started in the wet season 1970/71, right after the earlier one was terminated was named the Improved National Bimas. A pilot project by the People's Bank in Yogyakarta on how to intensify such credit services at village levels had been encouraging so that "economic planners" in national planning were won over. The funds for the new "Bimas" program were put in the national development budget. The People's Bank was again called on to take care of the credit services: it was to be personal credit directly delivered (not in groups) to an individual farmer, not collective credit, at 1% per month of interest, the lowest rate. Village headmen, as also local farmers' co-ops (whenever available) were asked to help but it was

made clear that it was the Bank which dealt directly with the farmer. "PERTANI" had to share the distribution of subsidized fertilizer with some private companies, so that compared with previous years in competition better services were to be available. The Agricultural Service put out more field personnel to affect the same.

A "village-unit" organization (B.U.U.D.) was formed to serve a cluster of villages with 600 to 1,000 ha in all of wet paddy land. In the wet season 1971/72, with 170,000 ha in 264 "village-units" in West Java, each unit served 677 farmers on average, one Bank man served 462 farmers, and one extension man 512 farmers. With 4 kiosks per unit (to sell fertilizer and pesticides) one kiosk served 187 farmers.⁽⁶⁾

It is not clear, at this time, whether beyond 1972, in the Bimas program's expansion to cover more farmers in more areas and more village clusters, one will have learned the lesson since 1959 in how to develop agencies capable to reach farmers effectively. One big problem, its needs now still overlooked, is that of inducing farmers to form their own self-help organizations that will support, meet and match the services of government agencies.

At best, extension work has meant one season work in farm demonstration activities, with small groups of farmers, but the agencies still have no clear operational concepts to develop enduring farmers' projects sustained by local leaders. Because stimulating the growth of farmers' co-ops is a slow process, relying on the "all embracing" village government has still been the general rule. Village headmen are elected and do not have the status of government officials but they easily may act more as government spokesman than for their local electorate. In the process farmers have had no vocal say in the local planning of Bimas programs while it directly affected their farm business.

In short, the effect of "Bimas" rice intensification programs was that it has been mostly a "fertilizer revolution" for Java's rice farmers, since the 1959 and less, than expected earlier, a "new seed revolution". In 1963, chemical fertilizer in Java was used on 43% area of farmers' fields, mostly mixed with the use of manure. The 1970/71 National Sample Survey found that for wet paddy the use of chemical fertilizer had reached a level of 103 kg/ha in addition to 221 kg/ha of manure. If one leaves out rainfed paddy fields, one is nearer to a 131 kg/ha level of chemical fertilizer use, mostly as urea in irrigated "sawah". From crop cutting data of 500 sample farmers in 20 villages in the main rice regions in Java the Agro-Economic Survey (1969-71) found an average yield level of 2.6 ton milled rice/ha of the new IR-varieties compared respectively. The new IR-varieties were on average 28% higher yielding. Such yield levels were achieved (in 1970/71): for traditional and local varieties by inputs of 113 to 160 kg/ha and for the new IR-varieties by 150 to 252 kg/ha of chemical fertilizer. (3)

The area planted to the new varieties in the 1970/71 Wet Season, i.e. in the third year after its release, was estimated to have reached a 10% of all "sawah" planted to rice in Indonesia. In West Java it was some 25% of total paddy area, in Central Java 12% and West Java 10%. Out of 1 million ha under the Bimas program in the same season 31% was under the new IR-varieties.

2.2: The impact of rice-intensification programs

To study farmers' problems at the village level, especially in rice intensification, the Agro-economic Survey (A.E.S.) had in the 1969-71 period interviewed twice a year a sample of 600 farmers in 20 villages in Java and 500 farmers in 17 villages in the islands of Sumatra, Celebes and Bali. The study areas chosen were in the best irrigated paddy regions, with good marketing

facilities, including machine-processing, which were conducive to better contacts with town and city market centers.

With two villages selected in each sample district, in Java six villages were in West Java, eight in Central Java and six in East Java. The thirty sample farmers in each village were chosen randomly from three strata: five from a list of "large farmers" (as interpreted in the village), fifteen from the list of "Bimas Program" participants (in the 1968/69 Wet Season, the time of the first interview) and ten from a list of nonparticipants. If either of the two latter categories did not exist in a village, the sample of twenty-five "other farmers" was taken randomly from the existing strata. In each season the same sample farmers were interviewed.

The 500 "other" farmers in Java, if grouped by Province, have an average farm size ranging from 0.60 ha (Central Java) to 1.08 ha (West Java) (average 0.86 ha). If put against data of farm size distribution as found by the 1963 Agricultural Census, these sample farmers are in the top 35% (West Java) to 44% (East Java) of farm size class (by province), thus falling in the "larger farm" class. The 100 "large" sample farms could better be called "the largest farms", falling in the top 14 to 19% in farm size.

Rice farming operations in the "sample of 500" range from 0.47 ha (Central Java) to 0.66 ha (East Java); the average is 0.57 ha or 66% of total farm area. Judging by average figures, by Province, the farmers are in the older group (39.8 to 46.2 years in 1969), having large households (range: 5.4 to 6.3) and only a few years of schooling (range 3.2 to 4.0 years). (Table 3)

All the survey's findings until 1972, have been based on data of the 500 "larger" farmers or sub-samples or it. The East Java sample showed the widest adoption (50%) of the new IR-varieties; it was followed by the West Java sample farmers (20%) while Central Java sample farmers had the least adoption, just 10%. It was found that the larger the rice farm operation, the more use was

made of the new varieties, though it should be noted that many farmers alongside the new varieties still planted traditional and "local improved" varieties results of national research efforts, pre-1966): 39% with East Java farmers and more (66%) with West and Central Java farmers.

In the period of study (1969-71) the Bimas program could not be shown to have much direct impact in spreading the new varieties. The West and Central Java sample farmers in the program had a low proportion in the new varieties, on the other hand East Java sample farmers had shown a wide acceptance, both in and outside the program. (Table 4)

Rice farming in Java was shown to be rather heavily drawn into the money economy.

- a) The majority of farmers sell their rice: in the East Java sample: 76 87%, respectively of wet and dry season harvest (Table 5), less in West Java (59-58%) and Central Java samples (57-61%). The ration of farmers "buying (back) rice" to "selling rice" farmers is a high 65% in the West Java sample (dry season crop), less in the wet season (46%), also in East Java (41%) and least in the Central Java sample (29%). One is reminded that for most of these farmers whatever they sell is "marketed rice" and not "marketable surplus".
- b) With farms ranging in size (averages) from 0.62 ha to 0.83 ha, 97 to 100% of sample farmers are using wage labour, for most (73% to 98%) of pre-harvest work in the paddy field which is very labour intensive (range: 217 to 253 man days/ha) (Table 5) so that the term "family-farm" is rather far fetched. A large portion (64 to 85%) of pre-harvest farm expenditures is for wage labour payment (mostly in cash); the remaining is for the purchase of farm inputs (fertilizer, etc.).

- c) A high proportion of farmers (25 to 50%) have off-farm income, a source of cash income, partly to be invested in rice farming, especially to pay for hired labour.

The main finding of the study was, that the different impact in each region could best be explained by the larger or smaller benefit that farmers experienced from planting the new varieties.

Though based on only a sub-sample of 181 farmers (three villages in each Province sub-sample), it was shown that East Java farmers who were getting 47% higher benefits from the new varieties, were also the ones who had the widest adoption of the new varieties. With the new varieties they were enabled to reach a level of net benefit (after expenditures for wage labour, farm inputs and harvest costs) of 858 kg milled rice equiv./ha, from an earlier low 583 kg/ha. They are followed by West Java farmers, who with local varieties already had (as a start) a level of 846 kg rice-equiv./ha as net benefit from their rice farming; with the new varieties they were able to have a higher level of benefit: 1,126 kg rice equiv./ha (33% higher). It was with Central Java farmers, who had the highest net benefit of 902 kg rice equiv./ha on local varieties that the new varieties have not been very attractive: only 11% higher (1,003 kg rice equiv./ha).

If the ratio of net benefit to pre-harvest farm expenditures is a better measure, East Java farmers, also had relatively speaking, the highest jump due to the new varieties (from 0.97 to 1.44); they were followed by West Java farmers, who have the highest ratios but only a small 11% jump from 1.74 to 2.07 ratios. Central Java farmers were not getting any better ratio with the new varieties: 1.59 with local and only 1.55 with new varieties. (Table 6)

Table 4. A.S.S.⁺: Participation in "Bimas"-rice-program and planting of local and new IR-varieties. (Java-sample-farmers, Dry Season-1969 and Wet Season-1969/70)

	* farmers planting at least					
	Local--IR-var. (West-Java)		Local--IR-var. (Central-Java)		Local--IR-var. (East-Java)	
1. Dry Season-1969:						
a/In "Bimas" program	66	18	58-----15		22-----48	
b/Outside "Bimas" program (sample farmers)	69 (69)	16 (27)	53-----16 (163)		39-----33 (102)	
2. Wet Season-1969/70:						
a/In "Bimas" program	65	15	63	4	23	43
b/Outside "Bimas" program (sample farmers)	69 (115)	12 (82)	68 (157)	0 (90)	29 (151)	39 (92)

Notes: "Planting at least local varieties" means "local varieties and possibly other varieties; "planting at least IR-varieties" means "IR-varieties and possibly also other varieties." In this way one farmer can be counted twice.

Table 5: A.E.S.*): selling and buying (back) rice by farmers and farmlabour use in ricefarming in Java, 1969/70.

A. Selling and buying rice:	% - farmers planting "at least"					
	(West-Java)		central-Java)		(East-Java)	
	Local	IR-var.	Local	IR-var.	Local	IR-var.
1. Dry Season-1969:						
a/selling rice	58	42	.61	.74	.87	.83
b/buying rice	38	13	.18	0	.28	.34
c/ratio of selling to buying rice (%)	(65)	(69)	(29)	(0)	(32)	(41)
(sample-farmers)	(106)	27	(157)	(43)	(60)	(80)
2. Wet Season-1969/70:						
a/selling rice	59	79	.63	.57	.76	.77
b/buying rice	27	14	.16	0	.32	.28
c/ration of selling to buying rice (%)	(46)	(18)	(25)	(0)	(41)	(36)
(sample-farmers)	(132)	28	(162)	(7)	(62)	(101)
B. Labour use:						
	Pre-harvest labour use in rice-farming					
	(West-Java)		(Central-Java)		(East-Java)	
1. Man-days/hectare	217		234		253	
2. Wage (hired) labour	79%		72%		84%	
3. % - farmers using hired labourers	97%		100%		100%	
4. Farmsize (average).	0.33 ha		0.62 ha		0.67 ha	
(sample farmers).	(12)		(161)		(61)	

*) Agro-economic Survey: ref. #3.

Table 6: A&E.S.*): average net benefit of ricefarm operation by rice-varieties, 1970/71 Wet season, in Java.

	Ricefarmers planting					
	in West-Java (3 villages)		in Central-Java (3 villages)		in East-Java (3 villages)	
	"only IR-var"	"only local"	"only IR-var"	"only local"	"only IR-var"	"only local"
(sample-farmers).....	(13)	(43)	(7)	(56)	(9)	(53)
1. Average ricefarm operation.	0.66 ha	0.54 ha	0.56ha	0.86 ha	1.22 ha	0.56 ha
2. Pre-harvest farm expenditures (\$/ha)	58.43.	51.39	61.86.	43.34.	53.51	53.93
3. Net benefit (\$/ha)	119.42.	89.75	96.30.	86.66.	77.29	42.46
4. Net benefit(milled rice-) (ton/ha)	1.126.	0.846.	1.003.	0.902.	0.858.	0.583
5. Ratio :benefit/expenditures	2.07.	1.74	1.55.	1.59	1.44	0.97
6. Net income from ricefarm- ing per season(milled rice:ton)	0.751	0.457	0.562	0.776	1.047	0.326

Notes:

Pre-harvest expenditures: for wages (in kind/cash) of hired non-household labourers and purchase of farm inputs (fertilizer, etc)

Net benefit: total output deducted by pre-harvest expenditures and harvest costs, in money value (1 US\$ = 415 Rupiah) and in milled rice-equivalent. This net benefit can be thought of as a net return to the farm family; family labour has not been deducted.

"only IR-var." refers to farmers planting only IR-varieties;

"only local varieties" to farmers planting traditional or local improved varieties only.

*) Agro-economic Survey: ref.# 3.

2.3: Tenure relations in rice farming

In the A.E.S study the majority of rice farm operators were farming only their own paddy land: 70 to 82% by Province sub-sample; another 10 to 15% of farmers were farming on owned land and additional leased land, by renting or sharecropping while 8 to 17% were farming on wholly leased paddy land, rented or sharecropped.

Relating tenure status with the planting of new varieties, the data for West Java showed (Table 7) that owners and lessees have in equal proportion adopted the new varieties: a ratio of lessees to owners of 35% in the 1969 Dry Season and 28% in the 1969/70 Wet Season. This is even more apparent in East Java sample, respectively 40 and 35%, with a higher adoption. In contrast, the Central Java sample in the two seasons showed a declining proportion of lessees who planted the new IR-varieties: from 50% dropping to 16%. It seems that in situations where the new varieties have not shown to have meant better farm business, as in the Central Java sample, more of lessors than owners were discouraged.

A closer look is warranted to compare performance by farmers who lease paddy land and those who do not lease. As the Agro-economic Study has studied the same sample farmers for at least four seasons, it is possible, by retabulating some of its farm data, to make comparisons between rice farming benefits in the 1968/69 Wet Season and the 1970/71 Wet Season, two years later. The data are from a sub-sample of 292 farmers in 10 villages (in 5 districts) in the northern plains of Java, from Serang (West of Jakarta) to Sidoarjo (near Surabaya in East Java).

The sample farmers can be sub-grouped into 6 "western villages" (two are in Central Java) and 4 "eastern villages" (with 2 villages in Central Java), each with differing traits. In the first sub-group average farm size is over

1.0 ha (in the first season 1.12 ha and in the second 1.27 ha); here rice farming intensification has pushed yields considerably, from an average yield of 1.13 milled rice ton/ha to 1.74 ton/ha. In the "eastern villages" farms are smaller, (average 0.57 ha in the first and 0.74 ha in the second season) and mostly because of fertile soils already had high paddy yields, an average 1.80 ton/ha, above the Java average, in the first season. But in the second season two years later, they had lower yields, even with rice intensification: (average 1.65 ton/ha).

In each sub-group, it is best to compare four tenure statuses:

- a. owner operators (only farming on owned land) who farm more than 1.0 ha;
- b. owner lessees (farming owned plus additional leased land: rented or sharecropped) who farm more than 1.0 ha;
- c. owner operators who farm less than 1.0 ha;
- d. wholly lessees (not farming any owned land, only leased land: rented or sharecropped) who farm less than 1.0 ha.

The two ways combined give us a means to look both at farming productivities (one rising steeply, mainly by higher yielding technology) the other stagnant, and at "tenure status", a social factor. In the latter "net rice revenue" is a measure of the burdens of rent, crop shares and harvest costs; the first two are born by lessees who rent-in or share crop-in land.

In "western villages", in the first season (1968/69) net rice farming revenue was low; for each of the four tenure statuses none was over 1.0 ton/ha (milled rice). For lessees % net revenue figures were much lower than for owners who had 66 to 70% (average) while wholly lessees had the lowest % figures, just 40%. With yields having risen more than 50% two years later, net revenue also showed increases, not only for owner-operators (at higher levels of 85 to 89%) but also for lessees. Owner lessees even reached 82% (from an earlier low 56%) while wholly lessees also did well: 65%. In terms of produce, lessees even did better: owner-lessees getting in the second season, 1.81 ton/ha and

wholly lessees 1.66 ton/ha (milled rice) while owner operators got, on average 1.22 to 1.48 ton/ha. (Table 8)

In "eastern villages", in the first season, net rice farming revenues, over-all were higher, as were also rice yields. Owner operators had (average) 70 to 77% while owner lessees 68% and wholly lessees 64%. Over-all, in terms of produce, net revenue was over 1.0 ton/ha, lower for smaller farms (owner operators 1.23 ton/ha on 0.53 ha and wholly lessees 1.21 ha on 0.61 ha) and higher for larger farms: owner-lessees 1.49 ton/ha on 0.67 ha and owner-operators on 1.57 ha, 1.43 ton/ha.

Two years later (1970/71) with slightly lower gross yields, net rice farming revenue was nevertheless even better, not only for owner operators (average 84 to 87%) but also for owner lessees (80%) and even for wholly-lessees got a good deal of 81%, from an earlier 64%. In terms of produce net rice revenue in the second season, considering the drop in gross yield was over-all still a bit higher than two years earlier, the range is from 1.28 to 1.46 ton/ha.

Comparing farmers in "western" with "eastern" villages, in the two wet seasons, two years apart, owner operators in the two sub-samples were getting to the same levels of net rice revenue (respectively 1.22 - 1.48 ton/ha and 1.28 - 1.39 ton/ha). In both sub-samples it was the lessees who have reached higher net rice revenues, especially owner lessees farming the larger farms. One can draw the conclusion that lessees who farm additional land or, if not owning any land at all, leasing all their farm land, are the more entrepreneuring type.

This, lessees can do so long as there are enough incentives to make a farm business run more profitably, either for cash or for subsistence. And indications are that for most of sample farmers in both "western" and "eastern" villages, leasing riceland has such incentives, in the period studied (1968/69 - 1970/71).

In the comparison one has not been able to look at rentiers and share tenants separately; they were too few and so were grouped into one. In the owner-lessees tenure group the impact of owned land may also be "overshadowing" that of leased-in land.

Another fruitful venture is to look at the meaning of rice farming for each tenure status group, considering both farm size and levels of "rice farming income". (Gross production deducted by rental, crop shares and harvest costs).

In "western" villages, owner operators after two years did not show any change in the relative meaning of rice farm income: for larger farms (over 2.0 ha) it was 89 to 91% of total income (per season) and lower (61 to 64%) for smaller farms (0.64 and 0.52 ha). It is the lessees who by farming more land, especially owner-lessees who doubled farm operation in the second season (farming 2.61 ha) who have become more dependent on rice farming as a major income source: for owner lessees 91% of total income, per season (earlier, 59%) and for wholly-lessees with 0.84 ha it reached 71%. (Table 9)

With the higher net rice revenue in the second season, two years later, owner operators and lessees on small farms (respectively 0.53 and 0.61 ha in the first season) have reached the line of "adequate levels of living" (0.6 ton/season for a family of five), thus 0.64 ton/farm for owner-operators on 0.52 ha and 1.39 ton/farm -- milled rice -- on 0.84 ha, respectively.

In "eastern" villages, again the group of owner operators were the ones for whom rice farming has remained to have the same importance, more for larger farms (81 to 84% on respectively 1.57 ha and 1.63 ha) and less for smaller farms: 64% on 0.43 ha. It is the group of owner lessees who by tripling farm size (from 0.67 ha to 2.04) have gotten more deeply involved into rice farming: earlier 67%, two years later 85% of their total income/season.

On the other hand, wholly-lessees in "eastern" villages have not fared well, largely because of smaller farm size (0.26 ha) two years later. Even with higher net rice revenue-figures (see: first part of comparison) they were getting, in terms of produce, a low 0.35 ton in the second season. Mostly by going more into off-farm income source, they managed to get a total income of 0.91 ton (rice equivalent) in that season. It means that for them rice farming had become only 39% of total income; earlier it was 71%.

The conclusion is that in the growing and lucrative business of rice farming due to better services of "Bimas" intensification programs, larger farmers have done better than smaller ones. But if farms are too small (below 0.5 ha) it is the group of lessees, renting-in or sharecropping in land, who are the weakest group, in danger of even not having enough rice to feed one's household.

Table 8: A.E.S.*): net ricefarming revenue by tenure-status and farmsize in two wet seasons, 1968/69 and 1970/71, in the northern plains, Java.

	Tenure status			
	"owner-lessees"	"owner-operators" (more than 1 ha)	"owner-operators" (less than 1 ha)	"wholly lessees"
1. 1968/69 Wet Season:				
a/"western villages"				
# sample farms	(29)	(42)	(37)	(14)
aver. farmsize (ha)	1.35	2.36	0.53	0.61
%-net ricefarm revenue	56	71	66	40
Net ricefarm revenue (ton/ha)	0.59	0.85	0.74	0.24
b/"eastern villages"				
# sample farms	(21)	(9)	(76)	(14)
aver. farmsize (ha)	0.67	1.57	0.46	0.43
%-net ricefarm revenue	68	77	70	64
Net ricefarm revenue (ton/ha)	1.49	1.43	1.23	1.21
2. 1970/71 Wet Season:				
a/"western villages"				
# sample farms	(21)	(38)	(95)	(10)
aver. farmsize (ha)	2.61	2.55	0.52	0.84
%-net ricefarm revenue	82	89	85	65
b/"eastern villages"				
# sample farms	(12)	(15)	(79)	(9)
aver. farmsize (ha)	2.04	1.63	0.43	0.26
%-net ricefarm revenue	8	87	84	81
Net ricefarm revenue (ton/ha)	1.46	1.28	1.59	1.37

*) Agro-economic Survey

Notes: 1/"western villages" are 6 sample-villages (two in Central-Java), with average farmsize of 1.12 ha (1968/69) where two years later ricefields have risen to 1.74 ton/ha (milled rice) (earlier 1.13 ton/ha);

2/"eastern villages" are 4 sample-villages (two in Central-Java), with average farmsize 0.57 ha (1968/69) where already high ricefields have not risen, two years later: 1.65 ton/ha (earlier 1.80 ton);

3/"net ricefarm revenue: what a farmer retains from gross production after harvest costs, rental and crop shares (in % of gross production and in ton/hectare milled rice);

4/"lessees" are renting-in or sharecropping-in farmoperators with or without owned land; those without owned land are "wholly lessees"; owner-operators are those who farm only owned land.

Table 9: A.P.5*): income from ricegrowing in one wet season, by tenure status, in 1968/69 and 1970/71, on the northern plains, Java.

	Tenure status			
	"owner-lessees"	"owner-operators" (more than 1 ha)	"owner-operators" (less than 1 ha)	"wholly lessees"
1. 1968/69 Wet Season:				
a/"western villages"				
# samplefarms	(29)	(42)	(87)	(14)
aver.farmsize(ha)	1.35	2.36	0.53	0.61
ricefarm income(ton)	0.81	2.00	0.39	0.15
total income(ton rice-equiv.)	1.37	2.25	0.64	0.59
ricefarm-to-total income(%)	59	89	61	25
b/"eastern villages"				
# samplefarms	(21)	(9)	(76)	(14)
aver.farmsize(ha)	0.67	1.57	0.46	0.43
ricefarm income(ton)	1.00	2.25	0.56	0.52
total income(ton rice-equiv.)	1.49	2.77	0.90	0.81
ricefarm-to-total income(%)	67	81	63	64
2. 1970/71 Wet Season:				
a/"western villages"				
# samplefarms	(21)	(38)	(95)	(10)
aver.farmsize(ha)	2.61	2.55	0.52	0.84
ricefarm income(ton)	2.71	3.61	0.64	1.39
total income(ton rice-equiv.)	3.11	3.97	0.99	1.96
ricefarm-to-total income(%)	91	91	64	71
b/"eastern villages"				
# samplefarms	(12)	(15)	(79)	(9)
aver.farmsize(ha)	2.04	1.63	0.43	0.26
ricefarm income(ton)	2.98	2.09	0.60	0.35
total income(ton rice-equiv.)	3.41	2.51	0.95	0.91
ricefarm-to-total income(%)	85	84	63	39

*) Agro-economic Survey

Notes: for traits of sample villages and ricefarming: see Table 8;
 "rice" is milled rice (ton);
 "ricefarm income" is gross harvested produce deducted by harvest costs, rental and cropping shares; "total income" is from ricefarming, farm-enterprises and off-farm sources, in one wet season (November to April)

2.4 : "Progressive" and "traditional" farmers.

A study of 415 farmers (average 1.15 ha) in 10 villages in West-Java (1970/71) by Parahiyangan University noted that farmers with higher benefits from rice-farming (higher B/C-ratio) and also those with higher off-farm income, were better in their credit repayment in the Bimas-rice program, with less default.

This is in line with the general findings of the Agro-economic Survey on the performance of the "larger" farms.

An additional finding in the West-Java study was that renting-in farmers did a better job in credit-repayment than share-tenants or pure owner-operators: an indication that those who have gone into rented land, were the more successful, commercial farmers.

Another study in West-Java was done by H. Soewardi of Pajajaran University in 1969/70. In its sample of 200 farmers in 8 villages 35% was grouped as "share-tenants and farmlabourers" who were presumably very small farmers relying heavily on share-tenancy and farmlabour. Soewardi's main finding was that one third of farmers formed the upper stratum of "progressive" farmers, marked off significantly by their traits of modern attitudes (after E. Rogers): high empathy, high levels of achievement motivation, less fatalism, wider social participation, including contacts with supra-village strata, and also acting as opinion-leaders. Such farmers had also larger farm-size, higher income and lived in more modern-style housing. They had adopted most of recommended "five practices in better cropping systems", and not only in rice-cultivation. They were actively engaged in the marketing of their produce and by frugal living have been able to invest more.

In four of the villages, a profile of social stratification came out, showing 29% as the upper stratum "progressive" farmers (a little less than the 33% over-all) while a 30% of "share-tenants and farmlabourers", second on all

indicators, were definitely part of the majority of 70% of lower stratum, "traditional peasants", with the lowest income and the least responsive to modern technology.

As Soewardi's study did not mention any farm-size (sample-farmers were placed in a dichotomy of "smaller" or "larger" farms, based on local averages), we may try to see parallels relating to farm-size as shown in the other West-Java study: of the 415 farmers in 10 villages 62% were more than 0.5 ha and 33% more than 1 ha.

Such an exercise may give us a social stratification of farmers in West-Java as follows: one third is the upper stratum (more than 1 ha-farms) of "progressive" farmers who had responded well to intensification-programs, while another one-third is the bottom stratum (less than 0.5 ha-farms) who may be regarded as the "most traditional" farmers, after Rogers and Soewardi. In the latter stratum incentives to profitmaking seem not to work and it is with this stratum that share-tenancy and rent-leasehold have its most constraining grip.

But looking at the middle stratum, another one-third, with farm-size in the range of 0.5 ha to 1 ha, if Soewardi's study found them acting as non-progressive farmers, one wonders which is more true: are they acting in that way after the "modern world" had in vain tried to "convert" them or, was it because the modern world has as yet not reached out to them in meaningful ways? The same question may also be posed when one looks into the situation of the "most traditional, smallest farmers".

The point is that aside from land (farm-size) and tenancy (the most valued by Java's farmers is own titled land), one big requirement for commercial farming that is important and in short supply, especially for smaller farmers, is working capital. A good case study of one village (Lestari) in northern Central-Java is by Franke (1969-71) where 47% of rice-growers have a rent-leasehold (half of them owning no riceland) with yield levels of at most 2.0 ton/ha milled rice. A farm of "just under 0.5 ha" is noted "to have enough production to be kept in

operation only with supplementary income to feed the household's own labour".⁽⁸⁾ For such "sub-subsistence" farming one is pushed into deficit financing, either by selling in advance a standing crop "green", before harvest, through middlemen or by a selling of their labour in advance to larger, capital-rich rice-farmers. In this latter alternative "the smallest farmers, mostly under $\frac{1}{4}$ ha, buy agricultural capital not only with the value of their labour as depressed wages, 25-35% lower, in the near future but also with their labour mobility." They repay their debts by working on the farms of the money-(rice-)lender. In contrast to "green paddy" selling ("ijon") debt-labour means a continued indebtedness of a large group of small deficit-farmers (43% of households in Lestari) to a minority of capital-rich 7% of households.

The Bimas-rice program with its cheap credit and a good supply of modern inputs had benefited mostly the upper stratum of farmers in the village who were also closer to village government bureaucracy. The capital-rich farmers have increased their the assets and power and had also attracted more debt-labour.

Feeling their debt bonds offering them security, a privilege with so many potential bidders, the smallest farmers still keep to their marginal ricefarms that provide them with rice for part of the season. Compared to landless labourers, Franke noted in the study, these marginal farmers are still better off, as off-farm jobs were so unsecure. While the Bimas-program has not reached out to them, they themselves have as yet not been able to reach out to it.

2.5: The case of 0.5 ha ricefarm operators in Klaten, Central-Java.

Another area that seems perfect for the modern higher yielding rice-technology is Klaten-district in Jentral-Java: a case study of 3 villages by Satya Wacana University (1971-72) offers pertinent data.⁽⁹⁾

Sizable parts of the area are in good, all-year irrigation with double-cropping in rice interpresed with some tobacco, sugarcane and rosella for large plantations.

The area is densely populated (1,452 people per sq.km) with 96% of farms under 1 ha. A study statistical average of farm-size is 0.28 ha (in which 0.19 ha is riceland) but actual average rice-farm enterprise is 0.4 ha: a sizable portion of households do not own riceland. In the 3 village studied 39% were riceland-less households; the range 54 to 34%.

The sample of 60 farmers in each village showed a bias to landowning households: only 9% have no riceland (range is 15 to 2%). Compared to 1968, fertilizer use by sample-farmers had doubled to 136 kg/ha (in nutrients, N and P) in the 1971-Dry Season (the range 118 to 162kg/ha); this is a level double the Java-average in 1971. With the quick maturing new varieties and their innovation of specially prepared seedbeds to move quickly from one planting to the next, from the best irrigated parts farmers can get 5 ricecrops in two years.

Comparing the yield levels in the two seasons studied, only in one village (Pluneng) did the new IR-varieties show its convincingly higher yields: 54% and 27% higher in the Dry and Wet Season, respectively (2.9 and 2.1 ton/ha milled rice). Sample-farmers in the two seasons had 86% and 91% of ricearea with the new seed. The highest level of yields was in Kahuman village: 3.3 and 3.2 ton/ha (milled rice) for the new and for local varieties, respectively. Here farmers had also the highest levels of fertilizer use (162 and 142 kg nutrients N-P/ha in the two seasons) and their local varieties had come out equally well. In the 1971/72 Wet Season Kahuman-sample farmers had 66% of rice-area with the new seed but only 12% in the previous Dry Season. The reason was that they had the Dry Season for their choice local variety (Rajalele), famous for its good taste and selling at a premium.

The third village, Nganjat, is a case showing that with the new technology, one may still encounter a severe setback. After the high levels of yields in the Dry Season (2.9 and 2.6 ton/ha for the new and local varieties, resp.) Wet Season yields were 39 and 27% lower in the resp, seasons. An 11% edge for the new

varieties in the Dry Season was reversed (8% lower) in the following Wet Season when both had such lower yields, by pests and diseases. Here sample-farmers had 63% of riceland with the new seed and less (39%) in the Wet Season. In the 3 villages, even in Pluneng, where sample-farmers had the largest areas with the new seed, most farmers still planted local varieties alongside the new ones.

If we look at tenancy forms involved, comparing sample-farmers in the 3 village in their access to land and working capital, we may understand each case better.

It should be noted that share-tenancy in the studied villages was mostly in the form of "one-fourth" crop shares to the tenant who was acting merely as a contract-labourer with his physical labour input; the landowner who contributed all other inputs was very much the decisionmaker. This is not the case with renting-in farmers. Pluneng-sample-farmers who had gone out most in adopting the new varieties is a case of 98% landowners, 36% of whom managed to get additional riceland to operate, half through-in, half by sharecropping-in. A majority (89%) had rice income increases in which 87% were ricelandowners and only 2% of them did not plant the new seed. The other 2% were non-ricelandowners, with a rent-leasehold, who had planted the new seed.

Kahuman is a case where out of a sizable 85% of ricelandowners in its sample, some 36% managed to get additional riceland in operation, mostly (6 to 1) by renting-in rather than by sharecropping-in; this indicates their relative strength in working capital. With the highest yields among the 3 villages, (3.2 ton/ha milled rice) for both the new and local varieties in each of the two seasons, and by planting a high-priced local variety in the Dry Season, 79% of Kahuman-sample farmers compared 1971 favourably with 1968, in terms of rice income. Out of this group who benefited 63% were ricelandowners (55% with the new seed) while 17% were non-ricelandowners who all planted the new seed, most of them under rent-leasehold.

In Nganjat, the third village, a majority of sample-farmers were landowners (90%) but they showed lower levels of entrepreneurship in ricogrowing; only 15% had taken additional riceland half in sharecropping-in and half in rent leasehold. Here only a minority (37%) felt that 1971 was more favourable than 1968 in terms of rice income: 33% were ricelandowners (two-thirds of them with the new seed) and half of non-ricelandowners who benefited had planted the new seed. One has to note that Nganjat in the second season (1971/72) had the misfortune of much lower rice yields.

As for access to the Bimas-rice program (in-kind inputs and some cash), both in Pluneng (70%) and Kahuman (73%) a larger part of sample-farmers were able to join, but only 44% in Nganjat. In the latter village many more missed the opportunity to get cheap government-funded production credit, with a low interest of 1% a month for a period of 7 months compared to rates in private sources of moneylenders (10 to 40% per month).

Reviewing a similar situation in Sriharjo, a village in neighbouring Yogyakarta (30 miles further west), a study by Singarimbun and Penny⁽¹⁰⁾ notes that "the total effect of the workings of the landtenure system and of the credit system is (therefore) a net flow of rice from those "who have less" to those "who have more". They also result in an increase in the size of the marketable surplus". Here, again, we are reminded that, having both more land and working capital does make the difference!

Out of a 0.5 ha rice-farm with two crops in the new varieties, sample-farmers in three villages in Klaten, could get a level of gross annual production of 3.9 ton (milled rice) in Kahuman (here, on 0.6 ha), 2.9 ton in Pluneng and a lower 2.4 ton in Nganjat. Gross rice-income was then 679 kg (milled rice) per person per year for farmers in Kahuman, 496 kg in Pluneng and 462 kg in Nganjat; household size was 5.8, 5.9 and 5.1 persons in each sample, respectively.

If all ricefarms were wholly in local varieties, it is only sample-farmers in Pluneng who would have noticed the difference, with a low 2.1 ton per farm, or 369 kg milled rice per person a year; a level 34% lower. For the two other villages, by yields in 1972, farmers would not have fared less well, as they were getting only 1-3% less with local varieties.

If the "costs" of rice-production (paid out by the farmers for input and wages) in Java amounted to 29% of gross production-value (1970/71-National Social-Economic Survey) we deduct that much for any repayment of loans that have helped to produce the gross rice income of sample-farmers in the 3 villages.⁽¹¹⁾ Another (29%) will be needed for working capital in the following season so that the balance (42%) will be available for household consumption: for Kahuman-farmers 285 kg (milled rice) per person-year, for Nganjat-farmers 194 kg and for Pluneng-farmers 208 kg rice per person-year if in IR-rice and a lower level of 155 kg with local varieties.

From another study in 30 villages in Klaten (to supply data in the "Tani Makmur"-project of rice-intensification), on 0.5 ha ricefarms, gross income from ricefarming in 1970 was found to be 70% of farmers' total income in a year.⁽¹²⁾ If that be the case for sample-farmers in the 3 villages, such additional income (30%) outside of ricefarming will mean a doubling of their for-consumption-disposable income: in Kahuman reaching a level of 576 kg milled rice-equivalent per person-year, in Nganjat 392 kg and in Pluneng 422 kg (if in IR-rice) or 316 kg, if in local varieties.

If in rural Java the "poverty line" can be taken at a level of income equivalent to 240 kg milled rice per person-year, it is only in Pluneng that farmers have felt the higher income due to the new varieties, giving their households more elbow room for other than food needs. And in 2 out of 3 villages, that is in Pluneng and Nganjat, for most of farmers on 0.5 ha riceland, even with double-cropping, it is off-farm income that enabled them to pass the "poverty line".

In terms of US-\$ worth (1 \$ equals 415 Rupiah) if 1 ton rice is priced \$100 (as was retail price in the area in that year), farmers' income would be the highest in the Kahuman-sample (\$97 per person-year), lower in Pluneng (\$71 in IR-rice or \$53 in local varieties) and least in Nganjat (\$66), with a note that an average 30% of that income was off-farm income.

Even if for sample-farmers in the 23 villages the assumed proportions of allocations for production and consumption, also other income flows, were guessed right, in every day life a farmer has to make his way from one season to the next, where working capital, additional land or other non-farm opportunities are not always found at the right time in the right volumes. And then, are these forthcoming with the right arrangements? Especially the smallest farmers, under 0.5 ha, will be the ones who stumble, either pushed to sell their ricecrop "green" or get into debt-labour to the larger farmers who still have rice to lend out. Or if selling their rice, the marginal farmers are not "buying back" very much; they eat lesser food like cassava and so miss out on their proteins. (Dietary surveys in rural Java indicate that 70% or more of total protein intake was from consumed rice).

Summary conclusion: The burden of agricultural development in Java is on the shoulders of 3.8 million farmers (over 0.5 ha) who farm 4.5 million ha (80% of land under peasant control); this includes some 2.5 million ha wet riceland out of a total 2.9 million ha.

With these farmers "better farming and better business" have been working most of the time as recently shown in the "fertilizer"-revolution of the 1960's; both local and the new IR-varieties have contributed much to higher productivities and higher farm incomes;

The group of marginal farmers in the 0.1 to 0.5 ha range are the most hard pressed to make ends meet; especially those who have little or no wet riceland in such liliput-farms.

Most farmers are owner-operators and relatively open opportunities in the land-market are by leasing: additional land can be taken in rent-leasehold or sharecropping. Especially sharecropping on riceland (the most valued farmland) in the majority of cases indicates a "contract-farmlabourer"-status for a tenant with low shares while the landowner, with his land, capital and his farm-decisions, gets most of the output.

Marginal farmers who lease-in land, are doing it at a risk; they have less ready access to cheap government credit and are unable to free themselves from debt bonds incurred to the larger farmers or middlemen who have more cash capital or rice, at the right times, to the latter's advantage.

Modernization of the agrarian structure has started with strengthening the personnel, work procedures and budgets of government agencies, including banks and state corporations. Their efforts are to serve farmers in extension work, the supply of new technology and its tools, including credit. But all the efforts have been very narrowly aimed at wet-rice intensification to get to higher levels of rice-production.

With the intent to rely more on the market, all government agencies involved are still in the learning process of how to find their place in the market. Some efforts have been started to guide farmers to organize themselves in selfhelp activities, such as in farmers' co-ops, with still meager results.

3. Employment opportunities in ricefarming.

3.1: Shared poverty.

We have observed the high labour input into ricefarming in Java (see Table 5: Agro-economic Survey data, 1969-71) In some of the Agro-economic Survey's sample-villages, that is, in riverbasins of Central-and East-Java, a higher labour input in IR-ricegrowing of 293 man-days/ha (and for local varieties 232 mandays/ha) was caused by the higher use of wage labour (28% more). Those farms had 250 man-days/ha of wage labour while the input of own-household labour remained the same, compared to ricegrowing with local varieties; own-household labour was only around 40 mandays/ha. To call these farms, of average (by village) 0.5 to 1.0 ha size, "owner-operated family farms" is then rather misplaced, but nevertheless

The Klaten (Central-Java) study of 3 villages noted different impressions: if for certain chores in riceplanting with the new IR-varieties even more labour was needed (weeding, fertilizer spreading, pesticide spraying) "most of the additional labour" was done by the household; but the study gave no figures. In one village (Pluneng) some new form of piecework-contract labour may even have reduced the use of pre-harvest labour. Also the selling of paddy in the field in "tehasan" ("contract" selling), a few days before harvest time, to middlemen who then organize the harvest, had its consequences: these middlemen work with fewer harvest labourers.

In Lestari-village, the debt-labour case of Central-Java, a comparison of typical farmbudgets of 1 ha, 0.5 ha and 0.25 ha ricefarms, respectively, does report that the smaller the ricefarm operation, the more labour is done by the household. In the smallest ricefarms of 0.25 ha the household did most of the work, including the main chores of landpreparation, using hoes instead of ploughing with hired cattle and a driver, and also the weeding. In these smallest farms hired labour was only for transplanting and spraying, so that hired

labour was only 22% of "costs", paid out by the farmer. For the 0.5 ha and 1.0 ha ricefarms, costs of hired labour was a higher 58% and 70%, respectively, of "costs" paid out by the farmer.

This part of household labour in ricefarming is the least understood in the Javanese situation. The case of Sriharjo (in Yogyakarta) gives some needed data: with an average ricefarm of 0.2 ha, the average input of household labour was 86 man-days/ha out of a total pre-harvest labour input of "over 240 man-days/ha". If farmsize is taken into account, ricefarms of less than 0.2 ha had 120 man-days/ha of own-household labour while in larger-than 0.2 ha farms only 54 man-days/ha came from the household. To quote: "Those who have no riceland or have very small plots, are enabled to get work in ricefields because people who own more land do much less of their own work. In other words, there is a transfer of opportunities to work in ricefarming, from those who have relatively more land to those who have very much less or none".⁽¹⁰⁾

But on the average ricefarm of 0.2 ha in Sriharjo, per adult man there was only 23 man-days of gainful employment in the ricefield during one whole season of six months. The range is from 20 days for those without land or very little riceland (less than 0.05 ha) to 27 days for "larger" farmers (more than 0.4 ha); the narrow range shows a real "workspreading". (Earlier, in the 1950's Geertz had the same observation in East-Java villages). Is this then the meaning of "shared poverty" in rural Java? (Geertz was the one who had started the use of the term). With farmdata collected in the 1920's and 1930's Vink could show that in Java higher labour intensities in ricefarming definitely had led to lower average labour productivities. With an average level of total labour input of 1,500 man-hours and 120 cattle-hours per hectare in ricefarming, Vink found a level of average productivity of 1.1 kg per man-hour (milled rice); the range was 0.5 to 1.7 kg/man-hour. On pre-harvest labour input, average labour productivity was 1.9 kg rice/man-hour; the range 0.7 to 3.9 kg.

If we look at data from the Klaten-study of 3 village in 1971, assuming a labour input of 300 man-days/ha, the highest level of average labour productivity was in Kahuman: 1.2 kg milled rice/man-hour, the same for local and new varieties. In Pluneng, comparing the new IR-and local varieties (and assuming the same labour input) we find levels of productivity of 1.1 kg with the new IR-varieties and 0.8 kg rice/man-hour with local varieties.

In the landlord-to-farmlabour relations, one is inclined to see that by letting farmlabourers hang on to them, larger farmers have not been able to develop larger businesses in farming or in other fields. Can one say that this was their share of the burden of "shared poverty", as Geertz seemed to have suggested? In every day life, however, the distribution of benefits between landowning farmers and farmlabourers can be seen as clearly as in farm-data of the 1970/71 National Social-economic Survey. Out of a one-hectare ricefarm (averaged from all farms in the sample) a ricelandowner was getting in one season an average Rp.66,000 value of gross production (average yield of 1.6 ton/ha milled rice) and a net income, after "paid out costs", of Rp.46,600 or 1.1 ton milled rice/ha. That is a net ricefarm income of Rp.7,800 per month in a six months' wet season, or 6 kg milled rice a day, for the landowner. Farmlabourers got a share, in wages, of 13.7% out of gross production of value: a Rp.1,500 income per month or less than 37 kg milled rice, that is 1.5 kg rice a day.

If on a one-hectare ricefarm there is only one landowner, how many farmlabourers have to share in the wages? Of course, one farmlabourer may get work in more than one ricefarm. In a village like Sriharjo with very small farmers (0.23 ha average ricefarms), a farmlabourer in 1970 was only getting an average 0.8 kg milled rice-equivalent as "one day"-wages, where "one day" was in fact, an average three hours of work.

From this aspect, the distribution of benefits, the "shared poverty" is among fellow farmlabourers who compete with each other. In Lestari, debt-labour

by marginal ricefarmers have the impact of depressed farmwage levels for all. In repaying their debts to larger farmers they work for 25 to 30% lower wages and so are in competition with landless farmlabourers.

Another comparison worth mentioning is that between crop-shares in "farmlabour status" sharecropping (in which the landlord with all the decision is the farm-manager) and farm-wages in cash or food, paid out to farmlabourers right after a job is done for the day. In East-Java the 1970/71 National Social-economic Survey cites a figure of 16.7% as the share of wagemlabourers out of gross rice-production. Another study in 5 eastern districts in East-Java on 400 farmers in the "Pekalen Sampayan" Irrigation Project (average 1.9 farms, in which 1.5 ha is riceland) shows that the most widespread arrangement (65%) in sharecropping was a crop share of one-fifth for sharecroppers in a "farmlabour status". Compared to the 16.7% share of wagemlabour (in direct cash and food payment), a sharecropper may still be better off, not because his share is a little higher, 20%, which is paid at harvest time, but because a rice-stock from cropping shares, even if not enough to go through a whole season, may give a household better sustenance compared to those depending wholly on day-to-day cash wage labour.

In the study of 5 districts in East-Java sharecropping of the "farmlabour status" type, accounted for 44% of total labour for riceland (half was by women) while cash wage labour contributed 37% (in this latter two-thirds was by women). One these "large" ricefarms (average 1.5 ha) only 20% of labour was by the household: 50 man-days/ha in which 34 man-days was by the household-head. (13)

The Klaten-study mentions that in the same "farmlabour status" type of sharecropping one-fourth has become the most prevalent arrangement; the Central-Java-average is a low 12.9% for the share of wagemlabour in ricefarming.

The data on sharing the benefits in ricefarming reminds us that if the "larger

farmers" are led into "better farming and better business" they will get most of the benefits. Farmlabourers, in competition and hard pressed for their daily rice, get low wages, from whatever labour arrangements; traditional share-tenancy adapted to such low wage rates may be a little more helpful than cash wages.

3.2: Rice harvesting.

Harvesting rice in Java is in general still done in the traditional way, using a small razor-knife to cut ear by ear, then bundling and storing paddy-on-the-stalk.

Recently, as the new IR-varieties have shorter stalk and shatter easily, in some areas in Java the use of sickles is becoming widespread. After threshing in the field the grain harvest is carried in sacks to the house of the ricelandsowner, instead of stalk paddy, stored in heaps.

The recruitment of harvest labour may follow two ways. One is a rather "closed shop" arrangement where those who have helped in earlier phases (in transplanting, etc.) get preferential rights to join in harvest work. Harvest shares are 5 to 20% of harvested paddy; in general the rule with larger crop shares in harvesting is found in the less densely populated areas. Small groups of women from work-units for the season, working for more than one farmer. In most cases they live in the same village (or even the same hamlet) as the farmer.

Another way is offering a more "open field" situation (not unlike "open house") in which farmlabourers from outside the village may join. Swarms of itinerant harvest labourers will also come, even from other districts. A farmer may find his field already full of these harvesters, waiting for his signal to start, on his chosen day of harvest.

Areas with vast wet paddy-fields, such as found in the plains east of Jakarta, with relatively new modern irrigation-works started less than 50 years ago and still relatively less populous, are predominantly in the "open field" situation.

From Karawang-district a study in 1963/64 found in a rice-harvest an average 675 people per hectare harvesting (58% women)! On smaller blocks of riceland, less than 1 ha, one found a denser swarm of 947 people per ha (or 10 sq. meter for each man/woman-harvester); on larger blocks a less dense swarm of 495 people per ha. In a village near the coast, more isolated from the main road network, the least dense swarms were found: 260 people per ha. (14)

As the Karawang-study did not mention man-hours per ha in harvesting, two observations are given from other areas. Jay, studying an East-Java village in the 1950's, in one case with a more "closed shop" arrangement, reckons "some 100 man-hours per ha". (15) Another source in Klaten in 1969 found "115 man-hours per ha". (12) With these data to compare, one can not place Vink's data of the 1920's and 1930's: his data on riceharvest labour come to an average of 600 man-hours per ha or 39% of total farmlabour in ricefarming (17 observations in a dozen villages). The 1970/71 National Social-economic Survey found that per one-ha riceland in Java labour costs for harvest work was an average 37% of total (paid out) wagemlabour, showing that harvest labour is still a considerable budget item in ricefarmlabour expenses.

The Agro-economic Survey found in several of its sample-villages in Central Java that institutions of harvest work are changing; this was also reported by the Klaten study. More farmers, it was found, were not taking the trouble to organize their own harvest but sell "tebasan" ("contracting-out") to middlemen, a few days to a week before harvesting time. This is not the same as selling the crop "greed", two months or so before harvest, by farmers hard pressed for cash to buy food. With the "tebasan" landowners are doing away with the losses from "too many harvesters"; when according to custom a one-ninth or one-eighth share is for the harvesters, by their cheating, they are in fact getting one-seventh shares.

The Klaten-study reports other losses: from shattering (esp. the new IR-varietie), overlooked uncut ears, in transport to the house, in total reaching a level of 2% losses. Even if a farmer will get lower prices from the middlemen in "tebasan", his calculations tell him that in the end he will be better off with a higher net rice income; he is also spared the harvest "trouble".

In these changes some harvesters are gaining and others do not. In one village in Kendal-district (Central-Java) where harvest work was done by an average 184 people per ha (rice yield 2.3 ton/ha milled rice) under the practically one-seventh harvest shares, one harvester was getting an average 1.8 kg milled rice-equivalent, in less than an hour of work, most probably. A "tebasan" middlemer who came in with fewer labourers (150 people per ha) and also paid in paddy but with lower shares (one-twelfth) was pushing for a lower wage level : 1.3 kg milled rice-equivalent per man.

The use of sickles in rice-harvesting for most villages in Java was something new; the general use of sickles has been for cutting grass for the cattle.

Its use in rice-harvesting was an innovation started by "tebasan" middlemen who when worked with only 80 people per ha. Harvesters were paid in cash on the basis of "piece-work"; on 100 kg rough rice delivered the wage was Rp200. The harvesters had to bring their own sickle, a mat to thresh the paddy on and sacks to put the rough rice in. An average harvester was getting Rp95 or 3.2 kg milled rice-equivalent per day, after the rice had been transported to the middleman's house. It is: higher wages for harder work, but for fewer people.

Letting his harvesters work with the small knife, a middleman was paying 8% of the crop to labour, compared to 14% by a farmer who organized his own harvest. (on one-seventh shares, not counting other losses). In letting his harvesters work with the sickle and deliver the rough (unhusked) rice in sacks, not in bundled unthreshed paddy ("on-the-stalk"), a middleman was paying with 10% of the crop, in which the

threshing was already done by the harvesters.

In the villages studied, 46 to 76% of farmers (on 0.5 ha to 1.0 ha-average ricefarms) were found to have chosen to sell "tebasan"-paddy, on 64 to 70% of their harvested rice-land. On the remaining parts they still follow traditional ways of harvesting, retained for their "closed shop" relations: farmlabourers who are "regulars" in helping with most of pre-harvest work.

Both the Klaten-study and the Agro-economic Survey-reports are concerned about the social consequences of these changes for the landless and smallest farmers who have to live mostly from farmlabour-work. But one can argue that ricelandowners are only doing away with that part of ricefarmwork that has been such an inefficient way and drain on their net ricefarm income: harvest work. In pre-harvest work labour input, including hired labour, is still high or even a little higher. And middlemen are still using a lot of people to harvest: 80 men per ha, in the few villages surveyed in 1972. The sickle as a new technology in riceharvesting in Java, is being adopted as a kind of "intermediate technology". And the Javanese examples, as reported, show that one can make the sickle "as intermediate as you like it to be".

A silent change, not much reported, that has effected displacement of women labour is ricemilling by small ricemills that in most villages in Java has pushed back wagemill labourers for handpounding. If rice in Java was machine-milled for only 20% in the 1950's, in the last 12 years this may have risen to some 50%. This has been due to the many small, "Javanese" ricemills that have been set up in many villages and not much due to large ricemills, mostly from pre-war years.

Ricelandowners who have been gaining in the "fertilizer-revolution", are also the ones who do appreciate what machine-milling can do for them, especially small mills giving quick, small-volume service any time. These small ricemills can give them a higher return (62 to 65%) compared to handpounding (56%). The small-ricemiller

who accepts milling-work from fellow villagers, has made the new way cheaper for ricelandowners who, on a 100 kg milled-rice-basis, are getting 12 to 15 kg more rice than from handpounding, done by wagemour paid in rice (10% compared to 5 or 6% in machine-milling). Machine-milling will give the farmers 4 to 9 kg more milled rice (per 100 kg milled rice) than if he had the rice handpounded by his own household. (16)

Middlemen in the rice-trade have realized the business opportunities: machine-milling has given them net profits of 9% and more compared to only 2 to 3% earlier with handpounding wagemourers. The most capital-rich farmers and middlemen have started their own small ricemills, even when because of too many mills in an area, most are working only a few months in a year. (And some 50% of rice in Java is still handpounded by women).

3.3: Levels of living of farmlabourers.

From 6 villages, two in each Province, the Agro-economic Survey collected some data on farmlabourers (1970). The sample was, except in two villages in Central Java, from among those who worked as regular farmlabourers to the sample-ricefarmers, (average 0.5 to 1.0 ha), the main object of study.

Most of the sample of farmlabourers were male (77 to 100%) with a family (79 to 100%) of 4 to 5 people, around 40 years old (37 to 42 years) and with only 2 to 3 years of schooling.

Comparing by Province-subsample, with most households (67 to 85%) still owning some small plots of land, it was the West-Java farmlabourers who had more riceland to operate (0.24 and 0.28 ha in Wet and Dry Season) than those in Central-Java (0.11 and 0.18 ha in each season) and in East-Java who are the least rooted in riceland (0.07 and 0.06 ha) (Table 10) The ricegrowers among them, with double cropping in rice, while nearly all were using fertilizer, in their adoption of the new rice

varieties, showed the same pattern as followed by the "larger" ricelandowners in their respective localities with East-Java households in the leading role, with their way very small riceland plots; planted 100% in IR-rice in both seasons.

Most of farmlabour relations the households had with their "employer", the "larger" farmers, are mostly within-the-same-village relations (79 to 97%) in which kinship relations were most important: 85% in Central-Java sample, less so but still about 50% in the other two areas. Most of such labour relations are long-term relations, at least shown in the 1971 wet and dry season continued relations. They have rather definite "closed shop" relations.

Asked about their level of living in 1971 compared to 5 years earlier, whether they had it "now better", "worse" or "the same", it was only the East-Java sample that was very convincing in claiming that "1971 was better than 1966": 85% "better" against 2% "worse". For West-Java farmlabourers it was half-and-half (with 43% "better", 8% "worse" and the rest "the same") while the Central-Java-sample had the least claims of improvement in living conditions. (37 "better", 10% "worse" and the rest "the same").

Part of the meaning of their claims is shown in what new things the households have been able to buy in the 1967-71 period. A majority (78%) of East-Java farmlabourers reported that they have been able to buy new goods such as furniture, a radio, a bicycle or farm implements, while a high proportion was able to make house improvements. (65% households). Central-and-West-Java farmlabourers reported fewer cases, resp. 28% and 23% of households who have been buying things in that bundle of household needs, including house improvements. (Table 11).

Aside from consumption preferences, one is inclined to put one major explanation for the more widespread evaluation by East-Java farmlabourers that "1971 was better than 1966", in the premise that they were the worst hit in the preceding run-away

inflation-period (1961-65), so that with inflation under control in 1968-71 they have felt the most uplifting influence. It was the East-Java farmlabourers who had to rely most (85% or more) on wage labour, in farming and elsewhere.

In this premise one has some basis on the study by Deuster in Yogyakarta-area (central Java) who compared 1959-to 1968-levels of living to measure effects of inflation only large and medium farmers in the area were better off (11 to 14% better off) while small farmers, farmlabourers and other labourers were worse off (10 to 33%) as were white collars and pension-receivers (27 to 32%).⁽¹⁷⁾

Table 10: A.E.S.*): Small-farming activities by farmlabourers in 6 villages, Java, 1971.

	West-Java (2 villages) (39)	Central-Java (2 villages) (40)	East-Java (2 villages) (40)
# sample-farmlabourers	(39)	(40)	(40)
1.%-households, without land	23	33	15
2.%-households, without riceland	44	53	78
3.%-landowning households/aver.(ha)	77%/0.23 ha	67%/0.15 ha	85%/0.14 ha
4.%-households with homeyard/aver.(ha)	67%/0.01 ha	42%/0.03 ha	85%/0.09 ha
5.%-households with riceland/aver.(ha)	56%/0.22 ha	47%/0.11 ha	22%/0.03 ha
6.%-households in ricegrowing,Wet S.	61%/0.24 ha	70%/0.18 ha	37%/0.07 ha
7.%-households in ricegrowing,Dry S.	74%/0.28 ha	60%/0.14 ha	27%/0.06 ha
8.Ratio leasing-in to landowning ricegrowers,Wet Season (%)	14%	75%	66%
9.%-ricegrowers planting IR-var,Wet S.	14%	50%	100%
10.%-ricegrowers planting Ir-var,DryS.	6%	0%	100%
11.%-ricegrowers using fertilizer	85%	100%	100%

*) Agro-economic Survey

On number of days without work and income from farmlabour in the 6 sample-villages, the study gave some data. The number of days without work (and wages) was the highest with farmlabourers in the Central-Java sample: 46 days in the wet and 29 days in the dry season. East-Java farmlabourers had 38 and 32 days of no-work in each of the two seasons, resp. while West-Java farmlabourers had 30 and 34 days without work in the wet and dry season, respectively. Over-all it was a

picture of an average of one month without work in each of the two six-month-seasons, in which the Central-Java sample was relatively worst off.

The total earnings by household-heads from farmlabour in the 1971 Wet Season was higher in the East-Java sample (Rp6,800), lower for West-Java farmlabourers (Rp6,500) and the lowest for Central-Java sample (Rp5,600). In terms of rice (-equivalent) per day earnings, it means 1.0 kg, 0.7 kg and 0.8 kg for the resp. subsamples. If farmlabour earnings by the wives and other household members are added, household earnings from farmlabour was 1.6 kg, (east-Java), 1.3 kg (West-Java) and 1.2 kg (central-Java) rice-equivalent a day. Projecting this estimate on a year-basis and adding net income from ricefarming in two seasons, a higher estimate based on higher riceincome, give West-Java farmlabourers a lead (233 kg rice-equiv./man-year) in income over those in East-Java (207 kg rice/man-year) with Central-Java sample the lowest income (172 kg rice/man-year). With lower ricefarming income, West-Java and East-Java farmlabourers were about the same income level (188 kg and 189 kg rice/man-year, resp.) with Central-Java still reaching lower levels (142 kg rice/man-year). In these estimates East-Java farmlabourers had the least to gain from rice-income (only 15%) compared to West- and Central-Java farmlabourers, to whom rice income was 41% and 35% respectively. All the three subsamples show that these farmlabourers were, on average, living under the poverty line of 240 kg rice-equiv./man-year in Java. The West-Java-sample had possibly more expectations from improvement in rice-farming income, and if only half of them evaluated "1971 as better off than 1968" it most probably means that only half of them had in fact experienced rice-farming benefits.

Comparing farmlabour wage rates in different villages and districts in Java, for the same type of work or parts of jobs in ricefarming, one is struck by the considerable variations. The "main rice-areas" of Java, studied by the Agro-economic Survey, even with a developed road network and having for a long time been

drawn into the "money economy", are not so homogeneous but more like "pockets" of different markets, with its own pool of labour, land and capital.

Table 11: A.E.S.*): levels of living of farmlabourer's households in 6 villages, Java, 1971.

	West-Java (2 villages)	Central-Java (2 villages)	East-Java (2 villages)
# sample farmlabourers	(39)	(40)	(40)
1. Household size	4.2	5.0	4.1
2. % -household-hands without work/ days without work in Wet Season.	92% (30 d)	85% (46 d)	67% (38 d)
3. ibid in Dry Season	87% (34 d)	50% (32 d)	62% (32 d)
4. Household-head's farmlabour- earnings in Wet S. (Rupiah)	6,500	5,600	6,800
5. ibid (rice-equiv./day in kg)	0.8	0.7	1.0
6. Est. farmlabour earnings l by household (incl. wife/others) in Wet Season (kg rice/day)	1.3	1.2	1.6
7. Est. total household earnings per year (farmlabour and rice- farming income) (kg rice-equiv. per man-year) (higher estimate)	233	172	207
8. i b i d (lower estimate)	188	142	189
9. % -ricefarming income out of total income (higher estimate)	41	35	15
10. % -households buying household goods in 1968-71	23	28	78
11. % -households doing house im- provements (same period)	13	12	65
12. % -households buying a radio (same period)	11	5	8
13. % -households buying a bicycle	2	10	17
14. % -households buying furniture	3	7	20

*) Agro-economic Survey

Comparing levels of living on the basis of rice-equivalent income will give more insight than comparing Rupiah or Dollar-figures. As a case we may take the study of Sriharjo (in Yogyakarta) by Singarimbun/Penny⁽¹⁰⁾, where an average household has only 0.2 ha riceland, outside the group of village officials with 1.4 ha rights on "bengkok" (village controlled) land, mostly riceland.

In Sriharjo only 52% of the farmers' group (35% of households) was found above the poverty line. But among farmers who controlled more than 0.2 ha riceland, more households (78%) were found to have passed that line. Among those with lower levels of living, only 5% of the farmlabourers (another 35% of households) were found above the poverty line and among this group 20% of households who farmed more than 0.2 ha riceland, did escape the poverty line. Average farmsize with this farmlabourers' group was 0.12 ha or half that of the farmers' group (0.23 ha).

The upper stratum in Sriharjo was the group of government employees and village officials (15% of households) with the majority (83%) above the poverty line.

In this group those who controlled more than 0.22 ha (53%) were able to make it. Average farmsize in this upper stratum was 0.56 ha or more than double that of the farmers' group. It all points to the fact that riceland-control did make the difference, even with small plots of riceland.

"Despite the widespread use of higher yielding rice varieties and fertilizer and an irrigation system that allows fully 60% of riceland to be doublecropped", in Sriharjo households with too little land can not reach adequate levels of living. With too little land, gainful employment in Sriharjo is very low; total work per adult male in one season (6 months), including non-ricefarming, was a little less than 90 man-days; for about half of the season (it was the wet season), on average, adult males were idle.

On per household basis, in Sriharjo those with less land had fewer adult males 1.3 man in the households with less than 0.2 ha riceland but 2.2 man in households controlling more riceland. Households with more riceland were able to provide more work for their adult males; for their gainful employment (man-days), including non-rice work, in one season was near to 180 man-days per household. On the other hand, households with less than 0.2 ha riceland, could get only 100 man-days of work in one season; they were idle for nearly half of a season.

If households with less riceland are found to have fewer adult males, one may assume that in this group there has been a push working and resulting in an earlier, or more readily, trend of "breaking up": male members leave to seek other opportunities elsewhere. In Java, if poorer households are of smaller size, it is due to early "break-ups" (not necessary males only), to early or child deaths and also due to lower birth rates: all Malthusian checks.

A summary note on rural wage-earners.

The 1964/65 National Social-Economic Survey found in rural Java 26.1% of households engaged in non-household enterprises; their relative position, based on household expenditures (index 82 compared to 100 for "all households") showed that they were generally worse off, possibly because they were mainly hired labourers. Households in agriculture (58.2%) were better off (index 106), as were those in commerce, transport and construction (combined subtotal of 10.4% of households, index in the range 111 to 127).⁽²²⁾

In the case of ricefarming becoming modernized and more lucrative, we have seen the differential impact on three strata of rural households: the most benefits going to "larger" farmers, ultimately the 3.8 million "over 0.5 ha" who farm on average 1.2 ha, the more dubious case being the 4.0 million farmers in the 0.1 to 0.5 ha-size class, while an equally large group (another 4 million in 1963) of

nearly landless and land-less who as farmlabourers can only gain so far as work opportunities also mean higher real wages!

To this group who are in need of more work and higher wage earnings, in the last few years some relief has been offered by programs in rural public works. The two most important are the "Village"-program (a subsidy of Rp100,000 per village per year) and the "District"-program (a Rp75 per capita subsidy) both funded by the Central Government. Both programs have been mainly concerned with the rehabilitation of the local infrastructure of roads, bridges and irrigation. The "district"-program which was directed both to rural and urban-areas in 1972/73 had some 30 million dollars worth of funds and being based on the principle of "wage employment" had a direct employment effect of 43,6 million man-days. If on the average per man involved had contributed 44 days of work in the year, about one million men were getting its benefits; for that year it was an estimated 70 kg of rice-equivalent per man (or 1.6 kg rice/day) so that many of them, by these additional wage earnings may have come nearer if not surpassing the poverty line. (240 kg rice-equiv./man-year) But in Java the number of underemployed was estimated at 7 million while every year another 0.8 million joins the labour force. Even if indirect employment effects would have given a brighter picture, without a full-fledged employment-oriented development strategy (as in the First Development Plan, 1968-73 focussing on production) the scop of rural public works programs can make only a partial contribution to the solution of employment problems. (23)

4. Renting of farmers' land by sugar-plantations.

4.1: An old remaining problem since colonial days.

In 1963 with 55 sugar-factories in Java, sugarcane-crop was a 88,575 ha: mostly in East-Java (55,109 ha or 62%), less in Central-Java (24,822 ha or 28%) and least in West-Java (8,644 ha or 10%). In that year a total of 73,644 ha rice-land was rented from farmers for a one-season crop (16 months) in which 212,282 landowners were involved. Most of the rented riceland was in East-Java (41,502 ha); the difference with crop-hectareage is explained by some exceptional cases, such as one plantation having a long-term lease on 5,000 ha since colonial days and other areas (South Malang) where since several generations farmers themselves have taken to canesugar-farming. These smallholders cultivated sugarcane mostly on upland, partly to sell to plantations but mostly for own processing of brown sugar. Both in Central-and West-Java rented farmers' land was close to crop-hectareage, or 23,837 ha and 8,350 ha, respectively. Per farmer average rented land was larger in West-land in East-Java (0.42 ha and 0.39 ha, resp.) than in Central-Java:0.27 ha.

The "marriage" of rice-crop farming by Java's farmers and sugarcane-cropping by plantations, in Java has been accomplished in the last hundred years and some, like Geertz, have attributed to the same ecological conditions of the "best irrigation" each demands, but other considerations may be more convincing. The modern, capital-intensive sugar plantations have chosen the most labour-intensive cropping system ("Reynoso"): there has been always a lot of cheap and abundant manual labour in Java's village. The modern plantations for perennial crops (tea, coffee etc.) made headway in Java in the hill and mountain areas; these enterprises were protected by the colonial Agrarian Law (1870) and had secured long leases (75 years) on so-called "state domain"land, that is, land not under cultivation by villagers in those days. The sugar-plantations which had to keep to the low lands, had to find

other ways to get needed land. This invariably has been in the form of renting riceland from landowning farmers in villages.

In the past 40 years such renting has been for a one-season crop of 16 months. As stipulated by regulations since pre-independence days, the land rented is not to exceed one-third of riceland-hectareage in any village, in any year; it is a regulation to insure that villagers have "enough opportunities" to grow the rice they need.

In some areas, esp. in former "principalties", this seasonal renting-out of farmers' land to plantations (both for sugarcane and plantation-tobacco) has led village communities to imposing a special pattern of field-distribution for its "core-villagers", the privileged group of household-heads with shares in riceland who are descendants of the founders of the village. Riceland in these villages is divided in 2 or 3 equal-sized parts (blocks), each parcelled in the needed number of plots: one for a household belonging to that "core"-group. While the plantation rotates its sugarcane-crop from one block to the next, a farmer who has 3 plots, one in each block, in any year will have the use of 2 plots of riceland; in this way farmers are renting-out "collectively" a rotating third block to the plantation. In some villages, now rare, such so-called "communal landownership"-patterns, do not provide fixed plots for its farmers; through drawing a lottery a farmer is allotted the plot(s) for the year while other villages provide preferential rights to older farmers or village officials.

In most villages involved in the renting-of-land business with sugar-plantations, however, there has never been a communal planning of field use. With individual holdings and rights ("vasan") farmers are free to decide to rent-out land on whatever terms they wish. This has been the underlying principle since 1870 (as was "free labour" since) and so one might think that in these latter villages the problem of renting-out land to plantations has always been solved by supply and

demand of the landrenting market. Here, one may have his doubts as this matter has always been under government regulation.

Before the nationalization of the plantation industry (1958) government agencies in "agriculture" and "agrarian affairs", with the help of regional governors, every year have been playing as an arbiter in negotiations between plantation managers and farmers' organizations on renting levels for the coming season. After nationalization a special government decree (1960) specifically mentioned the need to allocate farmers' land, in rent, for the national sugar industry and other industrial crops for export. Even when after the new Agrarian Law of 1960 "milik"-titled land had officially become the most secure form of tenure rights for individual farmers in Indonesia, practices of "communal allocation" at village level, in certain areas still prevailed to accommodate the allocation of land to sugar-plantations.

In an economy racked by inflation (up to 1968) rent levels for sugarcane in Java have in most cases been much less than what landowning farmers expected as "fair". In this we can see a parallel in the perennial case of lower rice prices in government procurement for a national rice-stock in the same years. We may conclude that economic policies then, were mostly guided by the idea of "what is good for the state or to national targets"; farmers, labourers, all had to conform. In the inflationary economy the government was not able to provide enough funds and working capital for the nationalized industry and so ricelandowning farmers (and others) were pushed to provide the needed "contributions" and "burdens".

But as a Ministry of Agriculture has always put as its formal policies the two aims of rising production and rising farmers' income, there has been an enduring debate, in deciding on renting levels, how to accommodate the two aims. Judged by what farmers had experienced since nationalization of sugar-plantations, in most cases and most of the time, economic policies has been biased to the first aim:

more production of certain commodities, rice and sugar.

A new turn in the debate has recently come from two considerations: as rice-intensification programs have been pushed to reach higher levels of production, ricefarmers are getting a stronger claim on the best parts of irrigated riceland. On the other hand the sugar industry is bracing itself for an overdue rehabilitation with modern facilities and processes; the needed borrowed capital can be repaid only with good profits from well managed businesses. To get the needed crop in the quantities (a doubling of sugar production in 10 years to ensure that "enough" domestic sugar will be available for a growing population), the question is: will the plantations pursue the old line of renting-in of farmers' land in surrounding villages? The longer-term alternative is to look for new land in the other islands. (All sugar factories are still in Java, a colonial inheritance.)

The number of ricelandowners involved in the sugar industry in Java, based on 1963-data, is close to two-thirds of a million, if one considers a cycle of 3 sugarcane rotations in 4 years, and close to one-fourth million ha riceland is within that cycle. Sugarcane-areas are found in the best irrigated parts of Java, concentrated in the "best" irrigated ricelands out of the 1.5 million ha serviced by modern irrigation-works in a Java-total of 2.9 million ha wet riceland. In these "sugarcane-areas", mostly in East- and Central-Java with a longer dry season, up to 25% of riceland is involved. On the labour side, based on 1963-data, sugarcane-plantations each year attract close to 0.3 million farmlabourers to work in the fields as seasonal labourers, esp. cane-cutting and transportation. On per-hectare-of-crop basis sugar-plantations have an average 3.4 man (including women) farmlabourers per season. Even without knowing the number of man-days of gainful employment for farmlabourers that this entails, one has the impression that sugarcane-farming in Java is as labour intensive as ricefarming.

After colonial days had seen the discriminating policies of sugar-plantations against smallholders' sugarcane, in the 1950's the national government organized a program to promote it under a special foundation ("Yawasan Tebu Rakyat"), with some results: smallholders' crop area expanded to a third of total area though per hectare yields were much lower. It discontinued the efforts in 1959: after the nationalization of the sugar-industry, mostly Dutch capital, national policies called for the goals of "self-sufficiency" in sugar while retaining if possible Indonesia's sugar export quota. It did so at the expense of landowning farmers who in the period 1959-63 received rentals that were lower than one-third of fair market rents, based on the farmer's rice and other crops in one rental season.

A few pilot projects had been started in share-cropping of sugarcane (1963-66). In one type of pilot farmers contributed their riceland as "shares" for one season while the plantation organized all farm-work to produce the cane. The crop share for farmers was set at 25% of a projected low level of 8 ton crystal production per ha; it was paid partly in sugar and partly in cash. As this meant that the farmer's "sugar shares" were bought back by the factory, at a price level set by the government which was less than one-third of market value, the farmer was getting only 18% (1966) or an equivalent of 2.4 ton milled rice per ha.

In another type of pilot farmers did the job and by producing the cane were promised 60% of sugar production (again set at the low level of 8 ton/ha) and here also, it was paid out partly in sugar and partly in cash. Part of a farmer's share of the sugar was bought back, at a government set price, by the factory: in practice the farmer in this scheme was getting only 32% of gross production or an equivalent of 2.8 ton milled rice per ha. In 1966, a farmer would have gotten a higher net income from two rice and one corn-crop in one sugarcane-season: the equivalent of 3.4 ton milled rice per ha.

Compared to the low cash rental rates (in that period equivalent to 1 ton milled rice per ha), the two types of share-cropping pilots were more attractive to farmers if they were barred anyhow, from the higher income from double-cropped rice. The pilots had no follow-up: in 1968 national economic policies did away with differences in open market and government prices, as inflation was being controlled successfully.

With rising rice yields due to fertilizer use one would have assumed that rental levels of riceland for sugarcane, competing for the same fields, would have reached higher, competitive levels. But in 1972, in East Java rental for sugarcane, by Governor's decree, was at least 33% lower than what ricefarmers expected as fair market rents.

And in Central-Java, even after a special study was made by the regional government (1971/72) the resulting rental levels, for sugarcane, based on a formula recommended by the study, still showed the biased undervaluation of riceland.⁽¹⁸⁾

The study had compared the productivity of riceland with data supplied by the Agricultural Extension Service, the Tax Office (in rural Java taxes are practically still based on landownership), the plantations (sugar, tobacco and rosella) and a large sample of farmers from 85 subdistricts in 15 districts or that half of Central Java the most involved in annual renting-out of land to plantations.

The rental levels for 1972 were set for three classes of land:

- a/ class I with the highest rental of 3.1 ton milled rice-equivalent/ha/year: for only 9 subdistricts in one district (Klaten);
- b/ class II land with rentals in a range of 1.9 to 2.1 ton milled rice-equiv./ha/year: in 35 subdistricts and
- c/ class III land in a range of 1.7 to 2.0 ton milled rice-equiv./ha/year in 41 subdistricts.

If we compare with farmer's net farm income in their locally established cropping pattern, farmers on class I land were losing 40% with the stipulated rental levels; they could get, on average, 3.8 ton milled rice/ha/year with double-cropped rice, in a range of 2.9 to 6.7 ton; the highest by a third ricecrop in 2 out of 9 sub-districts. Farmers in class II land were even losing 52% if rental levels fixed for them are compared to their net farm income from their own crops, mostly by rice-double-cropping. They could get an average 4.3 ton milled rice-equiv./ha/year which is higher than class I land, range levels: 2.3 to 6.4 ton/ha/year.

Farmers on class III land are the ones who were losing the least: with average net farm income of 2.3 ton/ha/year they were losing 17% on rental levels fixed by the decree. Their range was 1.3 to 4.9 ton/ha/year, the highest levels also due to rice-doublecropping.

It is clear that the formula used in fixing levels of rentals in 1972 for sugarcane in Central-Java was more adapted to the lower levels of productivities of class III land and biased against class I and II lands. It was undervaluing the impact of rice double-cropping in 61 out of the 85 subdistricts of sugarcane-areas.

An earlier (1967) survey by the Agro-economic Survey concluded that, with rising rice yields through Bimas-rice-schemes, rentals for sugarcane by the plantations will have to equal 2.1 ton milled rice-equiv./ha/year in areas without double cropping of rice, 2.3 ton/ha year in areas where rice is double-cropped on 30% riceland and a higher 2.5 ton/ha/year if riceland has a higher 160% cropping intensity.*) (19)

Farmers' own estimates of their own production, based on existing crops in each locality, have been collected in the 1972 Central-Java study but not much weight has been given to these farm data.

*) The conclusion was formulated by Dr.E. de Vries, consultant to the Survey, 1965-68.

4.2: Sugarcane ratooning.

In the mean time debate on "rice versus sugarcane in Java's ricefields" has started from another corner. Some plantations have started in 1972 some pilots on how to organize a second sugarcane crop by "ratooning", for another 12 months on rented farmers' land. This was based on a suggestion from a recent (1971-72) World Bank-study on the future of Indonesia's sugar industry.

Some sugar-plantations expressed their doubts on the merits of ratooning, not from the agronomic or business viewpoints (it would be cheaper, meaning bigger profits) but from the social points of view of "public relations" with farmers. They are of the opinion that the existing rotation system in "communal land allocation" by villages in their areas of influence is to the industry's advantage and that the "social balance" should not be jeopardized by experimenting with new forms one is not sure of that they will be well received by ricelandowners. On the limited areas of riceland that plantations can rent, so they argue, better get the highest yields per hectare: this is the time-tested policy of colonial days.

Sugar production was a high 16 ton per ha in the 1930's and had been down to 12 ton in the 1950's before nationalization, while still lower levels were reached in 1959-1965; in the worst plantations it was even a low 9 ton per ha. But with better management and new investments, they figure, sugar plantations will reach 14 ton per ha or better in the 1970's. The best plantations in East-Java have already achieved this level in 1968-71.

It is hard to predict how landowning farmers will respond to a longer period of rent of 28 months, in stead of 16 months, to include a sugarcane-ratoon. What is still not known is whether the total rented area of riceland under sugarcane in any village will be the same (in which certain parts are with the ratoon) so that

the riceland-area for rice-crops in any village would not be less.

And for the involved landowners, whether the ratoon will be managed by the plantations, in a prolonged rental lease from landowners, or by the farmers who will get a chance to become a sugarcane-farmer. And in the case that a plantation insists to do its own ratoon (as indicated in the first year of ratoon-pilots) how will landowners fare when they are renting-out for 12 months longer? The problem for the farmers is complex enough: their worries are not just on the level of household income but also on how this is distributed over the year and whether work- and off-farm investment opportunities will be available. How much of "adequate" opportunities will be there for these "displaced landowners"?

While experts in agrarian law at the Ministry of the Interior insisted that ratooning on rented land was against existing laws (plantations may not rent for more than 18 months), some ratoon-pilots have been started in 1972.

To explore the problem some village case-studies by the Agro-economic Survey (1972) are given. The first case is with a sample of large farmers, in West- and East-Java. In the first village (in Cirebon-area) half of landowners with less than 1 ha riceland, after renting-out a large portion (0.8 ha) to the plantation managed to lease-in land, mostly by renting-in, from fellow villages so that they could do their own farming, on 1.1 ha. With a high total income of Rp201,000 a year, 60% was from own farming while 30% was from rental by the plantation. Another type of landowners who owned 1.1 ha riceland and rented-out 0.8 ha to the plantation, were not keen to go into own farming on the remaining plots; they also did not lease-in land.

With a lower total income of Rp96,000 a year they have a relatively higher income from rental to the plantation (41%), also other non-farm income was high (27%) while own-farm income was minor.

Landowning farmers of the first type who are most keen to remain in sizable farmbusiness will test the terms for a prolonged period of rental by plantations by their own farming-income while the second type will do this by their measures of non-farm opportunities. The first type of landowners will be more ready to do the sugarcane ratoon themselves, provided they get the credit and tools as far as needed (plantations do get them from the bank) and the essential knowledge.

In the second village (Situbondo, East-Java) a sample of large farmers (2 ha) rented-out large plots of 1.4 ha to the plantation, with the majority still farming on the remaining 0.7 ha without additional leasing-in. With a yearly income of Rp146,000 rental income from plantation was 60% for these landowners, farm income a low 16% or lower than "other, non-farm income". These large landowners not too keen on farming; the study did not mention whether they were absentees or village officials who controlled village-land as remuneration for their services in office who had, in general, little time to do their own farming.

The two villages in this first case do show that there is a distinct type of ricelandowners, probably more in the "over-one-hectare"-class who have been conditioned by the rental relations with sugar-plantations and who live for an important part as rentiers. The "tested system since colonial days" has not made them into a class of "virile yeomen" as G.H. van der Kolff had put it. He had in vain tried in the 1920's, to advocate the cause for smallholders' sugarcane in Java so that they can supply cane to the sugar factories instead of riceland. (20)

This type of landowners do not see the alternatives of either going off into the promising "rice-farm-revolution" or into the profitable sugarcane-farming. But there is the other type of landowners who are keen on farming and may see the alternatives, at least if the second one (sugarcane) does open up as a real alternative.

The second case is also from two villages, both in East-Java in the fertile and densely populated Brantas-riverbasin area, with small, less-than-0.5 ha ricefarm; in the two villages less than 50% of households are in rice-growing. Also communal regulation of riceland use is the custom to accommodate the sugarcane crop managed by the plantation: every year one rotating block of riceland is in sugarcane.

In the one village with only 37% households owning riceland, the privileged group of rice-landowners, with 0.70 ha-sized allocated "shares", in any year can farm on two plots or 0.46 ha; a third plot is in a third rotating block of riceland, "collectively" rented out to the plantation. The sample-farmers who farmed an average 0.65 ha of riceland are the ones who could afford to lease-in additional riceland from other landowners.

In the other village 42% of households do not own riceland and the privileged group of ricelandowners have smaller-sized "shares" in the communally controlled riceland: 0.42 ha, out of which only two-thirds is at the farmer's disposal in any year as a third plot is in a rotating block for the plantation-crop. Here also, sample-farmers who farmed on 0.53 ha riceland were the ones who had more resources for leasing-in additional riceland above what was being allocated by communal regulations.

But even this privileged group of riceland-farmers in the two sample villages was not free from rice shortages, esp. in the lean months from December to March, until the main rice-harvest: 76 and 71% of sample-farmers in the resp. villages. And rice shortages mean rice-debts.

When asked about their rental relations with the sugar plantation the main complaints were on the low rentals. From the existing cropping-pattern, with a one-third-riceland as a rotating block in plantation sugarcane, per year (averaged from a four-year cycle) one had: 1 block sugarcane-crop (plantation) and in 2 blocks from farmer's own cultivation: 2 wet season rice-crops, 1 dry season rice-crop and 1 one

dry season "secondary crops" (pulses, corn). From these 2 blocks farmers got an equivalent of 3.5 rice-crop-blocks. And so they expected from the one block leased out to the plantation a fair rental that was equal to their own level of productivities, that is a 1.75 rice-harvest equivalent in a year. With high yields of 2.5 ton milled rice/ha in the area, net ricefarming income was an estimated 1.75 ton/ha; the expected level of rental for sugarcane was then 1.75 times 1.75 ton or 3.1 ton milled rice-equiv. per ha per year. With prevailing rice-prices in mid-1972 the rental level expected by landowning farmers was Rp130,200 per ha per year. In reality the rental for sugarcane has been fixed at Rp80,000/ha/year for 1972 or 39% lower than farmers expected as "fair rentals".

The demand for rented land was so high that fellow villagers in the two villages were willing to pay higher rental than the plantation: in the second village 30% higher while in the first village even twice as high. But the communal allocation of riceland use could not make an "open market" for land-leasing as "open and free" as landowners wish to be.

The sugar-plantation was paying the rental in two installments: at the start when the farmer turned over his plot and later after the harvest, with other payments, as in a "penalty" when the plantation is overdue in turning back the plot to the landowner. Farmers were complaining that in many cases they were not receiving the payments at the right times to have it useful to finance their farms or other enterprises. And they were not getting the total sum: after taxes and certain irregularities in the bureaucracy of channeling the rental installments, some farmers claimed to have received up to 21% less than the sum mentioned in the contract.

5. Village government and rural development

The smaller early-type village communities, in the course of the last half century, have been integrated into large administrative units and since colonial days have been accepted as corporate bodies at "grass-roots"-levels and since independence referred to a "desa" (in parts of Java as "kelurahan", on other islands as "negeri", marga", etc.) With a "central government" in the national capital, a decentralized structure is giving "first order" autonomy to provincial governors (5 in Java) and "second order" autonomy to a "district" ("kabupaten") (there are 80 in Java) and to "town-municipalities", with each level having its legislative council, personnel and budget. The "desa" is seen as the "third order" autonomy level of government but in Java, generally, it is doing the job without any legislative body. The village headman's status is that of an elected leader by popular election; he is appointed to his post by the districthead on behalf of the "government".

The staff of a villagehead appointed by the villagehead himself. Being no government employees, these village officials have no salaries.

In some village (not all) a part of village-controlled land is set apart for the remuneration of the villagehead and staff, each getting use right on fixed plots of land for as long as they are in office; the largest plot is for the villagehead while the others get proportionally less. In most cases it is riceland that is set aside as such "bengkok"-land.

Of farmland worked by operators and not under "milik" (owned) titled landholding in 1963 (Agricultural Census) 7.3% of area was under rights of use described as "remuneration for services" by 3.7% of farmers in that category. "Bengkok"-land is found in more villages in Central and East-Java than in West Java, with 4.4%, 4.2% and 1.9% of its farmers involved, with holdings of 0.75 ha, 0.77 ha and 0.57 ha, respectively.

A recent study on village-controlled "bengkok"-land in Central Java (1972) shows that official records found 5.6% of farmland in that category, most of it in riceland (in total 11.5% of riceland in Central-Java) and much less as upland (1.4%). With 7,774 "desa's" listed (out of a total of 8,089 in Central Java) some 110,794 village officials had userights: an average 1.23 ha per man, mostly in riceland (1.04 ha) and much less in upland (0.17 ha).

If the 1963-data showed a smaller average of farmland (0.7 ha) under this category of use rights, it was actual farmed land that was reported while the Central-Java study listed average, officially allocated holdings of "bengkok"land. One interpretation is then that more farmers are having actual rights of use on "bengkok"land. Part of allocated holdings are leased out by many village officials as many of them work fulltime as office-holders with little time for their own farming. "Bengkok" land reverts to the village government after the man (or woman) has left office or died: it cannot be sold or inherited.

Another type of village controlled land is called "village treasury land": usually it is leased out to farmers looking for additional land. Rental or crop shares from it are to go into a fund to finance activities of the village government, for the upkeep or building of local infrastructure (roads, bridges, irrigation, market place, schools) and for social welfare needs.

The Basic Agrarian Law of 1960 has no direct provisions on village controlled land: both "bengkok"land and "village treasury land" are under "customary law" and autonomous "desa's" have the rights of its regulation; no changes have been forthcoming. Another type of traditional land use rights in some villages that was also village-controlled is the so-called "communal rights", mostly in riceland, where a restricted group of farmers, seen as descendants of the village-founders, are allo-

cated fixed or variable "shares" as one's holdings are called. In this matter the New Law of 1960 did mention specifically that such farmer's "shares" based on communal holdings, be given the new status of individual "milik"-titled holdings, the most secure form for individuals, based on customary law and sanctioned by the New Law.

If in most cases that course has been taken, at least in sugar-plantation areas the old forms of "communal regulation" of riceland are still found working to suit the demands of sugarcane cultivation by the plantations.

6 On the question of "communal regulation": the notion that village's control over land is a traditional institution wholly indigenous to the Javanese village, is rather suspect. One is more inclined to believe, by historical reasoning, that much supra-village pressure has been applied by the principalties (kingdoms) and the colonial government, especially in the allocation of farmers' "shares" in riceland. So-called "communal landownership" was invented by feudal and colonial powers to better serve the demands of the modern plantation industry in the last century. The alternative notion of indigenous rural customs is that, even if structured by community bonds in pioneering and in the development of villages, including its riceland, Javanese farmers have distinctly stressed individual rights over land; and Javanese have no clan ties. Any pooling of landrights is by individual households.

With a growing population and scarce riceland, the problem has increasingly become: how much land does a household control? By virtue of "bengkok"land as their remuneration village officials have been always placed in the most upper stratum of larger landholders. Data from the Klaten-study in 3 villages give a fair illustration. In a densely populated area (over 1,500 people per sq.km.) 20 to 22% of riceland is controlled by the village government, 8 to 14% as "bengkok"land and the balance "village treasury land". The remaining 77 to 80% of riceland is in the

hands of 31 to 43% of households who are lucky enough to have some riceland-holdings (0.37 to 0.62 ha-average in the 3 villages). The two bottom strata are those households with only a homeyard (16% to 25% households) and the landless households: 35 to 43% of households.

On top of the pyramid is the 1 to 2% of households of village officials with an average 1.2 to 1.3 ha riceland or two to three times the farmsize of other riceland-holders. Some of them may be classed in the "capital-rich" group.

For the "desa" community itself, what is the worth of having a crops of village officials supported by secure use rights on large plots of riceland ?

The number of village officials in villages having "bengkok"land in Central Java is on average 14 people per village. This shows how large of a unit the "desa" has become, but also a growth in job differentiation. (In 1971 one village had, on average 3,100 people). The secretary and possibly others in the staff of the headman, in many instances have gone into a full-time job, with office hours not unlike government offices in a small town of a subdistrict.

Without the resource of "bengkok"land (no salaries out of cash budget) in Java no full-time village officials would have been available to do its "business" of local self-government, esp. to act as a go-between to meet the variety of representatives of district-agencies. The Province and District-governments have increased its efforts to reach out to villages, to pursue the implementation of national plans and programs, such as more rice or sugar-production, better health or schools. For the regional (and national) government it sure helps to "plug in" on a village-head: the saying is that a village-head has a dozen or more "bosses", as many as there are ministers (or secretaries) in the national cabinet headed by the President. Thus it can also be said that, part of the costs of governing rural people

(at least, the remuneration of its "desa"-leaders) is taken care of by the "desa"-community itself. For various reasons the national government has not decided yet ~~whether~~ to give the status of salaried government personnel to village-headmen and their staff. With some exceptions of partial reforms in different areas, the old colonial law of the 1920's for "village autonomy" still is in force.

The performance of village government in Java since independence has been varied. Any "succes story" on its part can be traced to the workings of its traditioal core: a distinct patron-client relationship in which the village-headman and his staff have been ably playing the "father" role, "guardians to the people" and on the other hand, the "people" who have accepted their role. The word "damong desa" for village officials, out to educate and serve the people, has been used since independence. Another aspect of village "succes story" is the decisive role of supporting supra-village agencies. Here another traditional trait has been working: another patron-client relationship in which village-headmen and staff are the clients to these influential patrons outside the village. One major influence is the general civil service, from a "camat"(subdistrict-head) to a "bupati"(district-head) and higher up to a governor in the province capital city and the Minister of the Interior in Jakarta.

Another source of influence is the specialized agencies: irrigation, agriculture, helath, school, social welfare and religion.

Irrigation services at farmer's level, for a long time have been placed on the shoulders of the village government: the village-headman has appointed "ulu-ulu" ("watermen") to do the job of water-distribution and supervising the maintenance of ditches, along the guidelines provided by the irrigation foreman ("mentri") who is an official in the Irrigation Service. An effort in the 1950's by the Agricultural Extension Service in Central-Java to persuade village governments to appoint

a special "extension-man" in the village-headman's staff was not successful: an additional man would have meant dividing "bengkok"land among a larger number of officials. Village leaders could not see the benefits of having such a man. In contrast, "watermen" in many villages do have a place and also a share in "bengkok"-land, but this institution has been started a long time ago. In other villages without "bengkok" "watermen" may collect paddy contributions from ricefarmers who get irrigationwater.

The second kind of patron-client relationship (supra-village agencies to village officials) is superimposed on the first type in which village officials are the patrons to their followers. The result is a biased pre-occupation with the lot of "larger" farmers and others in the "upper half" who do assert themselves in vocal ways. Though the lot of small people who are near-landless and landless is known to their village leaders, it has become a problem of such magnitude they feel that with local efforts not much can be done.

As part of "failure stories" many examples can be taken from the Bimas-rice-programs. In later years the policy has become an approach to stress the individual responsibilities of a farmer in his credit-business with the Bank; in this process village officials were to act only as advisers. In earlier phases of the program excesses that were blamed on village officials (when they had more direct administrative responsibilities), included: false reporting of supply needs (fertilizer, etc.), poor selection of paddyland, irregularities in the handing out of credit and the administration of repayments. Many of those tasks did not go well with tax-collection or buying up rice for the national rice stock, but also because not enough control and training have been possible in the early phases.

In the case of villages in sugar areas, having a long history of rental dealings with plantations, many village officials have been conditioned to the tricks of the rental business. Many of them gave an example by renting-out riceland (esp. "bengkok" land) and though many were capable to voice demands for higher rentals, after the governor's decree for the year, they conform and play the game, including the usual commissions.

To summarize:

The village government as a diffuse, umbrella-like, all-embracing institution at "grass-roots" level in Java has increasingly shown its weaker parts to the demands of rural development:

1/ through lack of specialized personnel it has become dependent on village-level workers sent by supra-village agencies;

2/ lacking the means to collect adequate funds from own resources in the village (including the more wealthier households) the village has also become more dependent on outside funds. Even when these are available no project has been found and developed to strike the balance between limited land and abundant labour resources. (Though the "Desa"-program -- the Rp100,000 subsidy to every village -- has its merits, it is only a partial solution.)

3/ with village-wide open deliberations becoming unworkable (in a population of over 3,000 in a village), more "have-not" clients leave it up to the "have-more"-patrons to voice opinions. Village administration has become more monolithic.

By withholding political parties from working actively in villages, more "law and order" functions have been stresses for the civil service; to ensure "orderly social and economic development", the tendency is to maintain the "status-quo" of its present structure.

6. The next steps: towards development

6.1: Any government pursuing production targets will have to rely on the upper-third stratum of "larger" farmers, over 0.5 ha (in 1963: 3.8 million, average 1.2 ha). But as long as no ways are found with enough impact to re-locate, in function or place, marginal farmers and landless labourers, the chosen farmers will continue to advance "on the backs" of these less fortunate people.

On the basis of the experience of "Bimas" rice-intensification-programs the next needed step is to put more emphasis on farmers' education in their farm-units and households, through farmers' co-ops and irrigation societies at village-levels. On the side of change agencies involved, with a network of "B.U.U.D." (Village-cluster-units) the new approach will also have to follow the lines of "area-development", not restricted to irrigated rice-areas.

In terms of foodcrop production, aside from wet paddy, for upland-farming two important crops will need special attention: corn and soybean, both already rooted in existing cropping-patterns and local diets but in the last 15 years have not shown any development.

In these efforts of farm-development, to include also upland, more "larger" farmers will get an opportunity to reap the benefits. Half of the group of marginal farmers (0.1 to 0.5 ha) may also get their share of benefits when joining farmers' coops.

6.2: On the basis of experiences in the rural public programs in the First Plan (esp. under the "Village-program" and "District-program") a bolder type of employment-oriented development strategy can be formulated and pursued, to give additional wage-employment opportunities to the landless and the lower half of marginal farmers (now estimated at 7 million in rural areas).

If in the First Plan the rehabilitation of local infrastructure has been the main objects of Rural public works programs, another object that will have to be tackled is the reforestation of Java's hills and mountains: enough work for the next 10 years, covering 1 to 2 million hectares.

The project will secure the water supply in Java (for its crops and people) and by choosing for certain parts quick-yielding trees in 5 years time may start to supply forest-products (or tree-crop harvests from village land) for a base of a rural industry in house-building and improvements, which are labour intensive small enterprises.

- 6.3: The further development of Java's sugar-industry has in it the challenge of opening the way to landowning farmers to become modern sugarcane-farmers in co-operation with the sugar-factory. With adequate profits funds could be set aside to pay for specialists needed in extension, help in managing farmers' co-ops, bookkeeping etc. Another challenge is to organize both farmlabourers, working for sugarcane-farmers, and plantation-labourers in one labour organization. Through their co-ops (such as: consumers co-op) they too can hope to better their levels of living. In one integrated industry all parties can advance in relation to each other's progress and not remain separated by dualistic policies.
- 6.4: The overdue re-organization of the village government will have to make provisions that as an integrative "umbrella" institution, it can become a place for sound local politics, with responsible leaders and concerned villagers in lively dialogue. In the new structure the special interests of various groups, esp. farmers' co-ops and farmlabour organizations, will have to be recognized.

The field of social welfare may remain as the special field of attention by the village government, esp. in promoting local education, health and the special care of toddlers and expectant and nursing mothers as part of family planning. With village-centered services organized by its own group of "cadres", guidance and professional services will come from district agencies based at small town subdistrict-headquarters.

Appendix

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