WORKING PAPER 520

GETTING BY WITH LITTLE LAND: THE EVOLUTION OF HOUSEHOLD LIVELIHOOD STRATEGIES IN TWO HAMLETS IN CENTRAL JAVA

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1. CONTEXT AND AIMS

The Javanese rural landscape is distinctive: it is crowded with people and there is a striking juxtaposition of modern and archaic ways of making a living. Small buses take smartly-clad people to market or to work, overtaking horses and carts performing the same function; a man, barefooted and stripped to the waist with two baskets of charcoal balanced on a carrying pole walks briskly past a health centre crowded with patients; a group of women squat on shingle banks in the river breaking up river stones within sight of the illuminated sign of the hamlet photocopier.

In this paper I explore how households make a living and how such ancient and modern activities are articulated. In particular I am concerned with how farming and other uses of natural resources fit into total household livelihood strategies and how the role of natural resource use in these strategies has changed during the past forty years. Finally, I seek to determine the extent to which these changes have been related to the degree and manner of incorporation of households in selected villages into the world capitalist economy and the cultural and political systems associated with it.

2. RESEARCH METHODS

There is particular interest in conducting such a study in Java, especially in an area where rice cultivation is of considerable antiquity and where farming systems have developed over many centuries. The present high population densities and the large number of households without access to land make an

interesting context in which to study household livelihood strategies that have developed with little or no agricultural land available. The modification of the resource basis in Java as population has increased and socio-political structures have changed has been widely discussed following Geertz's provoking formulation of the idea of agricultural involution (Geertz 1963, 1984, White 1983). Finally, the particular colonial and feudal experience of the Yogyakarta Sultanate, now Special Region, is of intrinsic interest in tracing historical responses to evolving political and economic situations.

A reconnaissance visit to central Java was made in late 1985 which allowed a general view to be obtained of the range of livelihood strategies in nine separate villages in a variety of locations. Two hamlets (**dukuh**) in Sendangsari village (**kelurahan**) in Pengasih kecamatan, Kulon Progo kabupaten (Yogyakarta Special Region) were selected for further study and six weeks of field work was concentrated in these two hamlets during October and part of November 1986.

Following initial interviews with village and hamlet leaders, contacts were established with each of the households which had been selected to represent a range of socio-economic conditions and these included a landless household and one female-headed household. During the following six weeks each household was visited once or twice each week and group and individual interviews were held at which each household member over 15 years of age was consulted. In addition, a survey of every occupied house in each hamlet provided demographic and livelihood data.

3. TWO HAMLETS CONTRASTED

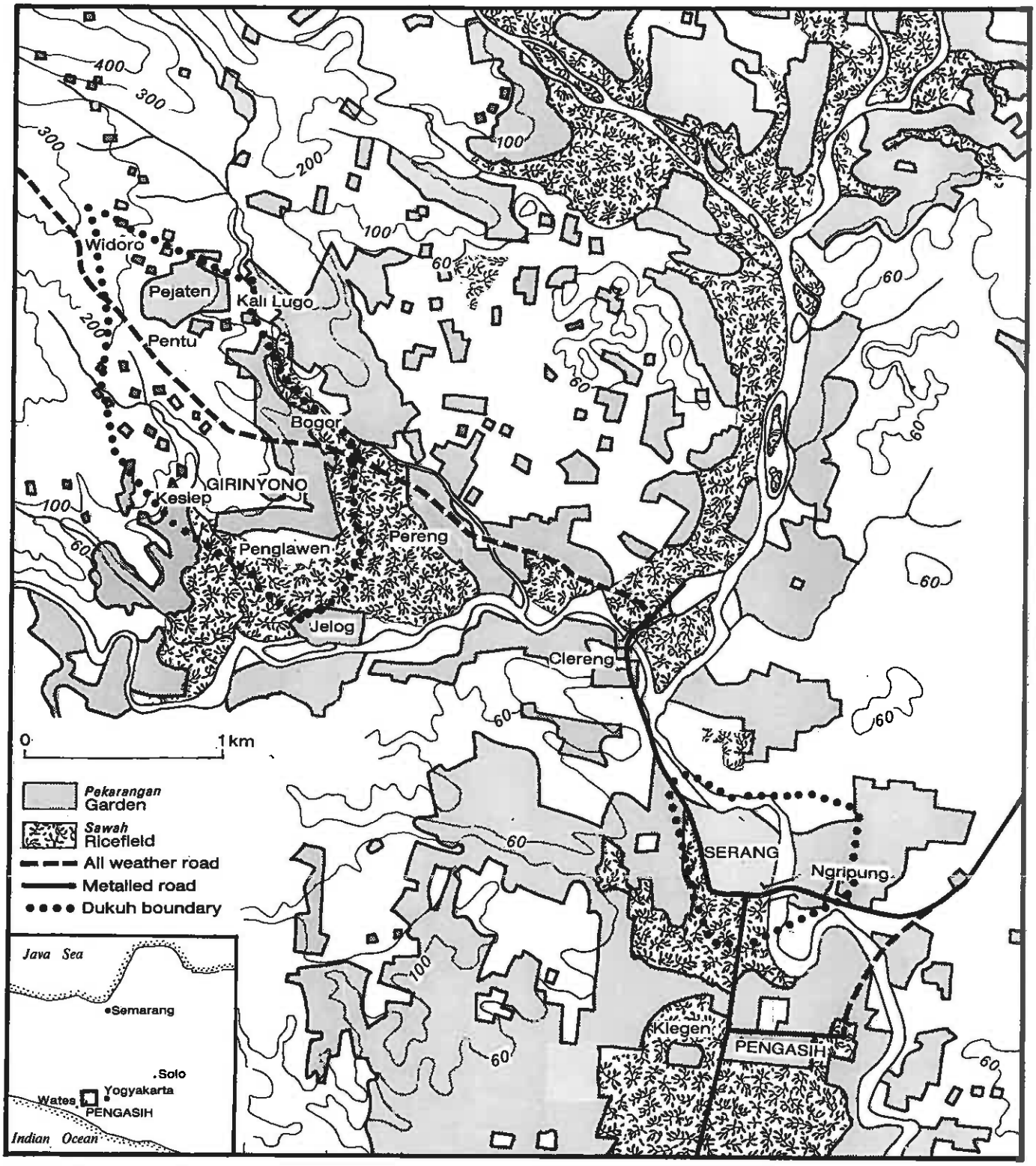
The two communities lie on the east of the central Java lowlands, south of the twin volcanoes Merabu and Merapi and a major river - the Progo - drains the western part of this area

entering the sea through a line of low sandhills (Map 1). On the western margin of the lowlands the Menoreh Mountains rise steeply to over 800 metres above the Progo river. The two hamlets lie close to the Serang river that flows south to the ocean parallel to the Progo river. One of the two hamlets - Serang - lies astride the river and its land is virtually flat and is either irrigated ricefields or densely wooded gardens. The river course was recently diverted and part of the village is in drier thinner soils some 10 metres above the bed of the river. A kilometre north and upriver of Serang lies Clereng, a village with the periodic market most convenient to people from both hamlets and located where the paved road crosses the river. Here two smaller rivers join the Serang from the west and between these rivers, a further two kilometres away, along a bumpy, stony road is Girinyono. Most people live on the lower slopes of the hills within a kilometre of the hamlet centre which contains a school, and a shop and a group of houses beside the road which climbs steeply to the crest of a ridge from which views to the east are the low limestone hills of the Gunung Kidul, to the south is the ocean while, on a clear day, the smoking summit of Merapi is visible to the north-east. The uppermost part of Girinyono is on steeply sloping land, which is terraced in places. Dense clusters of trees mark the outlying houses. Below the village a gently sloping extensively terraced area contains the best soils and all the ricefields of the hamlet.

The village people of Serang regard those in Girinyono as being fortunate because they have more land per household even though this is untrue and the irrigated ricefields of Serang are far more productive than the rainfed ricefields of Girinyono (Table 1).

Apart from farming the two most noteworthy items produced for sale in Girinyono are charcoal and tempe. Charcoal is produced by men who either buy the wood or cut it in their own land or (illegally) from the wooded hillslopes above the village. It is taken to be sold in Wates on foot about 6 km away. Tempe is

Map 1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GIRINYONO
Keslep
Penglawen
Pereng
Jelog
Clereng
SERANG
Ngripung
Kiegen
PENGASIH
0
1 km
Pekarangan
Garden
Sawah
Ricefield
All weather road
Metalled road
Dukuh boundary
Java Sea
Semarang
Solo
Yogyakarta
Wates
PENGASIH
Indian Ocean

produced by women in over 20 households either from soyabeans or cheaper bengook (velvet bean mucuma utilis) and sold locally, either by the roadsides in the early morning or directly to small shops.

TABLE 1

Land areas per household

	(m^2)		(sawah equivalent units*)	
	Serang	Girinyono	Serang	Girinyono
Gardens	4644	3650	3483	2700
Ricefields	1289	923	1289	692
Hillside land	13	1236	6	618
Cultivable land per household	5945	5809	4788	4010

*Land units converted to sawah equivalent units by 1 unit irrigated ricefield = 1; 1 unit rainfed ricefield = 0.75; 1 unit garden = 0.75; 1 unit hillside = 0.5.

Sources: Kelurahan offices (land area), fieldwork (number of households)

In Serang, which Girinyono people say is well-off and a good place to live because it's near to town, the block of gardens where most of the village households live has neatly laid out earthen lanes with effective and tidy fences and frequent painted signs to village officals' offices or homes. Despite this, only a few houses are ostentatiously modern and two important occupations - extracting fibre from coconut husks and breaking up stones from the river bed for building construction - have been important in the domestic economy of the village for several generations. Even so, some three dozen people work for local and regional government departments, mainly in Wates, only a 10 minute (2.5 km) cycle ride away. The local administration (kelurahan) offices are located here as is a moribund government fish farm, a thriving health centre and a government training centre

for would-be transmigrants is under construction. Although both hamlets show a similar range of levels of living there is more widepsread ownership of consumer durables in Serang and it is clearly located near to the centre of regional economic activity. Girinyono has good land, many fine large, traditional Javanese houses but its people feel acutely their relative isolation in comparison with the inhabitants of places like Serang.

4. AN HISTORICAL BACKGROUND

The large area of fertile, relatively level land in this part of Java was the site of earlier organised and culturally complex civilisations, the most striking vestiges of which are located on the lower slopes of the volcanoes north of Yogyakarta. These two outstanding monuments to organised early human activity, at Borobodur and at Prambanan, date from around 800 and 900 AD respectively. In the absence of much archeological evidence regarding early agriculture in this area, early history is largely conjectural (Setten van der Meer 1979). Cultivation of early forms of rice is likely to have taken place from the Neolithic period and the control of river floodwaters would have allowed the initial experiments with pondfield cultivation during the wet seasons. Since irrigation here can be organised to cover a small area of part of a river valley, for instance, it is not necessary to hypothesise the existence of high degree of political organisations (Bellwood, 1985). The agricultural system necessary for the political organisations that created the early temples and monuments in the Yogya area would have been based on valley cultivation of grains and tubers.

One of the features of the settlement history for these central Java river valleys from the eighth century onwards seems to have been population mobility in response to both natural hazards - particularly volcanic activity - and warfare. There may have been population decline, or at least dislocation after the mid 10th century. For a long time there was regular warfare and

year after year the male population was mobilised to fight. The rise of the Majapahit state in eastern Java led to the development of extensive irrigation works in the Brantas valley which may have attracted a floating rural population. By the late 16th century, the Mataram state was beginning to emerge in the Yogya area, and this would have encouraged the settlement of a large population and general agricultural development (Ricklefs 1981, 37). Although political control shifted from time to time and epidemics may have caused local population decline, agriculture and settlement remained without major disruption until the civil wars of 1825-30 by which time the Sultanate of Yogyakarta was well established, although largely under Dutch colonial control.

The civil wars of the 1820s are thought to have caused the rural population to decline by one half (Ibid., 113) but most people would probably have moved to other areas to avoid the fighting rather than be killed in the course of the civil war. The period after 1830 was one of population and economic growth and there was a marked increase in the area cultivated. Under the Sultan of Yogyakarta rural settlement and production was controlled by nobles resident in the court in Yogyakarta who were assigned tributary rights - <u>appanages</u> - to areas where their agents (<u>bekels</u>) leased the right to control land use and farmers were regarded as their tenants. Farmers received about 40 per cent of the goods and crops that they produced. The bekels were entitled to the produce from 20 per cent of the land and one half of the produce from the remaining 80 per cent of the land was delivered to the holder of the appanage who paid a tax to the Sultan (O'Malley 1977, 168 et seq.). Farming households seem to have had no rights to land and indeed only received such rights when land reform was introduced by the Sultan of Yogyakarta in 1918. During the 19th century, in particular after the return of Java to Dutch rule in 1816 following a brief period of British control, appanage holders rented tracts of land out to entrepreneurs, usually Dutch, who made a single direct payment and paid an annual rental to the appanage holder. The new tenants retained the bekels to manage the land; their farmers were allowed

to work half of the land for themselves while the other half was used to produce marketable crops for the tenants. In the 1840s some 40,000 hectares a year were rented in this way. Indigo was an important crop that was produced for cash and export until late in the nineteenth century and old people in Serang remembered their parents talking about its cultivation locally. Tobacco became important after mid-century but most important of all was sugar which has remained an important cash crop to the east of the Progo river (Maurer 1986). One further crop, widely grown in Java, was important on the western margins of Yogyakarta and was grown in the upper areas of Girinyono - coffee. On the basis of oral tradition in Girinyono and descriptions of coffee cultivation elsewhere in Java, it seems probable that the hillsides above existing fields were cleared of forest and coffee bushes were planted with food crops grown between the rows. Terraces were constructed on the steep hillsides (Fernando and O'Malley 1986). By the turn of the century coffee production ceased and the cleared hillsides were given by the coffee planters to their workers. Information from old members of the community suggest that in Girinyono the most durable of the hillside terraces, still cultivated in the upper parts of Girinyono in Kali Lugu, date from this period.

With the decline of coffee, the disappearance of indigo and the probably limited importance of sugar in the Serang and Girinyono part of Kulon Progo, a wide variety of crops were grown both for the landlords and the farm households themselves. Fernando's review of a series of Dutch studies of household livelihoods in villages not far to the west of Kulon Progo made in the period 1886-1920, captures some to the likely diversity of livelihood strategies that enabled successive generations of rural households to withstand pressures to produce one or more of the crops needed to form part of the Indies contribution to the world economy (Fernando 1986). He cites the Diminishing Welfare Report of 1902-5 for Purworejo which notes that almost half of the households have no ricefields and many hamlets relied on garden and hillside land to supplement incomes in order to pay land

taxes. Wage labour was also an important way of getting by (ibid., 101). In Kulon Progo, where a similar range of land types occurred, coconuts for oil, copra and fibre were an important garden product as were vegetables and fruit (especially mlinjo and petai). Trade and commerce was also important to hamlet households by at least the mid-nineteenth century and local markets were important places for the buying and selling of produce (ibid. 103, Elson 1986). The range of household activities in the 1880-1920 period was markedly similar to that today. Even contemporary migration is matched by migration a century ago to the relatively empty lands of East Java and Sumatra, to seek work in the cities, and even overseas to Singapore (Fernando n.d. and 1986, 100). The most striking change during the past thirty years is the relative ease with which people can travel and this is a major factor opening up urban work to the village population.

A distinctive feature of agriculture since at least the eighteenth century was its feudal basis. Those who worked the land and exploited timber and mineral resources had no right of access to those resources except that granted by their bekel, who was himself dependent on a noble granting him a part of his appanage and he only controlled about twenty households (Fernando n.d.). Each of the dukuh in the Girinyono area had its own bekel. This may have been a major factor contributing to the high degree of mobility of the rural population during periods such as the Java War of the 1820s. By the beginning of the present century, the rights of the population to enjoy greater security were recognised by the Sultan and in 1918 the rights of occupation of the land were vested in newly-created kelurahan (villages) and the inheritable rights to use land were given to all who occupied such land (O'Malley, 1977, Selosoemardjan 1962). In conversation with older people and with village officials in the Serang and Girinyono area their memory of these reforms is that their purpose was to limit the power of the bekels and, in Girinyono, land was redistributed in order to ensure that households had access to both hillside land and ricefields although

this was later modified by private land sales. Bekels were replaced by village-elected office holders, even though many bekels became office holders and had access, through their office, to reserved areas of prime land. Their privileges were not necessarily curtailed.

Population growth was variable in the first part of the century with the poorer areas near to the coast and the hill lands experiencing least growth. Pengasih sub-district includes both upland, barren limestone bush (between Serang and Sentolo) and well-watered ricefields but even so its population increased by 23 per cent 1905-1930 at an annual growth rate of 0.91 per cent, similar to that of Kulon Progo as a whole (0.92 per cent).

The diversified pattern of production and household activity seems to have continued up to the Japanese occupation in 1942, although the fall in production of major export crops during the world economic depression of the 1930s may have affected non-sugar producing areas of Kulon Progo as demand for non-food commodities declined in response to a decline in money supply. O'Malley observes that a consequence of the Depression on the farm-based population of Yogyakarta was that they were 'forced back into an economy based on self-sufficiency and barter' (O'Malley 1977, 191), in other words, to depend much more on other elements in their domestic economy.

Under Japanese occupation further changes in village households occurred under the new imperial power. Villagers speak of the period as one of great poverty, with little food, no new clothing, men taken off to work elsewhere, the area cultivated often decreasing in response to the shortage of labour and the forced cultivation of crops such as sisal, castor oil plants and cotton demanded by the Japanese. With the defeat and withdrawal of the Japanese a period of unrest ensued until the colonial aspirations of the Dutch, aided by the British in particular, were frustrated. This involved armed conflict in the Yogyakarta area and a new republic was finally established in 1949. The

following 16 years saw the return of stability to rural areas and the reestablishment of pre-1942 diversified village production. Although important changes in political power took place at a regional level in 1965 with the transfer of power to the military-backed New Order administration, village people see the period 1975-80 and the dramatic increases in production facilitated by the introduction of high-yielding varieties of rice allowing triple-cropping in favoured areas as the last major landmark in local history.

The Long Run

Two conclusions may be drawn from this historical sketch that relate to the central concern of this paper. Firstly, the population of this part of Java seems to have been subject to the exaction of both labour and produce for over three centuries and probably a good deal longer. The state and, through the state, the world economy has influenced what has been produced by households. It was such influences that caused the production of specific commodities, needed for court consumption or for trading by bekels or Dutch plantation operators. Similarly, villagers produced goods that could be sold to meet tax demands. The longstanding importance of State authority and the absence of the recognition of the right of any person, other than the Sultan, to ownership or occupation of land coupled with the regular occurrence of civil war, pestilence or natural disasters, contributed to a greater degree of population mobility than might otherwise have occurred. Secondly, the existence of highly diversified ways of making a living by the 1880s suggests that a reaction to the insecurity of rural life and the onerous exaction of tribute was to engage in a wide range of activities. This may well have been associated with the use of both hillside and valley bottom land while timber and useful fruit and tubers were harvested from gardens and forested land. The changes in the natural resource base during the present century - the granting of access to land to villages, agricultural improvement through water control and

the development of new crop varieties - were matched by an increasing rural population, a growing urban population and gradually-improving communications which threw open a wider range of ways of disposing of produce and of making a living than had previously existed.

5. PATTERNS OF RESOURCE USE

The two hamlets studied have access to both hill and lowland terrain. The only distinctive land resource of this part of central Java not found in these two hamlets is the sand-dunes and backing lagoons that fringe much of the southern coast. To provide a background to the discussion of household livelihood strategies the nature and availability of land resources is outlined.

Forest: Considerable areas of the higher hillsides, usually distant from the most outlying homes, have been declared "forest" and the use of such land is legally controlled by government decree administered by forest rangers. According to maps displayed in the Girinyono hamlet office, about 17 per cent of the total area of the hamlet is forest although statistics in the kelurahan office suggest 45 per cent is forest. In fact, the forest is not dense, only small areas are largely tree-covered and the control over access to forest land and resources is largely ineffective, much as Palte and others have described in similar areas in central and east Java (Palte 1984, Palte et al. 1981). The putative forest areas are important sources of some part of the timber used for both house construction and for making charcoal, although timber for both purposes is also supplied from trees growing in and around fields and housegardens. The area of declared forest in Girinyono includes land that has been cultivated for several generations and, although some households have left the area, others continue to dispute the right to use the area and still cultivate land there.

Hillsides: The hillslopes of Girinyono and a small area in the east of Serang are cultivated to produce one or sometimes two crops annually. The area of hillside land (tegalan) comprises 21 per cent of the cultivable land of Girinyono and is used for a variety of annual crops - cassava, maize, peanuts, soyabeans, dry rice and sweet potatoes - as well as for coconut palms, and a variety of other trees, both for fruit and, more usually, their wood. Grass is grown on banks and beside pathways to be cut for stock feed. Some steep slopes are terraced and, while some terraces are crudely stone-faced and long-established, others are recently- constructed. They are of widely varying degrees of effectiveness.

Ricefields: The most important element in the diet of most households is rice. Although some is grown on hillsides, most is produced in rainfed or irrigated banked fields which comprises 16 per cent of the cultivated land in Girinyono but 22 per cent in Serang. Although a canal system exists for the whole area of ricefields (sawah), in Girinyono this only distributes water during the wet season. In Serang, by constrast, a canal built at the turn of the century supplies water throughout the year to several hamlets. This enables farmers in Serang to produce three crops of rice in a year while in Girinyono one crop of rice is followed by a dry season crop of maize, soyabeans or peanuts; taro and grass are carefully nurtured on the margins of the fields. In one area of Girinyono, adjacent to the hamlet of Jelog, no dry season crop was grown in late 1986. High-yielding varieties of rice (mainly IR36, IR50 and Cisedane) have been exclusively planted for the past 5 or 6 years. Brown plant-hoppers (wereng) have caused major loss of rice in recent years in both villages. Sesame and indigo were grown on this land in the past.

Gardens: The largest proportion of cultivated land is occupied by gardens (pekarangan); some 78 per cent in Serang and 62 per cent in Girinyono. Almost all gardens contain a house and there-

fore the area of gardens actually available for cultivation varies. Some households have access to more than one garden. Gardens are used to produce a wide range of foodcrops from both annual and perennial plants. Some gardens in Serang had fish-ponds but more had ponds for soaking coconut husks to aid the extraction of fibre. Bananas, cassava, pineapple, taro, and other vegetables and medicinal plants are grown while trees produce coconuts, jackfruit, breadfruit and occasionally citrus fruit and cloves as well as mlinjo (Gnetum gnemon) and petai (Parkia speciosa). Many trees (including teak) are grown for timber and for firewood and the dense canopy of trees provides a continuous supply of firewood and leaves for litter and feed for penned livestock - both cattle and goats. Water-buffalo are rare in these two hamlets.

Rivercourses: Rivercourses in this area offer small areas that can be planted even if the risk of flooding is considerable but these areas are most important for stones and gravel. Stones are broken up into standardised sizes and sold for building construction. All river banks are scenes of considerable stone-breaking activity unless the rivers are flooding and the shingle banks are covered. Outcrops of limestone are used for making lime but are located outside, although adjacent to, the two hamlets.

Changes since the 1930s

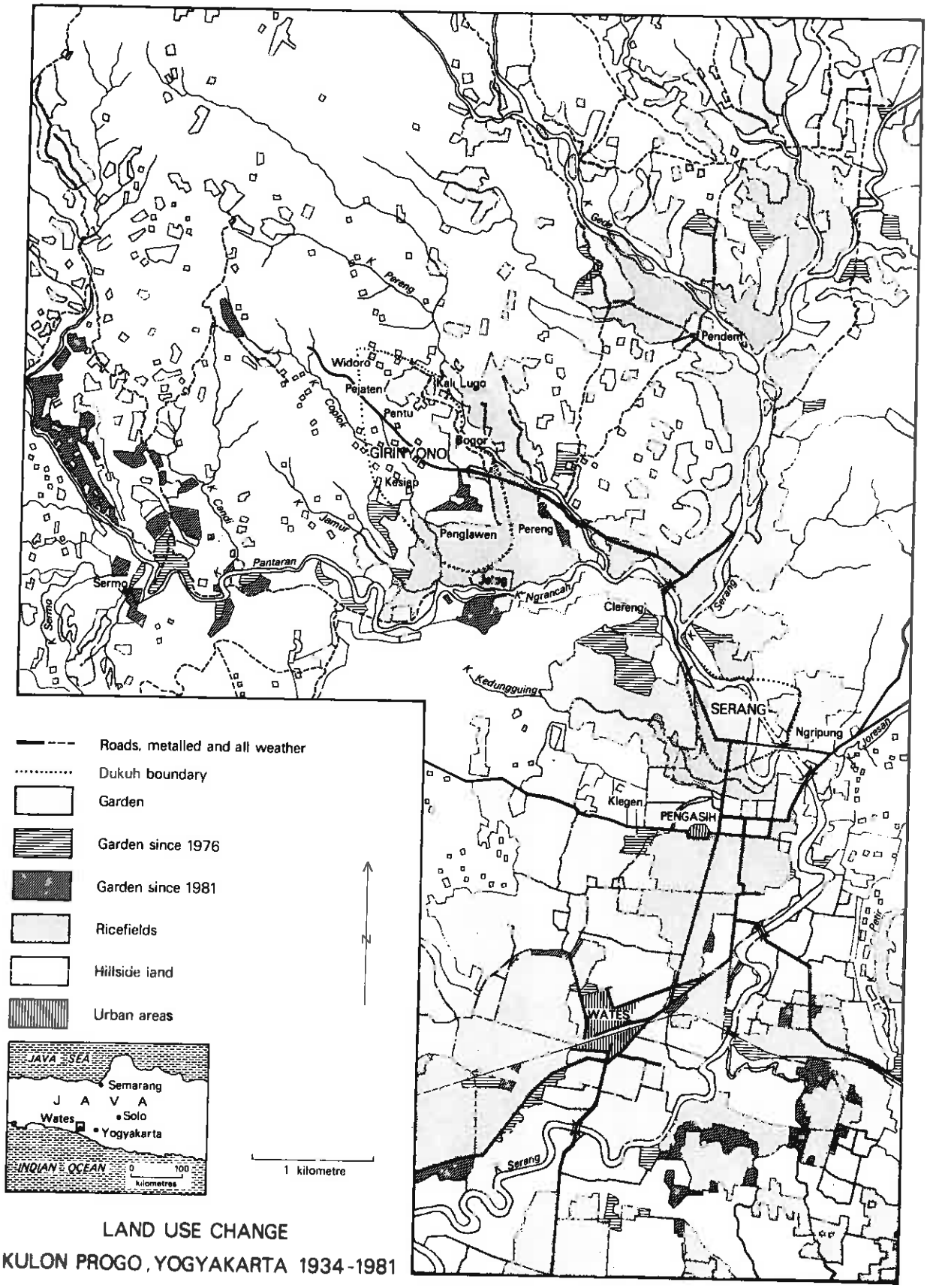
The broad patterns of resource use have not changed substantially during the past 50 years. The land categories referred to above have been important for more than a century. Changes at a hamlet level are relatively small involving the reclamation of riverside areas through flood protection or, in the case of Serang, the diversion of the river Serang to shortcut a meander from which the kelurahan offices used to be flooded, thereby using some house garden land but releasing the river course for both dry fields and embanked ricefields. A detailed representation of land use in this area is contained in the 1934

Dutch 1:25,000 scale topographic map which identifies ricefields, gardens, hillside and forest. This was compared with aerial photography for 1976 and 1981 in order to identify areas of land whose use had clearly changed. While apparent changes in land use in highland areas may be a reflection of the difficulties in interpretation of the cartographic and photographic evidence, the spread of gardens and homes onto cultivated land is easier to detect and several previous studies have used the comparison of Dutch period maps with recent aerial photography to show important change in land use (Sutanto et al 1979). We found that the most evident change was the encroachment of house gardens onto dryfields and that this had taken place to a limited extent throughout the area of Girinyono and environs (see Map. 2). In no case could the conversion of ricefields to house gardens be identified. The extension of housegardens is a logical consequence of population increase and it is likewise entirely predictable that it should be unirrigated land that is used to make new gardens.

More important and deep-seated changes are perceived by village people but are not easy to observe. Whether or not these changes represent long- term shifts in use of land resources could only be shown by household studies spanning a decade or more capable of generating reliable comparative quantitative data. Three situations were observed and investigated, which villagers were aware of, that may be evidence of changes in resource use of more widespread occurrence.

The variety of plants growing in central Javanese gardens make changes in intensity of use difficult for an outsider to observe. In some cases few annual crops are planted because the dense canopy of tree foliage prevents sufficient light reaching the lowest level of plants but, even so, observation in Serang suggested that particularly wide variations existed in the cropping intensity between gardens of different households. Several informants, both individually and collectively, responded to questions about variations in the intensity of

Map 2



LAND USE CHANGE
KULON PROGO, YOGYAKARTA 1934-1981

garden use by saying that households where the men go off working for money often spent less time on their gardens and sometimes such households tended to plant more trees to maximise production for a minimum of work.

While irrigated ricefields seem usually to be continuously cropped, rainfed fields only produce two harvests and the field may be uncultivated for several weeks between crops. A group of rainfed ricefields in the part of Girinyono that is adjacent to Jelog belong since the 1918 land reform to households from Kali Lugu, some 1700 metres away, and in the upper part of the hamlet. During the dry season in late 1986 none of these fields had been planted and the cattle of Jelog grazed there at will. The fields belonging to Jelog, in identical terrain, were planted with normal dry season crops such as maize and beans. Informants in Kali Lugu explained the decision not to plant that season by the possibility that the crops would fail if the dry season was very dry and the rice harvest had previously been badly affected by Brown Planthopper infestation. Some also said that the fields were a long way from home anyway. For those reasons it was judged not worth the risk or effort of planting dry season crops.

In the uppermost hillside fields of Girinyono, in Pejaten and Kali Lugu, terraced hillsides were now cultivated in alternate years rather than annually as had previously been the custom. The reasons for this, given by several informants, were that the production would be better if the land was fallowed for a year and that the fields were some distance (about 700 metres) from their houses. The farmers were also very busy elsewhere and did not have time to work on such distant fields.

In each of these cases the explanations of three quite separate situations in which land is farmed less intensively are in part directed to a negative evaluation of a particular land resource in the context of the other activities of the households. This carries the implication that present circumstances

lead to less use being made of some environmental resources and more use being made of other means of sustaining the individual or household.

6. HOUSEHOLD LIVELIHOODS

Field work in Java was directed towards discovering the degree of importance of physical resource use - principally farming - in total household activity in the context of a rural society that has evolved under feudal and colonial conditions for many centuries and only in the last 35 years has evolved under the influence of the Indonesian state. Because the land resource base is small in relation to the population, households have long developed strategies that involve a wide range of activities to produce either cash or goods that enable household members to maintain themselves. In order to see the present role of farming in total household livelihood strategies it is necessary to document the range of activities that form an important part of household life and to examine the differences within and between hamlets.

The physical resource base

Village people consider that most households do not produce enough from their land to be able to live. In each hamlet local people asserted that only a handful of households, perhaps half a dozen, produced enough for their needs. However, comparing the population density of Girinyono or Serang with other central Java settlements (Table 2), it can be seen that much higher population densities exist in other parts of the region. The mean area of cultivable land per household available in the two hamlets was shown in Table 1. This is misleading because access to land resources within the community is uneven and, in Serang, over 40 per cent of the households have access to no farmland of their own other than a house garden; and in Girinyono

only 8 per cent have no access to farmland other than a house garden. In Serang 13 households (9 per cent) had not even a house garden. At the other end of the scale our census of plots of land owned (not area of land) showed that 11 per cent of Serang households owned more that three plots compared with only 6 per cent of Girinyono households. However our data on land holding are probably a particularly unreliable measure of the wealth of the few richest households.

TABLE 2

Population density in central Java settlements

Settlement Name	Year	People/km2 (arable land)	Source
Tiro	1971-2	2998	Maurer
Tumbul	1971-2	1780	"
Wukersari	1971-2	833	"
Kali Loro	1972-3	2197	White
Jatilawang	1976-8	1090	Mizuno
Range*	1976-8	610-1710	"
Girinyono	1986	720	Preston
Serang	1986	812	Preston

*Range of densities of individual dukuh within the kelurahan

In principal access to forest and riverside is controlled. The hillside forest is a source of firewood rather that timber since firewood can be collected unobtrusively. Even so, for lowland hamlets such as Serang, the hillside woodland is distant and the quantity of wood washed down by floods and available in the river course is limited. The only other physical resource available locally is stones from the riverbed. Only a small number of contractors are licensed by the Kelurahan office

to deal in broken stones and they effectively control stone breaking although, technically, anyone might take stones, break them up and sell them.

Description and analysis of livelihoods

It is already apparent that the particular nature of land and society in central Java has meant, for many generations that most households must engage in such a range of jobs that it is unrealistic to say that individuals or households are primarily farmers or farm households. Furthermore, the actual tasks performed each day/week/month change according to the season, the weather, market prices and custom. The household strategy also varies according to the composition of the group or, more simply, the stage of development that the household has reached.

The task of obtaining quantitive data on household activities to enable the construction of a more or less objective picture of the total livelihood strategy is daunting, not least because the recording of the use of time is laborious and difficult. Two meticulous and illuminating studies, which incorporated careful measurement of household activities, have been carried out in Java in the early 1970s (White 1976, Hart 1978, 1986). That by White was carried out in the kelurahan adjacent and to the north-east of Girinyono and Serang. While Hart used a monthly questionnaire asking the members of the sample households to recall their activity patterns during the preceding 30 days, White based his data on a regular sample of days of his selected households, asking only for their use of time on the previous day. The different techniques for collecting such data have recently been discussed by White (1984). The distribution of time by gender and work category that is derived from these two studies is shown in Table 3.

TABLE 3

Work time patterns in two Javanese Villages
(People over 15 yrs)

	Males		Females	
	S	KL	S	KL
Own Production	43.0%	66.1%	9.7%	54.4%
Trading	2.2%	13.1%	42.3%	30.6%
Wage labour	45.0%	17.3%	41.9%	15.5%
Other work	9.8%	3.4%	6.2%	0.5%
	100	100	100	100
Total hours productive work	2499	2959	1593	2203
Total hours housework (exc. chn)	77	81	1007	1477

Sources: KL: White 1976, S: Hart 1986

Our approach was to collect individual evaluations of the importance of different types of work. This therefore allows respondent bias to be recorded but a survey of all households in two hamlets does provide a block of data that accurately records the collectively-assessed importance of different activities. We devised six categories of activity that were agreed by our hamlet field assistants to encompass most important forms of work and that would be understood by local people. In each household, people over 15 were asked to name which of these six activities was the most important contribution that they made to the household. Then, of the five remaining categories, the respondent was asked which was their next most important contribution to the households and so on. Few respondents offered more than three activities as their contribution. When household members were not present their spouse, sibling or parent gave their estimates of that person's contribution. We subsequently devised a method whereby this prioritisation of activities was given a numerical value expressed as a percentage. Thus the first priority category was usually given a value of 50 and this together with the other categories totalled 90. To calculate the livelihood strate-

gy for each household we totalled the values for each category across the household and then calculated the percentage of the total values for each category. In this way the data represent the collective importance attributed by household members to each of the categories of work. Comparison of the survey data for each of the sample households that we knew well suggested a close correspondence between what we had learned about the household's livelihood strategies and the reported prioritisation of activities. Summary statistics for household livelihood strategies in Serang and Girinyono calculated on this basis are presented in Table 4.

TABLE 4

Household livelihood strategies
(percentages)

Category	Serang	Girinyono
Household	31.2	27.0
Business	6.1	7.9
Craft	4.5	5.8
Blue collar work	33.3	22.4
Farming	18.5	35.7
White collar work	6.0	1.2
Other work	0.5	0.1
	100.0	100.0

Source: Household interviews, November 1986

The representation of livelihood strategies, incorporating all household members, at a hamlet level is highly generalised but it portrays the broad lineaments of the commonest strategies. Household work includes cooking, cleaning, and everyday house repairs; business includes making and selling

tempe and other snacks, buying and selling local produce from livestock to banana leaves, as well as running a small store (warung); craft work involves making bamboo screens, coconut fibre mats and carpentry; blue-collar work involves working for money in the fields, local and regional construction projects, in harvesting, porterage, and driving and helping with a carriage, bus or lorry; farming comprises working the land for your own benefit although some would have included working on a regular basis for parents, relatives and even neighbours; and white-collar work includes teaching, and hamlet and local government employment.

The principal elements of household livelihoods are similar in the two hamlets, household work, farming and blue-collar work are the most important elements accounting for over 80 per cent of hamlet livelihoods, although the differences between the two hamlets in the relative importance of each category are considerable. In Girinyono farming is the most important occupation but in Serang it is much less important and blue-collar work is the major occupation. In Serang a substantial part of the blue-collar work is employment, largely outside the hamlet, on contract construction as well as drivers and assistants of small buses and horse-drawn carriages (dokar). In Serang, 32 individuals are employed as teachers or government employees - white-collar work - but even so such work makes up only 6 per cent of livelihood strategies; it is of very much less importance in Girinyono. To a considerable extent, these differences are a reflection of variations in access to land, because in Serang 43 per cent of households have no access to land other than a garden compared with 8 per cent with no such access in Girinyono.

According to the stage of development of households, the composition of domestic livelihoods changes and some of these changes are demonstrated by data in Table 5. In both settlements the strategies of young households (a couple with small children) tend to involve more blue and white-collar work than those of

TABLE 5

Livelihood strategies and household life cycle

Life cycle stage	Household	Business	Craft	Blue-collar	Farming	White-collar	Other
Mean hamlet value	G	27.0	7.9	5.8	22.4	35.7	1.2	0.1
	S	31.2	6.1	4.5	33.3	18.5	6.0	0.5
Young	G	25.0	13.6	3.8	23.4	32.4	1.7	0.0
	S	34.7	6.2	4.4	36.8	9.9	8.1	0.0
Intermediate	G	26.6	7.7	5.5	22.7	36.1	1.3	0.1
	S	29.6	6.5	4.5	33.4	18.5	6.9	0.6
Aged	G	29.8	5.4	7.6	22.1	34.4	0.8	0.0
	S	33.4	5.3	4.7	31.7	22.3	2.4	0.3

households in later stages of development. In Girinyono business is much more important for young than for older households, craftwork is more important for aged households and, in Serang, farming is a great deal more important for intermediate and aged households than for the young. When the livelihood strategies of households with no access to farmland other than a garden are identified they suggest that the landless pay more attention to business and to white-collar work in Serang; in Girinyono craft-work, blue-collar work and, to some extent, white-collar work are more important. In the households with most land, in Girinyono, business and craftwork are more important.

The differences in livelihood strategies are more clear-cut between the two hamlets than within them. This is partly because much of the response to particular needs is a change in emphasis between already well- established strands of the liveli-

hood strategy that may be of short duration. These differences are not easily captured by the relatively coarse measure of livelihood taken by the present research or even the more detailed studies of White and Hart (op.cit.) which also necessarily condensed rich, year-long data to summarise a highly complex process.

In communities in which only a handful of households have sufficient land to produce enough for all their needs, farming and other natural resource uses account for only between one fifth or one third of the total household livelihood strategy. Farming is a more important part of the strategy for households at a middle and late stage of the household development cycle. In Girinyono, but not in Serang, the importance of farming in the household strategy increases as the amount of land farmed increases, as White and Hart have reported (op.cit.).

It has already been shown that Serang has access to more farmland per household (and per person) than Girinyono. If we take into account the 40 per cent of households that claimed they had no access to land other than gardens, the amount of land available to those with land was even more than in Girinyono. Yet farming is clearly less important in Serang. In Girinyono 68 per cent of male heads of household assigned farming the main part of their livelihood strategy compared with only 26 per cent in Serang. The answer to this apparent conundrum lies in the greater range of opportunities that occur in Serang. Serang has easier access to urban centres where a wider range of jobs occur and the data on the educational levels of people in the hamlets show that Serang people at all ages have had significantly more schooling than those in Girinyono (Table 6). It is therefore possible to conclude that differences in livelihood strategies between hamlets may be at least as much a function of the range of possible ways of getting by, as it is the result of differences in access to land.

TABLE 6

Mean Years of Schooling 1986

Age Group	Girinyono	Serang
18-25	7.1	8.8
26-35	5.8	7.6
36-50	3.2	5.2
over 51	1.0	1.8

Source: Hamlet surveys, 1986

Changes in natural resource use in livelihoods

The difference in livelihood strategies between Serang and Girinyono has probably increased in recent years even though the educational data do indicate that longstanding differences exist between the two communities. As communications have improved since the late 1960s, by the bridging of the Serang river, the improvement of roads to allow the passage of modern vehicles, and as horses and carriages have been supplemented by minibuses and taxis, so it has been more easy to travel further and more quickly. Not only has this probably increased long-term migration but it has also made it possible for people to travel longer distances to work while remaining domiciled in the community. This is a major factor in the number of people (largely men) who are white-collar workers, largely government employees, in Wates and surrounding villages. As a result, the relative importance of village-based activities in household livelihoods has decreased for some households in Serang.

Although there is no statistical evidence in the livelihood data to illustrate the change, interviews with sample households led to the conclusion that school attendance has increased the need for money for school expenses and decreased the time available in which children can do such tasks as cutting grass for livestock. One person, for instance, commented that he could have more cattle or goats if only his children were not in school and busy with schoolwork. Less use can be made of natural resources if children are available less time to help with various tasks. White concluded that the financial drain of school fees was minor but that the loss of labour was potentially important (op. cit, 238-41).

The third change which has affected resource use, particularly farming, is the general increase in the need for money. As in the instance just mentioned, money is now needed more frequently for purchases of what are now seen as domestic necessities. Many older informants commented on the increased circulation of money. Our records of items bought and sold by seven households on alternate days during a four week period showed that there were constant sales and purchases of small quantities of goods every day. This has made it possible for some people to open small shops (warung) and the social status associated with shopkeeping is very much greater than the economic gain.

Since farm production is largely seasonal rather than on a day to day basis - even though chickens and coconut palms seem to produce eggs and coconuts daily, money needs are increasingly met by paid labour, and agriculture is more important for food production than as a means to earn money.

7. MODES OF INCORPORATION AND RESISTANCE

Households in the central Javanese hamlets that were studied are continually revising the strategies that they use to live as well as they can. A fundamental pressure which all experience is

to satisfy the growing need for commodities that they cannot themselves produce and which therefore have to be bought - whether batteries, a cassette recorder, or medicine for diseased plants or animals, including humans. This pressure has existed since at least the eighteenth century but it is now more pervasive in response to advertising as well as more effective and near- universal education which exposes young people in rural areas to consumption patterns and cultural values that are firmly part of the world economy.

This pressure towards a more complete incorporation in the capitalist world economic system is resisted, as it has been for many generations, by households and villages and sometimes by whole nations that seek to retain autonomy in their present and future lives. Individuals are keenly aware of the encroachment of the capitalist economy and its attendant problems. Scott's seminal study of the phenomenon of peasant resistance in a rice-producing area in Kedah, north-western Malaysia (Scott, 1985) was instrumental in my consideration of how resistance is expressed in the context of household livelihoods. Scott is primarily concerned with actions in the daily struggle between members of different social classes and, although this is relevant to the ways in which people decide to manage their livelihood, his concern for recognisable and reportable actions is not related to household activity but rather to inter-class relations within the village.

I suggest that the phenomenon of resistance can usefully be used to describe those parts of household livelihood strategies that are not directed at producing a surplus to be sold and, more specifically, those activities which offer security against the relentless pressures from the world-economy where price fluctuations are frequently seen as unpredictable by rural producers and workers. If one is convinced of the widespread nature of worker resistance to domination by bosses of various sorts (Scott, op.cit. Chap. 2) then it is logical that livehood strategies should likewise contain strands which represent a search for

security against external economic control in order to counterbalance other strands which offer valued rewards but at some risk.

The nature of the relationship between different forms of economic activity and social relations lies at the heart of the debate about the articulation of modes of production (Forbes 1984, Goodman and Redclift 1981 inter alia). One part of this debate sees the dominant capitalist mode of production in articulation and coexisting with other non-capitalist modes which are still capable of reproduction (Wolpe 1980, Bradby 1975). What seems to be lacking in such theoretical debate is some specification of ways in which household units which may contain members who engage in different activities associated with markedly different productive relations themselves develop strategies which steer a course between the possibility of wealth as a result of full exposure to the capitalist economy and the security but relative poverty of self-sufficiency.

The view that the advance of capitalism cannot and should not be resisted seems to deny the capacity of households and communities to resist encroachment. It is possible for livelihood strategies to be developed which use some members of the household with brief periods of time available in ways which larger, less flexible units could not. Lehmann argues that this is a particular advantage of what he calls 'capitalised family forms' (Lehmann 1986). Wolf has also explained the attraction of the employment of young females from rural households in urban factories even at very low wages in terms of its specific advantages to the household economy (Wolf 1984). These two cases are examples of the development of strategies on the margins of the capitalist economy and whose rationale can only be understood at the level of the complete household unit. While these cases might be characterised as careful contact short of full incorporation with the capitalist economy, other strands of livelihood strategies resist involvement by using no money but household and community resources, land, and labour to produce a part of the

food or material needs of the household.

Strands of livelihood strategies which represent resistance to incorporation in the capitalist economy are not dependent for their success in the market place but rather satisfying a household need whether it be for rice to eat or sisal to make cords. The essence of many successful strategies of resistance is that the commodity may be either sold or consumed by the household depending on prevailing needs. Such activities also make use of local resources as far as possible - household and exchange labour and land that is owned.

In this section I shall try to show how each of the major categories of household activities can be shown to contain some strands which incorporate the household in the capitalist system and others which resist such incorporation by producing for domestic consumption or for local exchange. The particular use of some natural resources in complex household livelihood strategies is becoming increasingly important as a means to continue to produce goods for self-consumption and, where land is not as intensively cultivated as possible, to maintain a basic low level of production with minimal use of labour from land considered marginal to current needs but which is capable of expanding production when the need arises.

Farming: Some of the rice produced in both hamlets is sold, but much of it is retained for local consumption. New rice varieties are universally planted and inorganic fertilisers and other agrochemicals are widely used. Many households sell some of their rice to satisfy their needs for cash even though they may buy rice to eat later in the year. Some twenty species of annual crops and trees are grown in fields and house-gardens and all produce is partly for consumption and partly for sale. In gardens and on field margins various plants and trees grow that are used only when they are particularly needed and such plants represent a reserve supply of food and timber which can occasionally be used. This broad range of crops provides a wide variety

of foods and of sources of money and those used are selected according to demand and prevailing prices. While some aspects of farming are fully incorporated into the national economic system, others are outside the system and, although not usually providing even the majority of household food needs, they represent resistance to incorporation.

Artisan production: This category of activity includes any transformation of local produce that increases its value. Charcoal making, breaking stones, carpentry, coconut fibre extraction and the making of bamboo screens as well as food processing, in particular the making of tempe, are all important to some households. A part of this production is destined for external sale and thus highly vulnerable to market changes, particularly the sale of charcoal and coconut fibre. Another part of artisan production is destined for local and regional consumption: carpentry and the making of bamboo screens. This type of production is traditional and is labour-intensive, yet mass-produced products, coupled with changes in the taste of village people, could easily undermine its market. Many of those who have these craft skills can make their own house and a part of its furnishings and thus avoid cash expenditure; this activity may therefore represent resistance to the encroachment of capitalism. Prevailing taste is, however, towards brick-built houses that need more cash and fewer locally available skills than the traditional Javanese limasan style.

Working for others: Working for wages, especially outside the hamlet where wages may be 50 per cent higher, is a classic way of incorporating rural workers into the urban and maybe industrial labour force. As demand for labour increases so do wages and a recent study in Java showed rural wages 1977-83 having risen by 1.5 per cent per year (Mazumdar and Husein 1986). All informants who referred to the attraction of wage labour spoke of the possibility of earning more than by staying at home and possibly working for neighbours. This is particularly true of men. White-collar employment in the public sector is more stable

although, not necessarily more remunerative than casual labouring. It is much sought after for its stability and because of the status that it confers. All these forms of wage labour involve greater incorporation in the national economy and, in a country where the organisation of labour is tightly controlled, few defense mechanisms against incorporation can be developed other than the types of sabotage referred to by Scott (1985 Chap. 2) although the replacement of people by machines that was a major issue in Scott's village has not yet happened in Serang or Girinyono.

Many different forms of working for others occur in both hamlets. The majority of rice harvesting was still using the kedokan system, whereby a team of women works together by prior and often longstanding agreement to transplant and later harvest the rice bawon. Payment is a share of the rice harvested, maybe as much as one third usually but one sixth if only one of the two jobs was done and if the ani-ani knife is used. This is widely regarded by better off and poorer families as a good way of obtaining rice. Each woman may help 6-10 farmers and in turn ask a similar number of people to help with their own harvest. Rice harvesting practices have been widely discussed (for example Stoler 1975, 1977, Collier et al 1973) and it is noteworthy that such a sound method of resistance should remain important even in a community (like Serang) where outside work for money, both blue and white-collar, is so important.

A second form of work for others that is also outside the cash economy and yet retains considerable importance is exchange labour (gotong-royong) particularly for non-agricultural tasks such as house construction and repair. Field work took place during a season when house repair was usually carried out and all households studied were often either helping others or themselves to organise a work session. Although skilled craftsmen may be paid for at least part of their time, most of those who attend are not and the practice is felt desirable to reinforce community solidarity as well as to get jobs done with as little cash outlay

as possible. White analysed exchange labour practices in his village and concluded that much of such activity was also associated with ceremonial practice as well as simply getting big jobs done and found a very considerable variation in the cost of organising such gatherings (White 1976, 243-52). In Girinyono and Serang, food and tobacco was provided for workers but it seems unlikely that the cost of this would approach the cost of hiring such labour. One of our field assistants in Girinyono mobilised 50 people at night during a storm to protect a part of her house that was being repaired by collective labour.

Migration: The increase in mobility that has affected Serang, to a lesser extent Girinyono, permits a diversification of household livelihood strategies and can have very different effects on the degree of incorporation of households in the world economy. The mobility of labour in this part of Java was referred to earlier as being important in previous centuries just as it is now. The most extreme form of resistance by rural people to involvement in the world economy is flight into a distant area where land is available - either into the hills in time gone by, or now to a transmigration area, especially one where kinsfolk have already settled. Although this may, in the end, lead to further involvement in the cash economy, in the past it was a way of avoiding taxation. Leaving the village is considered by village people to be a realistic way out of poverty, indebtedness or just towards even greater freedom and wealth (see also Scott op.cit., 245). An alternative form of migration is a surrender to the struggle to make out in the village but by migration to the city where self-sufficiency is not the goal.

A form of migration that is particularly important in Serang is commuting to work in a nearby town while living in the village. While this is superficially a move to further incorporation in the cash economy and latent proletarianisation and even embourgeoisement, it is more than just that because the hours of work, particularly of white-collar employees, allow a return home mid-afternoon when some domestic and even agricultural tasks can

still be performed. The facility of living in the hamlet while working in town effectively increases the value of the wages to the household, since few of the extra costs of urban living are incurred. While this may be argued to be a mechanism whereby low wages can be offered in small towns where many come to work from surrounding villages - a peculiarly Javanese phenomenon made possible by high settlement densities - many village people view it as advantageous because, apart from the wage payment, work outside the village may expose workers to a wider range of information about trading and work opportunities than in the village which is particularly important where livelihood strategies embrace a large number of very diverse work situations.

8. CONCLUSIONS

The first of the objectives of this paper was to describe how people in these central Javanese hamlets made a living and how the various ways in which households made a living were inter-related. A review of historical research findings suggested convincingly that households with limited access to cultivable land have long engaged in the production of a wide range of crops, livestock and woodland produce, all of which can be either consumed, traded locally or sold. In addition, labour has long been exchanged between households, been used for community work as well as being appropriated to satisfy the demands of political overlords.

The data from the two case study hamlets showed the structure of priorities in the household livelihood strategies by means of individual evaluations revealed in a community-wide census. These data revealed striking inter-hamlet differences that were not only the result of differences in the distribution of access to land resources but also a consequence of the greater ease of access from Serang to blue-collar employment in urban areas and white-collar employment in the state bureaucracy. Serang households assigned farming only 19 per cent of their

total household livelihood strategy while households in Girinyo-no, the more isolated hamlet, assigned farming 36 per cent of their strategy. However rudimentary this measure of priority or importance of separate strands of livelihood strategies, it accords well with detailed knowledge of sample households and with the reported perceptions by people of each village of the other.

The high degree of diversification in household strategies should not come as a surprise in situations where an average household has access to less than 0.6 ha. of cultivable land and less than 0.1 ha. of wet ricefield. Taking into account the unequal distribution of land - in Serang over 40 per cent of households have no land - the use of a wide variety of ways of making money or producing food is rational. The seasonality of agricultural work results in substantial labour being available at some times of the year and many jobs are undertaken only occasionally, when there is free time. When money is needed for a particular occasion or even for a regular household requirement, remunerated work is performed, even to the detriment of other tasks.

Farming and the use of natural resources such as timber, charcoal and stones has been a major part of the way of life for households for many centuries. Surplus labour and surplus produce have long been appropriated by landlords and, although the production of some crops has been artificially stimulated in this way, in this part of Java the production of goods for auto-consumption has not ceased. Even though rural people had no right to the land - the means of production - until 1918, they did occupy land and consume its produce. For at least the past century prime, well- watered cultivable land has been in short supply and households have needed to engage in commerce, in craftwork and in selling their labour in order to maintain a satisfactory level of living.

As life styles have evolved, in particular as a conse-

quence of a greater awareness of how other people in Java and the wider world live, the acquisition of money has become a more important component of household livelihood strategies. Many of the jobs that are performed to earn money are not associated directly with farming. Farming is particularly prized as a means by which food can be produced for domestic consumption, although some produce is always sold. In areas of micro-holdings, money-earning often assumes a higher priority than subsistence farming. I would suggest that the differences in the role of farming between Serang and Girinyono are a consequence of the distinct degrees of involvement in the cash economy as well as differences in access to farmland.

I have explored the issue of the degree of incorporation of domestic economies in world-wide economic and cultural systems dominated by the capitalist super-powers by considering whether the elements in the livelihood strategies are incorporative or resistant to incorporation. Scott's concept of resistance in the socio-political realm is applicable to socio-economic activities, since people see themselves engaging in certain activities to safeguard their household from possible disaster.

Incorporation comes through dependence on the purchase or sale of goods in a market dominated by various forces superior to the rural producer and even rural merchants although the active innovator may sometimes benefit, in the short term, by providing a supply of a scarce and needed commodity. Incorporation is also a consequence of increasing employment in the State bureaucracy and in construction projects that flourish only during times of national economic boom. This process of incorporation should be seen as one that is longstanding and part of the means by which dominant classes seek to control producers and production.

If incorporation is an ancient process so too is resistance to it and I see no inevitability about the penetration of wage labour and other facets of the capitalist production system into rural villages such as Serang and Girinyono. While Scott

identifies resistance as part of the guerrilla warfare between opposed classes, I see resistance in the maintenance of working practices which foster social solidarity between people with common interests (exchange labour) and in investment of time in the production of goods which may be either consumed (if the price is poor or the household hungry) or sold (if money is needed or the price is good) rather than the concentration of production to maximise cash income. Access to land is desired, not just as a symbol of community membership or for social status but because it is a productive resource that can be used in many ways, according to domestic needs. This helps to explain both how it is used and why it is sometimes used less intensively than formerly.

Debate on the articulation of some strands in household livelihood strategies that appear to belong to traditional cultural practices with others that are apparently directed at the maximisation of financial gain can be enriched if we seek to relate these ideas to the everyday activities of men, women and children.

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