

Figure 3. Problems identified by farmers in the ASB North Lampung benchmark area

### DISCUSSION

The results of these 'rapid appraisal' surveys can be compared with the more in-depth study of farming in Negara Jaya by Elmhirst (this issue) and in Tegal Mukti by Gauthier (this issue). Negara Jaya was not included in the household survey, and in general farming is more intensive here than in Tegal Mukti, with more sawah rice field and higher fertilizer use.

The ASB data allow a comparison on the Lampung benchmark area with the peneplain site in Jambi, for the three strata. The 'local' stratum in Jambi has rubber agroforests as their main land use type and differs in that respect from the Lampung site. Spontaneous migrants in Jambi have on average been much longer in the area than those in Lampung and they have adopted a rubber-based farming system as well. About a quarter of the spontaneous migrants in Jambi say they joined relatives as reason to migrate, while only 5% gave that reason in Lampung. In both cases about 80% of the spontaneous migrants had been born in Java and the rest in Sumatra. A substantial part of the 'spontaneous migrant' group in Lampung is formed by the second generation of transmigrants, who have to obtain land outside of the transmigration village. For the transmigrant group the differences in land use pattern are relatively small between Jambi and Lampung.

The most common land use system in the North-Lampung benchmark area in the past two decades has been to clear secondary (or logged-over) forest or shrub fallow vegetation to plant food crops or perennial cash crops (sugar cane); recently, however, interest is growing in converting the land to better-adapted (and hopefully) more profitable tree crops in the form of rubber, oil palm or fast growing timber species. Rubber agroforests

do exist along the rivers in Lampung, especially in the eastern side of the ASB benchmark area, not included in the household survey, but much less prominent than in Jambi. Such tree-based systems can accommodate short term needs for food production. For the further discussion of options and research needs we will first consider systems with food crops as key part of the system, and then focus on tree-based production systems.

Where food crops are a key part of the system, a distinction should be made between the relatively fertile soils next to the river farmed by the Lampungese and the upland soils where transmigrant farmers have attempted continuous food crop production. Irregularities in river flow, possibly linked with land use change in the upper reaches of the Tulang Bawang river are a major problem for the Lampungese system, which is using all suitable soils already and can not be extended. On the upland soils the nutrient stocks are limited. Al toxicity, P deficiency and rapid depletion of soil organic matter mean continuous food crop production is not possible without substantial inputs of fertilizer; many of the current higher-yielding crop varieties also require lime. For crops such as cassava, it is not financially feasible to replace the nutrients exported with the farm products by using fertilizer, except in years that cassava prices are high. Active soil organic matter fractions can fall below critical levels with intensive land use for food crops. Vertebrate pests are a key constraint for farmers in growing food crops as well as establishing tree crops; with increasing distance from the forest margin the main problems are caused by elephants, wild pigs and rats. The interactions between rats and the use of mulch, which may protect the soil need further study (see Gauthier, this issue). Whereas sugar cane productivity could be maintained

on the plantation, the smallholder version did not meet the expectations. Logistic and administrative difficulties with delivery of the fertilizer and at harvest time have proven to be unsurmountable.

In view of these constraints, biological options can include: easily established cover crops as source of organic matter, rock-phosphate as key input on acid infertile soils, rotational hedgerows as biological weed control, live fences as pig deterrent and new upland rice varieties which are well-suited as an intercrop during the establishment phase of agroforestry systems.

Research needs include an evaluation of the effectiveness of 'weedy' fallow species such as *Chromolaena*, a better understanding of the compatibility of 'improved' crop germplasm for early stages of tree-based systems, developing methods for 'functional soil organic matter pools' as management tool, establishing 'thresholds' for loss of soil biodiversity and analyzing landscape diversity as element of vertebrate pest control. Economic analysis should be made of the feasibility of these various options, as labour and cash and credit availability are serious constraints to options which may appear to be profitable on a long term perspective only. Logistic and administrative issues around schemes such as the sugar cane outgrower scheme may form a major bottleneck in implementing land use types which can be sustainable in a biophysical sense.

Where tree crops are the major part of the system some of the issues differ. North Lampung has more frequent and more pronounced dry seasons than the rest of Sumatra. Dry spells such as in 1994 are a serious constraint for several tree crops, including hybrid coconut and various fruit trees. Many farmers saw their trees die in that year. These dry periods also entail a fire risk and tend to maintain *Imperata* grasslands. The practice of burning sugar cane residue restricts the use of trees even as boundary plantings. If methods were found to deal with the harvest residues without burning, trees could come back to the landscape from which they were removed when sugar cane became the dominant crop (Elmhirst, this issue). Smallholder oil palm plantations have survived the collapse of the outgrower scheme under which they were started, and with improved road access oil palm fruits are currently sold to independent traders. This model can be contrasted with the nucleus-estate-plasma concept as is the dominant form of oil palm schemes, which requires large parts of village land to be converted to monocultures of oil palm, without choice of marketing channel to the participating farmers. Existing germplasm improvement programs for tree crops such as rubber and oil palm are biased towards monoculture plantations and the markets for higher-yielding planting material may fail to respond to new opportunities. In Lampung, however, nurseries for *Paraserianthes* are

Table 8. Summary of environmental characteristics, farming systems and constraints in four benchmark areas

Community	Environmental Characteristics	Farming system and constraints	Land Tenure
Trans-migrants	Very poor soils and frequent drought. Soil is susceptible to erosion and weed infestation.	Dynamic development of the farming system as a result of adjustment to the environment. Sugarcane cultivation has not met expectations. Recent developments tend toward perennial cultivation; but it should be accompanied by food crop production and fire control.	Land tenure is secure, but land is limited and of low soil fertility. Many farmers sold some land to buy better land (sawah) or to move to another place to seek better land in the forest margins, or work on off-farm jobs; some conflicts with local communities still unresolved.
Spontaneous migrants	Very poor soils and frequent drought. Soil is susceptible to erosion and weeds	see transmigrants	Land is bought from local owners or from transmigrants.
Local people	Alluvial soil, better fertility	Annual cash crop based farming system; some interest in rubber, oil palm or fast growing timber.	Land tenure is based on customary law, but there is a tendency toward privatization on customary lands. Disputes over land are common.

widespread and the development of farm-forestry is rapid. Although soil fertility is not as serious a constraint as for continuous food crop production, the soils are too poor for crops such as coffee and pepper which are important in the transition between a food crop and tree-based phase of 'agroforests' elsewhere in Sumatra (de Foresta and Michon, 1997).

Options include the selection of rapidly productive tree components, such as bamboo, fast growing timber and certain fruit trees and credit schemes to bridge the unproductive period. The existing nucleus-estate-plasma concept provides such credit, but also ties the smallholder to a single marketing outlet for future products. Improved transport will increase options for physical access to production sites, e.g. for palm oil, and may help to un-couple credit supply and marketing. Smallholder credit for perennials has not met with much success. At government level trade policies need reform to reduce barriers faced by smallholders and local traders, and policies and programmes to address market failures in the supply of planting material.

Research needs include a study of the increased accessibility of rapidly producing tree crops and farmer response to this, and options for reducing establishment costs/shortening establishment period. Design rules are needed for selecting appropriate tree mixtures and should consider the length of period for annual food cropping in the initial years. *Imperata*-induced fire risks are an issue which needs quantification. Again economic analysis should assess the feasibility of technical options and an analysis should be made of policy-induced distortions and market failures.

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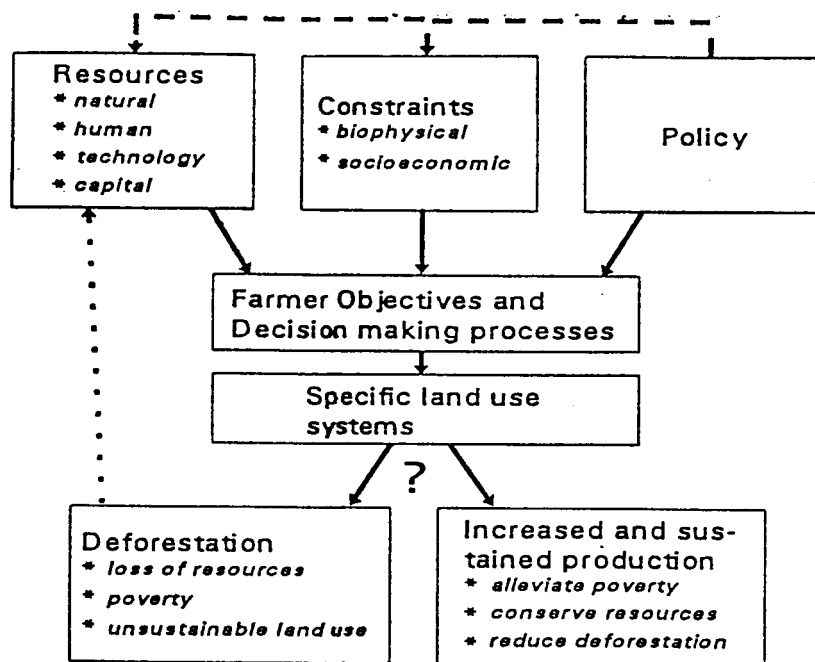


Figure 50. Conceptual scheme of land use decisions of farmers as focus of the ASB project

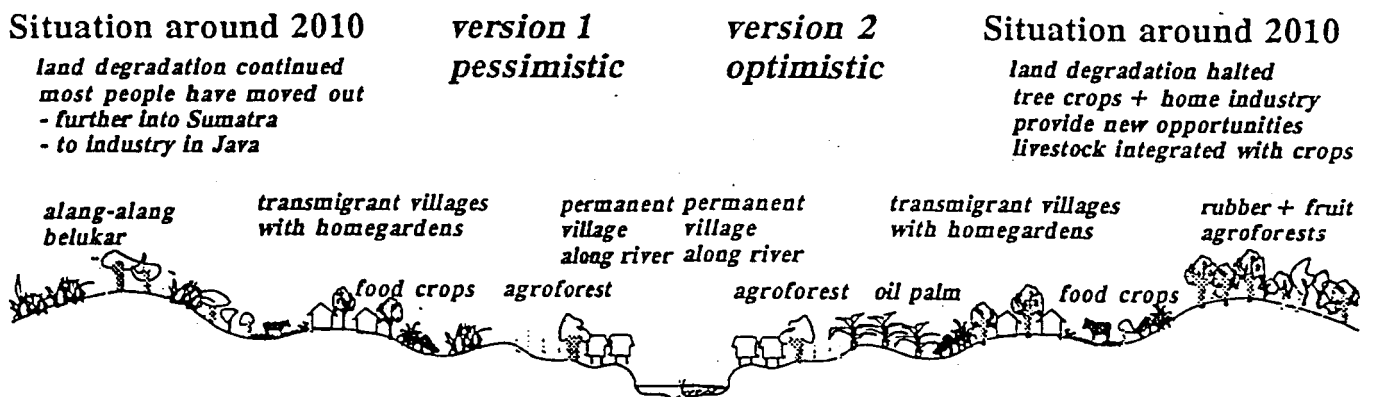


Figure 51. An optimistic and a pessimistic vision of further developments in the North Lampung ASB benchmark area

**MEDIUM-SIZED PROJECT BRIEF**

**Project Summary**

<b>Project Identifiers</b>	
1. Project name: <i>Smallholder conversion of Imperata grasslands in Indonesia through agroforestry</i>	2. GEF Implementing Agency: <i>United Nations Development Program (UNDP)</i>
3. Country or countries in which the project is being implemented: <i>Indonesia (Sumatra and Kalimantan)</i>	4. Country eligibility: <i>Signatory to FCCC on August 23, 1994</i>
5. GEF focal area (s) <i>Climate Change</i>	6. Operational program/Short-term measure: <i>This proposal falls within Climate Change Operational Programs. Experience gained during project preparation and implementation should help local communities in the region to address conservation of natural resources and their sustainable use. The global environmental benefits of grassland conversion are apparent through reduced greenhouse gas emissions, and recovery of natural ecosystems and critical biodiversity.</i>
7. Project linkage to national priorities, action plans, and programs : <i>Grasslands dominated by <u>Imperata cylindrica</u> occupy over 8.5 million hectares in Indonesia. Most Imperata grasslands are found on state forest lands where deforestation has occurred and frequent fires prevent natural forest regeneration. They are generally seen as unproductive lands and a major target for C-sequestration projects. Unsuccessful attempts to reforest these grasslands may be due to an inadequate understanding of the role of these grasslands in local land use systems at the village level, and how the goals of local populations need to be incorporated into revegetation strategies. It is widely acknowledged that radically new approaches are needed for Imperata grasslands conversion that actively involve the smallholder populations that occupy these lands. Such approaches need to reconcile local villagers' needs for greater income and security with national and global objectives of reforestation to reduce greenhouse gas emissions, increase carbon stocks, protect critical biodiversity, protect watersheds, and reduce soil erosion</i>	
8. GEF national operational focal point and date of country endorsement:	
<b>Project Objectives and Activities</b>	
9. Project rationale and objectives: <i>Goal: Diversified sustainable land uses for former Imperata grasslands by local</i>	Indicators: <i>a) reduction in area of unproductive</i>

<p><i>smallholder communities, with benefits for C-sequestration, net GHG emissions and biodiversity as well as poverty alleviation.</i></p> <p><i>Objectives: To clarify and help remove the bottlenecks currently preventing the real world from attaining the goal, and identify actions.</i></p> <p><i>Problem identification: Previous analysis of smallholder intensification of land use in Imperata grasslands has led to recognition of three domains, each with a typical set of constraints:</i></p> <p><i>I. Issues of tenure on trees and/or land, along with community organization of fire control. These issues appear to be the dominant constraint on the 'mega grasslands' under the jurisdiction of the Ministry of Forestry.</i></p> <p><i>II. Access to markets, due to poor infrastructure and restrictive trade and marketing policies. Where land and tree tenure is not problematic, there may be limited opportunities for marketing products obtained under more intensive land use, making it non-profitable for farmers to invest in the land.</i></p> <p><i>III. Questions of which agroforestry technique is most suitable to make the transition on infertile soils with initially a high risk of fire. This may be typical of the situation around transmigration areas, where land tenure is not a major issue and market access is not a major obstacle, but where the agricultural techniques currently recommended are not the most appropriate.</i></p> <p><i>Knowledge on smallholder grassland conversions has not been applied in accomplishing successful programs that can implement these ideas over large areas.</i></p>	<p><i>Imperata grasslands;</i></p> <p><i>b) effective participatory approaches to land use management;</i></p> <p><i>c) an operational and tested scheme for recognizing the major bottlenecks and an array of policy options to overcome constraints.</i></p>
<p><b>10. Project outcomes:</b></p> <p><i>a) an operational scheme for recognizing domains and the type of policy change and/or development of technological options that are appropriate;</i></p> <p><i>b) recognition of feasible options by policy makers at various levels, including national, regional and local agencies;</i></p> <p><i>c) a basket of choice for farmers in developing agroforestry in Imperata grassland</i></p>	<p><b>Indicators:</b></p> <p><i>a) initial draft scheme and later improved iterations;</i></p> <p><i>b) policy consultations and documents;</i></p> <p><i>c) well-documented studies, validated models, and analyzed experiments;</i></p> <p><i>d) data sets and quantitative models linking the various scales.</i></p>

<p><i>environments;</i></p> <p>d) <i>better quantified assessment of trade-off between local, national and global benefits, including poverty alleviation and carbon sequestration.</i></p>	
<p>11. Project activities to achieve outcomes (including cost in US\$ or local currency of each activity):</p> <p>a) <i>selection of pilot areas for domains I, II, and III (see point 9) and further characterization of historical and on-going land use change (65 k\$, 5%);</i></p> <p>b) <i>especially for domain I, policy dialogues at national level followed by consultation of local communities and interested parties in establishing mutually beneficial arrangements of tree and/or land tenure, as well as community fire control (185 k\$, 15%);</i></p> <p>c) <i>especially for domain II, assessment of market access and impact of trade and marketing policies on incentives for production and investment (250 k\$, 20%);</i></p> <p>d) <i>especially for domain III, demonstration of and on-farm experimentation with a range of farmer preferred options, clarifying the constraints typical of Imperata grasslands and the various solutions for these constraints (310 k\$, 25%); and</i></p> <p>e) <i>for all domains: assess 'environmental benefits' of practically feasible land use options and quantify trade-offs among farmer profitability and environmental benefits (global as well as regional and local ( 375 k \$, 30%); and</i></p> <p>f) <i>coordination with the secretariat of the National Program for Reforestation and Regreening ( 65 k \$, 5%).</i></p>	<p>Indicators:</p> <p>a) <i>well characterized locations and broad inter-institutional teams working on the priority problems of each domain;</i></p> <p>b) <i>policy consultations and community participation to identify workable options; recommendations regarding institutional reform;</i></p> <p>c) <i>identification of market imperfections and policy distortions; predictive models for the effect of road development on land use profitability in Imperata grasslands;</i></p> <p>d) <i>on-farm experimentation with farmer as well as researcher evaluation, development and testing of generic models; analyses of economic profitability and feasibility of adoption and adaptation by smallholders;</i></p> <p>e) <i>data sets of C-sequestration GHG emissions, below and aboveground biodiversity and soil and water functions of a range of land use alternatives for Imperata grasslands;</i></p> <p>f) <i>direct input to on-going government programs in land rehabilitation and environmental protection; integration of research efforts and information exchange across agencies.</i></p>
<p>12. Estimated budget (in US\$ or local currency):</p> <p>PROJECT: GEF                   \$ 750,000</p> <p>                  Co-financing \$ 500,000 (450,000 in kind)</p>	

TOTAL	\$ 1,250,000
13. Information or project proposer:	
14. Information on proposed executing agency (if different from above):	
15. Date of initial submission of project concept:	
<b>Information On Institution Submitting Project Brief</b>	
16. Project identification number:	
17. Implementing Agency contact person:	
18. Project linkage to Implementing Agency program(s):	



# 'Krismon' and 'Kemarau': A Downward Sustainability Spiral in a North Lampung *Translok* Settlement

Preliminary report of research findings (May 1998)

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## 1. Introduction

This report considers the impact of Indonesia's recent monetary crisis ('krismon') on farm livelihoods in a North Lampung local transmigration area where livelihoods are uncertain, and where farmers are extremely vulnerable to external shocks and stresses. In this environmentally critical area of North Lampung, the effects of the economic downturn have been compounded by an extended dry season ('kemarau') which has brought significant hardship to farm families. In addition, a number of locally-specific factors have served to deepen the crisis faced by farmers, particularly as they seek to augment uncertain farm incomes with off-farm income sources. The paper compares the results of a livelihood survey conducted in 1994/95 with data collected from the same sample of farm households in April 1998, to review the particular difficulties experienced by farmers in recent months. In addition, some of the strategies adopted by farmers to circumvent or overcome these difficulties are considered. The paper concludes by examining factors which appear to strengthen farmers' position in the face of shocks such as the long dry season and Indonesia's monetary crisis, and points to ways in which these livelihood-strengthening factors might be supported by policy makers.

### 1.1 Research Location

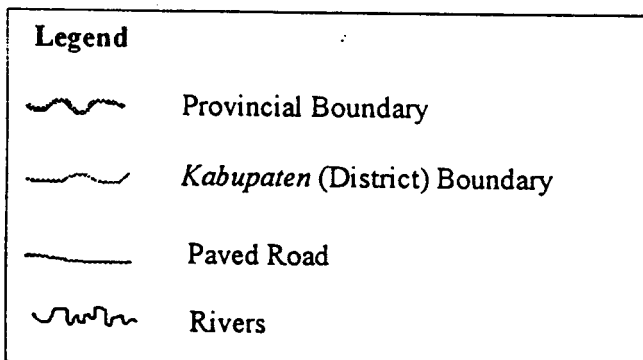
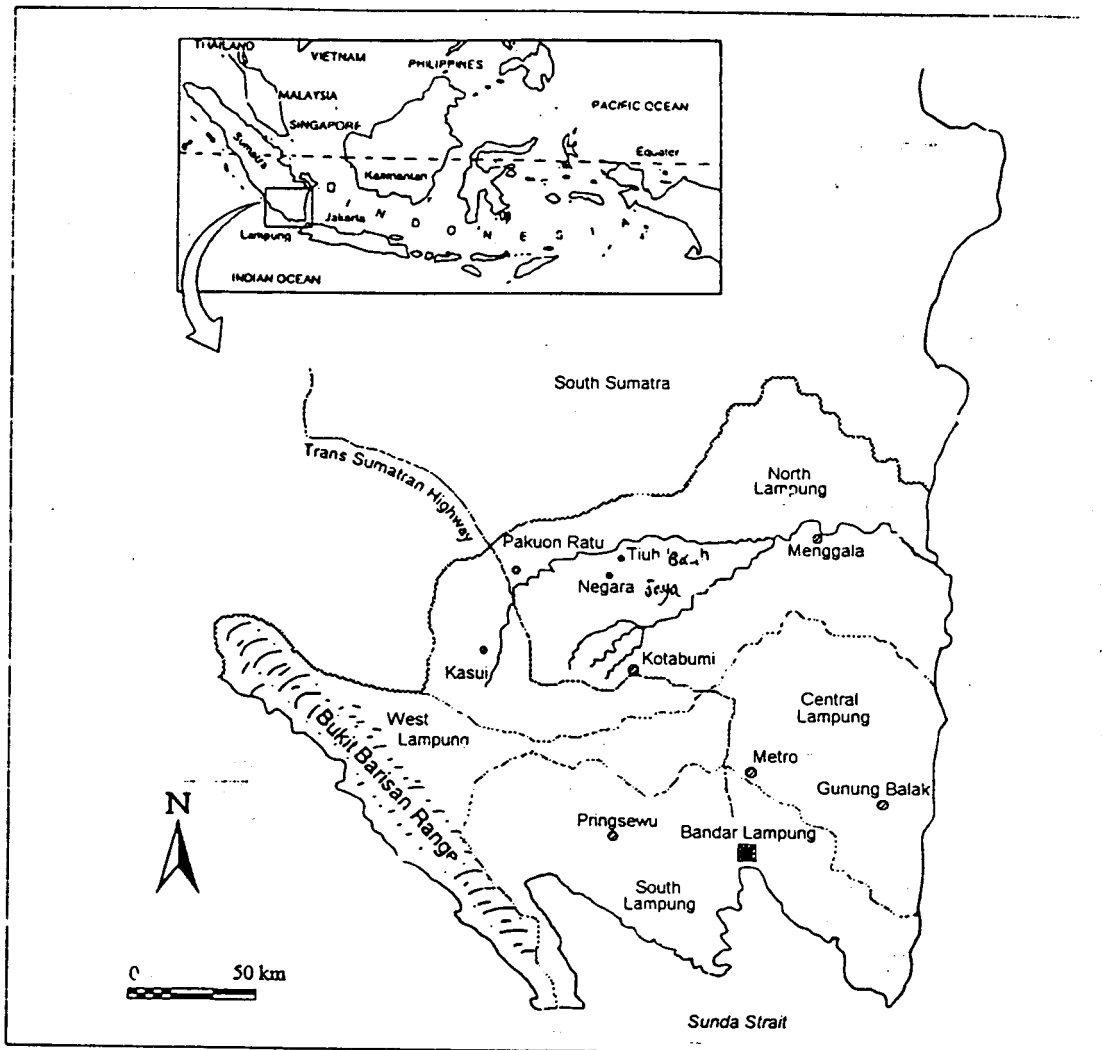
Research for this study was conducted in the kecamatan of Pakuon Ratu, North Lampung. The kecamatan has been the destination of transmigrants relocated from forest reserves and crowded agricultural areas in Central and South Lampung since the early 1980s under the *Transmigrasi Lokal (Translok)* programme. While the population of Pakuon Ratu rose dramatically over the 1980s to a peak of 80,580 in 1995, this growth appears to be being replaced by a net out-migration. The most recently published population figures indicate a population of 77,988 (1996).<sup>2</sup> Pakuon Ratu is the poorest kecamatan in Lampung province, with 39 of its 41 villages classified as poor (*desa miskin*) and therefore eligible for government support through the Inpres Desa Tertinggal programme.

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<sup>1</sup>Research was funded by the British Economic and Social Research Council. The authors express their gratitude to the people of Negara Jaya for taking part in this research, to staff at the Universitas Brawijaya-ICRAF-Wye College field station, Karta, North Lampung for their support and assistance during field work and to staff at Universitas Lampung, particularly Professor Muhajir Utomo, Ari Darmastuti and Ikram.

<sup>2</sup>All data cited here is drawn from *Lampung Utara Dalam Angka 1996*, Kantor Statistik, Kotabumi, Lampung Utara.

Figure 1.1 Research Location



Sources: based on Pain (1989) and *Lampung in Figures* (1993), Provincial Statistics Office

This study is based on data from a sample of households from Negara Jaya (SP1), a *Translok* settlement established in 1982 as home to local transmigrants moved from protected forest areas in South Lampung (Sendang Baru) and Central Lampung (Gunung Balak). The settlement area is characterised by poor soils prone to invasion of *Imperata cylindrica*. Poor soils, coupled with pest invasions, frequent drought and high daytime temperatures, make the area inhospitable for many food crops. Food crops are largely grown in home gardens and some marshy areas have been converted to sawah tadah hujan. In the early 1990s, the majority of farmers were contracted by the nearby Bunga Mayang Sugar Plantation to grow smallholder sugar cane: at its peak in 1996, around 400 hectares of transmigrant land was under sugar cane.<sup>3</sup> The population of the village is 4,276, comprising some 916 households of both sponsored and spontaneous (*swakarsa*) migrants. While the majority are nominally own-account farmers, most rely on income from wage work on the sugar plantation and in a nearby concession forest plantation (HTI). Village employment data indicates 54% of households consider themselves farmers (*petani*), while 34% consider themselves labourers (*buruh tani*). The remaining 12% include government employees (teachers) and traders. Until two months ago, many people were involved in logging, selling timber to a sawmill located in the village and belonging to a prominent Lampungese businessman.

### 1.2 Research methods

The study is based on data from two field work periods, the first conducted over nine months in 1994 to 1995. During this first field work period, a series of rapid rural appraisals were undertaken, coupled with a livelihood survey with a random sample of 30 farm households, and in-depth interviews with men and women from this same sample.<sup>4</sup> A second round of field work was undertaken for a much shorter period from March to April in 1998. A similar livelihood survey was undertaken with the same sample of farm households, with additional questions framed to probe particular difficulties faced by farmers in recent months. In cases where particular farm households were no longer resident in Negara Jaya, information on their whereabouts and their reasons for leaving were sought from the neighbourhood head (Ketua RW) and from family or friends. This livelihood survey was augmented by in-depth interviews with male and female key informants, including farmers, traders and government workers in the village. Questions in the survey and with key informants included information on land use, sources and levels of income, and changes in expenditure patterns over the last couple of years. More qualitative assessments of welfare were made by observation and by comparing welfare observations made in 1994 with those made in 1998.

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<sup>3</sup>Figures from *Monografi Desa Negara Jaya*. These figures should be treated with some caution, but provide a broad indicator of the extent of sugar cane cultivation on transmigrant land.

<sup>4</sup>Results of this study are discussed in Elmhirst (1995, 1997).

## **2. Livelihood Crises in Negara Jaya**

A number of factors have contributed to the livelihood crisis being experienced by farmers in Negara Jaya. The effects of a particularly long dry season have been compounded by Indonesia's recent monetary crisis. In addition, a series of locally-specific factors, linked in part to the effects of and responses to both the monetary crisis and the long dry season, have served to increase the vulnerability of farmers to the specific impacts of both of these wider problems. It is difficult to separate these interlinked difficulties at the level of farmer experience, as what appear to be causes in one instance are also effects. However, for the purposes of this report, crisis factors have been separated out according to scale (country, region and locality), in order to explore the ways in which each is being experienced and responded to by farm families in the transmigration settlement of Negara Jaya.

### **2.1 Country-specific factors: monetary crisis**

Indonesia's monetary crisis is having a profound effect on livelihoods in Negara Jaya in a number of specific ways. First, within the agricultural sector, the rapid increase in relative prices for fertilizer and herbicides has left many farmers unable to purchase inputs for this season's rice planting. Particularly hard-hit have been the area's wet rice farmers (those owning sawah tadah hujan), of whom more than 40 per cent have been unable to purchase inputs this season. Crops have thus been particularly vulnerable to pest invasions, and many farmers report either having<sup>1</sup> no harvest or a seriously depleted harvest. As this group (52 per cent of the sample) are the only group who are able to partly meet subsistence food needs from agriculture (producing sufficient rice for 4-6 months of the year), this has led to a serious decline in local food production. At the time of research land owning farmers were harvesting rice and food was not in short supply, but it is apparent that the next few months will be a challenge, particularly as any fertilizer saved from the previous year will have been used up, and animal manure is not in sufficient supply to meet farmers' needs.

Farmers also report leaving dry land fallow this year, and while this is partly explained by problems with the small holder sugar scheme (see below), it is also due to the expense of inputs needed to keep invasive grasses and pests at bay. Three farmers in the sample have resorted to opening bush by slash-and-burn as it is cheaper (in terms of capital and labour inputs) than working *Imperata*-infested ladang. More than ever before, food cultivation is confined to home gardens where crops can be guarded from pests and thieves.

Secondly, the monetary crisis is felt most keenly through significant price rises for household goods that cannot be produced by farmers themselves. Prices for cooking oil, lamp oil, soap and milk powder rose dramatically in January 1998 as the value of the rupiah plummeted. While the table below indicates that these prices have stabilised somewhat in recent weeks, they are still considerably higher than prices prior to the monetary crisis, and remain high relative to the prices being obtained for agricultural commodities such as rice (which declined to Rp 850/kg during the April harvest season) and relative to the daily wage for work at the sugar plantation.<sup>5</sup> Rice-producing farmers are reluctant to sell rice to buy other household necessities while the price for milled rice is so low, and while there are still many uncertainties about the economy locally. People prefer to keep the rice they produce as 'stock': an insurance for the months that come. Instead, they forego buying 'essentials' such as soap, and minimise consumption of other products such as cooking oil and lamp oil.

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<sup>5</sup>It should be noted that these prices precede the rise in fuel and electricity prices on 5th May, which are likely to have a knock-on effect on these prices, particularly as fuel increases are predicted to contribute 6 to 12 per cent of inflation in 1998 (*Jakarta Post*, 5 May 1998:1).

Women report considerable difficulties in allocating expenditure between necessities, with difficult decisions having to be made by all families. However, households are reluctant to withdraw children from school, and would rather sell goats and chickens to raise the money necessary (in several cases, farmers have sold land in order to pay for school fees, particularly at SMA level). Ten per cent of the sample report having withdrawn a child from school because they are unable to pay and are afraid to borrow any more money. One important impact which is likely to have longer term consequences concerns the rise in the price of birth control relative to farm incomes, as people end their participation in the KB scheme in order to buy food for their families.

*Table 1 Locally-reported prices for selected household necessities during the monetary crisis*

Prices as reported in Negara Jaya			
Product	Before Krismon	Start of Krismon (Jan)	April 1998
cooking oil	Rp 1,600/kg	Rp 4,500/kg	Rp 3,500/kg
sugar	Rp 1,500/kg	Rp 1,800/kg	Rp 2,200/kg
coffee <sup>6</sup>	Rp 8,000/kg	Rp 12,000/kg	Rp 16,000/kg
milled rice	Rp 900/kg	Rp 1,700/kg	Rp 850/kg <sup>7</sup>
lamp oil	Rp 400/litr	Rp 450-2,000/litr	Rp 450/litr
wheat	Rp 800/kg	Rp 1,200/kg	Rp 1,500/kg
soap (packet)	Rp 500	Rp 1,250	Rp 1,250
milk powder	Rp 2,000/tin	Rp 6,000/tin	
birth control (injection)	Rp 5,000	Rp 10,000	
birth control (pill)	Rp 1,000/pack	Rp 3,000/pack	
<i>daily wage at plantation</i>	<i>Rp 3,000</i>	<i>Rp 3,000</i>	<i>Rp 3,000</i>

Source: field surveys in Negara Jaya, April 1998

Finally, the impact of monetary crisis is also felt through changes in the availability of off farm work in Negara Jaya. Although very few households have people working in Jakarta factories who might be vulnerable to unemployment (unlike the neighbouring Lampungese village of Tiuh Baru), local off-farm activities have also been brought under pressure. In 1994, nearly all landless households (24% of sample) were dependent on income earned from logging activities. Young men rented trucks and chain saws from the village head and a Lampungese businessman, cut timber locally and sold what they had obtained to a saw mill located in Negara Jaya and run by the Lampungese businessman. While these activities were clearly illegal and brought considerable pressure to bear on the local environment (in terms of biodiversity loss and fire risk), they nevertheless were an important livelihood source for many people (including those with land). In February this year, the saw mill closed (see below), in part due to the monetary crisis and slump in demand for timber for the construction industry, ending one important off-farm income possibility. The effects of this are only beginning to be felt, and there appears to be a link

<sup>6</sup>Coffee price increases relate to season rather than to the monetary crisis per se, but also have an impact on household expenditure patterns.

<sup>7</sup>Price as rice harvest commences.

between the end of logging and people moving away from Negara Jaya on a permanent basis (see below).

Thus, while some commentators have suggested that rural areas are cushioned from the effects of the monetary crisis as people are able to grow food, circumstances in Negara Jaya suggest this is not necessarily the case. Here, poor soil fertility, pest invasions and drought mean returns from land are uncertain in the extreme, and people are reluctant to attempt to grow food crops on land other than home gardens. Instead, all households are dependent to a greater or lesser degree on income obtained away from their own farms, and for many this includes sectors which have been affected by the monetary crisis (such as illegal logging as demand for timber has slumped). As prices for household essentials have risen, households face an income deficit, and are having to make difficult decisions (such as selling land, removing children from school) just in order to find the money to buy food.

### *2.2 Region-specific factors: an exceptionally long dry season*

If the monetary crisis has generated problems for farmers in purchasing agricultural inputs and in obtaining household essentials as prices have risen relative to crop prices, this has come just as farmers were attempting to overcome the difficulties brought by an exceptionally long dry season in North Lampung. Agriculture and general household provisioning have been brought under critical pressure in the last 12 months, with nearly all households (exceptions being a couple of wealthier households not dependent on agriculture or plantation labour) reporting an income decline of 50%, from an average Rp 216,000 per month to Rp 100,000 for a family of six.

First, late and uncertain rains meant that planting was hindered with the result that only one crop of sawah tadah hujan was harvested that year. Many farmers lost entire fields of food crops, including rice, maize and palawija. Drought and pests were particular problems, including walang, lembing, ulat (caterpillar), belalang (locusts) and rats. Swarms of locusts continue to prey on sugar cane and food crops, with particularly dramatic effects on maize, for example. Those able to maintain planting in their home gardens did so through the use of animal manure (the increase in the number of cattle in the village over the last four years through the IDT programme appears to have been one factor mitigating the effects of both the long dry season and the monetary crisis). For several months it was not possible to plant or harvest food, and people were dependent on the good will of shop owners to lend them money to buy daily food. Of the sample, 60% reported having **no harvest at all** from their dry land last year because of drought, pests and fire. Drought (in conjunction with organisational problems and vandalism) also affected the sugar cane harvest, with the result that few farmers were able to repay their borrowings to the plantation (see section below). Most farmers reported a negative income from their participation in the small holder sugar scheme.

Second, fire was a critical problem in the area, with an impact on food and perennial cropping. Several farmers lost entire crops, and some people lost their homes also. There are a number of factors which led to the increase in the number of fires in the area, quite apart from the drought. Conflicts over the small holder sugar scheme meant arson was commonplace, according to a number of farmers. The cumulative effect of drought and fire meant that all but two of the sample households reported not having enough to eat over the past several months. Observations suggest many people are noticeably thinner than four years ago, having spent a season eating oyek (cassava and rice mixture), and many have resorted to selling capital items (livestock, household goods, land). In addition, pressure on the farming system meant even more people became dependent on off farm work to augment their incomes. During the dry season (after the sugar cane harvest) there was no available work at the sugar cane plantation and people were forced to find alternative income sources. Logging activities were stepped up at this time, according to

respondents. As a later section suggests, it was also at this time that many people began seeking off farm work in distant locations: Jakarta, South Sumatra and other Lampung transmigration areas such as Mesuji.

Finally, the long dry season brought considerable suffering as all wells dried up. The only available source of water in the village was from electric pump wells belonging to the village head and to the Lampungese businessman. While at first people bought water, later this was provided for free. However, obtaining water meant queuing for up to ten hours a day. This meant one less wage earner for households, as people (usually men) stood in line to obtain water to meet daily needs while their wives and children went to work in the sugar cane harvest at Bunga Mayang plantation.

### *2.3 Locally-specific factors: small holder sugar cane and illegal logging*

The cumulative effects of the long dry season and the monetary crisis have both caused and been compounded by a number of locally-specific problems associated with farm livelihoods: namely, those associated with the small holder sugar cane scheme (*tebu rakyat*) administered by Bunga Mayang, and with 'illegal' logging activities in the Negara Jaya area, supported by the village head and a local businessman.

#### *Tebu rakyat*

The small holder sugar cane scheme began in the early 1990s, and was seen by many farmers as an opportunity to obtain credit enabling them to bring uncultivated ladang into use. If the system works as scheduled, it involves the preparation of land by contractors employed by the factory in August, followed by the planting out of sugar by family labour and fertilizer application. In February a second round of fertilizer is applied, and cattle-drawn ploughs used to plough between the rows and close the soil over the seeds. In April, old leaves are pruned off and discarded. In June, harvest begins on sugar planted the previous year, using labour from the household's particular farmer group. Members of this group take it in turns to have their fields harvested, pay for trucks to take their crops to the factory, and receive income as a group, which is divided among them having been set against the level of credit they have used (for land clearance, planting materials, inputs, labour and transport). In the early years of the scheme, yields varied dramatically, from 15 tons per hectare, to 70 tons per hectare, and as a result, few farmers were able to pay back their credit. However, more recently, even more serious problems have beset farmers, with the result that few wish to continue with this cropping system.

While in 1994 around 68 per cent of the survey sample had joined the scheme, in 1998 not one farmer in the sample had a sugar crop planted in their ladang. While some of the problems associated with the small holder sugar scheme in recent years can be attributed to difficulties with soil fertility management in a critical area, biophysical constraints associated with the long dry season and fluctuating prices, for the most part the scheme has failed because of a catalogue of mismanagement, corruption, and 'free rider' problems associated with attempts to create cultivator groups (*kelompok tani*).

In terms of management problems, nearly all farmers growing sugar cane reported that the delivery of fertilizer came too late in the season for it to be effective in ensuring a successful harvest. A breakdown in the system of fertilizer distribution from the factory via a local KUD was widely cited as a cause of this problem. For those farmers who were able to harvest their sugar crop, further difficulties emerged. Once sugar is cut, it is important that it is transported quickly to the factory: the longer the crop lies in the field, the lower its value. All farmers reported extreme difficulties in getting the transport contractors to collect their harvested crop.

Trucks arrived late in the day, and drivers demanded extra money to transport the crop to the factory which farmers were unable to pay.

The creation of farmer groups also caused problems as the income individual farmers received for their crop depended heavily on the relative success of fellow group members. Those with good harvests had to use their profit to repay the credit owed by the group as a whole. Problems arose with 'free riders': individuals within groups who were not diligent in the management of their sugar crop, and who sold their fertilizer allocation to buy food and other household necessities rather than applying it to their land. Ultimately, successful farmers paid for the mistakes of fellow group members with the result that even those with a good crop of sugar cane had nothing left over after the group's credit had been paid off. Conflicts within farmer groups frequently erupted, and there is a suspicion that many of the fires that destroyed peoples' sugar crops were started deliberately by disgruntled group members. Problems were exacerbated in one case where the head of the farmers' group, who had been entrusted with the sugar crop earnings of the group, ran away with the group's money.

For those able to harvest their sugar crop, actual earnings from sugar cane amounted to little more than Rp 100,000 for a year after credit and transport costs had been repaid to the factory. However, of those who planted sugar, 60 per cent had no harvest whatever. In these cases, farmers have experienced a net loss as they have been left with credit repayments. Indeed, a new word has entered the lexicon of Negara Jaya farmers: *bangkrut*. In addition, the difficulties associated with the sugar cane programme have led to breakdowns in community and considerable conflict. Much of the land lying fallow in Negara Jaya is former sugar cane land, which has been cut down and for which farmers are waiting, either to receive seed for the new planting season from Bunga Mayang, or for clarity over their credit status. Few farmers are willing to continue with the small holder sugar scheme, and given the difficulties in growing food crops in Negara Jaya, they are interested in switching to growing oil palm for PT Bumi Waras, although there are still many uncertainties surrounding that scheme.

### *Illegal logging*

Illegal logging has long been a mainstay of off farm livelihoods in Negara Jaya. An analysis of case study sample household livelihoods in 1994-95 suggested that most second generation *Translok* households, and much of the spontaneous migration into the area, were supported by participation in this activity. It is notable that most of those moving away from Negara Jaya in recent months were those household heavily dependent on logging incomes (see below). Farmer participation in illegal logging involved renting trucks and chain saws from the village head and a local businessman, and making night-time forays to nearby forest areas to find any remaining stands of timber. The timber was then sold to the sawmill in the village (owned by a Lampungese businessman), with a deduction made for equipment rental. Those taking part were able to earn around Rp 300,000 per month.

Last year's long dry season brought particular pressure on illegal logging as income alternatives in Negara Jaya were few and far between. Difficulties in attaining sustainable livelihoods were addressed by participation in an environmentally unsustainable practice. As peoples' crops failed, and during the latter months of the dry season when there was no work at the sugar plantation, more and more people resorted to this activity to make ends meet. As remaining timber sources dwindled, logging became an increasingly risky business for those men taking part. Then in February of this year, the saw mill in the village closed down, ostensibly because there was no more timber in Pakuon Ratu, and also because of the monetary crisis, which has brought a downturn in demand for timber from the construction industry. The saw mill owner has



reportedly moved his operation to another location, although one of his homes and part of his family remain in Negara Jaya.

The implications of the saw mill closure for people are particularly visible in those parts of the transmigration settlement with a high proportion of land-poor second generation or spontaneous migrants. Those who have been able to remain in Negara Jaya are those that continue to be linked in with their parents' household economy, or who have been able to grow food in their home gardens. But an effective cut in income of Rp 300,000 per month is likely to have serious longer-term consequences, in the absence of realistic alternatives. Others have moved away, as the section below outlines.

In sum, considerable livelihood pressures are being experienced in Negara Jaya in the wake of the long dry season and as the implications of the monetary crisis are felt at a local level. Farmers in Negara Jaya have had to cope with food crop failure on a grand scale, with food crops confined to home gardens. Cash cropping has also been disastrous for farmers, particularly those who bought into the small holder sugar scheme, where most participants have had no harvest and have been left with large sums of unpaid credit. Alternative, off-farm income sources are also under pressure, particularly logging, and the only other source locally is work at the sugar plantation, where daily wages are low: just Rp 3,000. At the same time as farmers have had to cope with dwindling farm incomes, prices for non-local household goods have increased dramatically, squeezing small household budgets even further. In the next section, the kinds of strategies being adopted by farmers in the face of these pressures are examined.

### **3. Livelihood strategies in Negara Jaya**

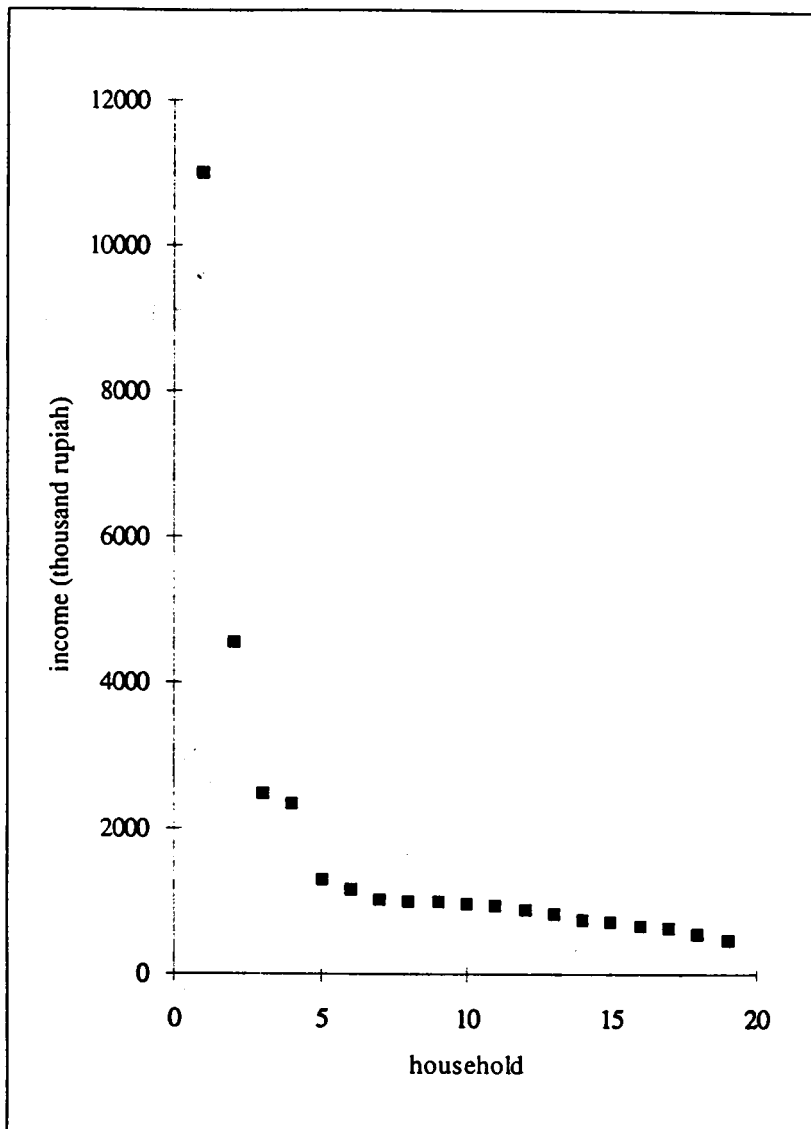
In the literature on livelihood strategies in low-income communities, it is common to draw a distinction between accumulation, consolidation and survival strategies (White 1991). Accumulation strategies include those practices whereby farmers are able to invest in future capital accumulation, perhaps by the purchase of a threshing machine, a truck and so on, including the education of children (with future returns in mind). Consolidation strategies include investments made to maintain livelihood stability, for example, through the purchase of agricultural inputs, and strategies to diversify income sources, while survival strategies include practices directed towards meeting daily food needs (daily wage work, subsistence agriculture). The same practices, e.g. off farm work, may form part of any one of these types of strategy. Other commentators have suggested there are problems associated with inferring that completed actions are underpinned by 'strategies' (e.g. Wolf 1992). Richards prefers to consider livelihood strategies as completed actions, contingent responses to a series of unfolding events across a season (Richards 1989).

In Negara Jaya, the actions of farmers over the last 12 months or so are indicative of 'contingent responses' to the unfolding events associated with the dry season, with the monetary crisis, and with local difficulties such as the small holder sugar scheme. However, underlying each of these responses is a desire by farmers to achieve food security, to meet basic needs in an extremely critical situation. With only a couple of exceptions, farmers in Negara Jaya might be said to be engaging in 'survival strategies', with little regard at this moment in time for consolidation, let alone accumulation.

Figure 2 is a graphic representation of estimated farm incomes in Negara Jaya in the last 12 months for the 19 remaining households of the original 1994/95 sample of 30. As the diagram indicates, there is a wide gap between the highest income earners, and those at the bottom, earning less than Rp 1 million per annum. A number of factors appear to have conditioned relative wealth in Negara Jaya over the past year. First, several among the highest income earners

own relatively large plots of sawah, and for the top income earner, this land is share cropped out to other people. Those at the bottom own less land, and in particular, less sawah.

**Figure 2** *Estimated annual farm incomes in Negara Jaya*



*Source:* field surveys March to April 1998

However, the relationship between land ownership and income is ambiguous, as the top earners include government employees who own relatively small plots, and who do not own sawah. Several households earning around Rp 1 million do not own any land at all, but report relatively high earnings from full time plantation work. Higher earnings relate to the number of working adults able to participate in plantation work. Significantly, none of this group has been part of the small holder sugar scheme, whereas nearly all of those earning less than Rp 1 million per year had given over land to tebu rakyat. Investment in small holder sugar has done nothing to raise incomes in the area.

The poorest of the poor, earning between Rp 465,000 and Rp 700,000 per annum, either had no land, were share croppers or were farmers whose crops had failed this year. Among this group of farmers were those who were relatively elderly, those in households with perhaps only one income earner, and those whose land was particularly prone to crop failure.

*Table 2 Changing family fortunes from 1994 to 1998 in Negara Jaya*

Family	1994	1998
<i>Hadipawiro</i>	<p>Pak Hadiparwiro (50) and his wife Syamsiah (40) came to Negara Jaya as transmigrants. Have two sons still at school, other children have married and moved to a nearby translok settlement. In 1994 they owned 2.5 ha, of which 1 ha was under small holder sugar, 0.25 ha sawah and 0.25 ha home garden. The remaining land is uncleared. In addition, they own two cows. They report being able to meet subsistence needs from agriculture, and to sell surplus at the market in the village. No off farm work. House contents include a TV and radio. The family is poor, but with a relatively stable income.</p>	<p>The family has not sold any land, and continues to cultivate 0.25 ha sawah. Their uncleared land remains fallow. The biggest change for them is the termination of their participation in small holder sugar scheme, after clearing their credit. While they were able to harvest, they have decided to invest in 1 ha oil palm instead, using money earned from sugar cane. Although the monetary crisis has meant their income is under pressure, they have not been forced to sell major items. Their biggest concern is raising the money to buy fertilizer. Sawah appears to have enabled their income to remain stable, and none of the family work on the plantation.</p>
<i>Toha</i>	<p>Pak Toha (30) lives with his widowed mother Komah (50) and brother Ujang (20). They are transmigrants. By 1994 they had sold all but 0.75ha of their original 2 ha allocation. Of this, 0.25 ha is home garden, 0.25 hectare under sugar cane and 0.25 ha is uncleared. Most of the household income is from logging. The family is extremely poor, with estimated earnings (for all three) less than Rp 100,000 per month.</p>	<p>Pak Toha's family were unable to overcome their problems. Difficulties with the small holder sugar cane (i.e. no harvest, large amount of credit left to repay) and the termination of logging cut off all income. The family sold its land and house, and now squats in the plantation barracks near Tulang Bawang, surviving by working as plantation labourers.</p>

<i>Sujarno</i>	<p>Pak Sujarno (35) and his wife Warsini (30) have three children, all at school (one in Kotabumi). The family are transmigrants. They own 4 hectares, 2 of which they bought recently. 3 hectares are under sugar cane, 0.25 sawah, 0.25 home garden, 0.5 hecare food crops. Both work at the plantation during sugar harvest to augment their income. Bu Warsini also makes money sewing. A TV, radio and quality furniture indicate their relative success, despite their reported difficulties in growing food crops.</p>	<p>The family was badly hit by problems with the small holder sugar, with the result that they have sold all but 2 ha of their land. Now they cultivate their home garden, the rest is fallow. They have sold nearly all the contents of their house (including TV, sewing machine, tables) to keep their children in school. Warsini works everyday at the plantation. Household food is from the home garden or else it is bought with money earned at the plantation.</p>
<i>Agus Riyanto</i>	<p>Agus Riyanto (25) and his wife Sumarni (20) are spontaneous migrants who bought land in a newly opened part of Negara Jaya. They own 1 ha of ladang on which they grow maize and cassava, and 0.25 ha of home garden. Most of their income is from logging (Rp 300,000 per month). The house is very simple and they have few possessions.</p>	<p>The end of logging and problems in food cropping has meant the family has been forced to find alternative income sources. Off farm income now includes making charcoal (a spin-off from logging) and the renting out of services as a ploughman (with cow). They have benefitted from the pooling of sources with their parents (the cow belongs to Agus's father). Few possessions indicates the family has not been able to save, and Sumarni reports having to work at the plantation to buy household goods since 'krismon'.</p>
<i>Boimin</i>	<p>Pak Boimin (30) and his wife Nemi (20) have two children aged 5 and 3, and share their house with a lodger. Both are second generation (their parents live in Negara Jaya). They own no land, having built their house on her family's home garden. All income is from logging, and amounts to about Rp 130,000 per month. The house is very simple, and there are few possessions.</p>	<p>Pak Boimin and his wife have sold their house and moved to Java, leaving their children with her parents in Negara Jaya. Boimin has gone to work his grandmother's sawah plot in East Java, while Nemi has found work as a domestic servant in Jakarta.</p>

*Source:* field surveys 1994/95 and 1998

The clearest relationship between household variables and relative income is between those who have children or other household members working outside the settlement and sending money home. Three of the four households reporting incomes above Rp 2 million have children working in relatively well-paid jobs outside the area (in Malaysia, Jakarta and in Tanjung Karang). One highly marginal landless household, which at first sight appeared dependent on a daily wage of Rp 2,000, was supported by money sent by adult children engaged in factory work in Jakarta, bringing the total income to Rp 720,000 per annum. However, only four of the 19 households had a household member working away at the time of the research, and it should be stressed that none of the households had felt the impact of monetary crisis-related urban factory unemployment at the time the research was carried out.

Comparing farm incomes in the last 12 months with those obtained by farmers in 1994/95 is beset with difficulties. Partly this is due to the imprecision with which farmers are able to recall their relative incomes, but it also relates to important fluctuations in the value of particular commodities over the course of this period. A richer, albeit less quantitative assessment can be made by examining the experiences of particular farm households over this four year period. The table below outlines the circumstances of five particular farm families, selected to broadly represent the different experiences encountered in Negara Jaya.

Although there is differentiation within Negara Jaya in terms of land ownership and household income, for the most part this can be measured in terms of degrees of poverty, rather than degrees of wealth. Owning large amounts of land is no guarantee of wealth. Furthermore, in a setting where agriculture is no guarantee of food security, off farm work plays a major role in risk minimisation for farm families. The following are particular strategies adopted by people in Negara Jaya.

### *3.1 Changes to cropping systems*

Over the past four years, a number of major changes have been witnessed in Negara Jaya agriculture. In 1994, when the initial livelihood survey was conducted, farming revolved around sawah tadah hujan, food crops in home gardens and sugar cane in the dry areas. By 1996, as the sugar cane scheme began to collapse, a number of farmers had switched to growing cassava, as the price was high. Others, with access to credit, had invested in oil palm. In the last year, the change has been even more dramatic. Cassava is no longer grown extensively, and instead most dry fields lie fallow, as farmers are unwilling to risk growing food crops where failure rates are so high. Of the sample, 28% of farmers have left land fallow, and for those who do not own sawah fields, this has meant household livelihoods are entirely dependent on wage labour at the plantation. Only a couple of sample farmers have made the switch to oil palm, and this has been achieved at a considerable cost: selling cattle (a short-term source of income through renting out to plough fields) and withdrawing children from school.

Food crops continue to be grown in home gardens, supported by animal manure which has ensured their success. Farmers continue to rely heavily on sawah tadah hujan, which has an indirect importance for non-land owners in the area who are able to take part in the harvest and earn a share. Others earn an income in this sector by renting out cattle and ploughs to sawah owners. The importance of sawah for food security in the area cannot be overstated. Even though food security is guaranteed for just part of the year for most of the sample, having a 'stock' of rice is regarded as crucial in circumstances where there is such uncertainty over the price of other goods. It appears that perennials are not being replaced by dry land food crops as might be expected in the face of economic uncertainty. Farmers regard the environmental risks to be too high, particularly as they are unable to purchase inputs that might mitigate these environmental

risks. Instead, farm livelihoods are being marked by even greater dependence on off farm work, supported where possible by sawah and by home garden food crops.

### *3.2 Cutting down on household expenditures*

Previous sections have outlined the difficulties farm families face in meeting daily household needs. All but two of the sample households report that they do not have enough to eat, and for many, household budgets do not balance. Women, as managers of household finances, have attempted to cut expenditures in order to meet basic food needs. A number of strategies have been deployed to achieve this. First, many households have turned to forest products to meet daily consumption needs. River fish and gadung (a root which grows extensively in the area, and from which it is possible to make krupuk) were particularly important through the long dry season. Secondly, as often happens during periods of food shortage, families attempt to make their rice go further, by mixing it with cheaper cassava to make oyek, a less nutritious but filling alternative. During the dry season, few people were able to buy vegetables to accompany the oyek.

Thirdly, for daily household necessities not grown by farmers, purchases are made in tiny amounts, and people go without certain goods (such as soap). For larger expenses, such as education of children, many people prefer to sell livestock than to remove their children from school. In addition, credit is available to help parents meet school fees. However, 10 per cent of sample households had been forced to withdraw a child from school (usually SMP). All but the wealthiest households (i.e. a school teacher with daughters working in North Jakarta and a farmer with several children working in Malaysia) have resorted to such measures to curtail household expenditure wherever possible.

### *3.3 Selling goods to meet daily household needs*

Nearly all households have resorted to selling certain items in order to meet payments such as school fees. For the most part, items sold include small livestock such as chickens, goats and ducks: goods which are considered as a 'bank' precisely to meet occasional expenditures. However, in a number of cases (17 per cent of sample), households have been forced to sell land, household goods and larger livestock, both to meet daily needs and to raise the cash needed to pay for necessities such as school fees, household repairs, construction of a well, and so on. Particularly hard hit appear to be those who invested heavily in small holder sugar, who have been left without an income apart from daily work at the plantation.

One farmer who had three hectares under sugar cane, none of which was harvested, resorted to selling 0.25 hectare of sawah and 1.75 hectares of ladang, together with much of his household furniture (including a television) to pay school fees for his children who are being educated outside Negara Jaya. The household has retained its home garden and a hectare of fallow land, and its entire income is from work at the plantation. For the most part, people have sold land which they had acquired since moving to the transmigration settlement (i.e. in addition to that given to them by the government on arrival). However, one family from the sample has been forced to sell its house and all its land (all of which was under small holder sugar cane with no harvest): they now live in the plantation barracks, earning a living as plantation labourers.

### *3.4 Diversifying incomes: off farm work outside the area*

It is notable that the wealthiest households in the sample characteristically have household members working outside the area. In these cases, it is educated sons and daughters who work in factories in Jakarta, and for two of the families, in Malaysia, occasionally sending money back to the transmigration settlement to pay for education of siblings, purchase capital goods and so on. For wealthier households, this practice was in place before the onset of the long dry season and before the monetary crisis, and is regarded by them not as a survival strategy, but as an

accumulation strategy. As yet, the impact of the economic downturn does not appear to have registered with these households.

More commonly in Negara Jaya, off farm work outside the area has become more important as livelihoods have come under pressure through the dry season and through the monetary crisis. Village officials suggest that temporary and permanent migration from Negara Jaya in search of work has increased considerably over the past 12 months. A study of *surat jalan* records for Negara Jaya since March 1997 indicates that 111 people have left to find work.<sup>8</sup> The majority of those leaving are women in the 15 to 30 age group, representing around 14 per cent of that cohort of women in the village. For men, 9 per cent of the 15-30 age group have left to find work. Of those leaving, 90 per cent have gone to Greater Jakarta (Jakarta, Bogor, Tangerang and Bekasi). The remaining 10 per cent, of whom most are men aged from 15 to 30, have moved to rural areas in North and West Lampung.<sup>9</sup> Village records do not indicate whether these are permanent or temporary migrations. However, the vast majority are accounted for by the increase in prevalence of domestic service as a livelihood option for people in Negara Jaya.

Around 21 per cent of sample households have a family member absent. Notable has been a pooling of resources between households of different generations but from the same family across different rural locations, and rural to rural labour circulation. For example, in several cases, younger family members have moved away from Negara Jaya to other transmigration areas, notably in Mesuji (North Lampung), and South Sumatra, but have retained a stake (usually through their parents' land) in Negara Jaya. In this way, they have been able to minimise risk by investing in agriculture in two different locations. Parents and children take it in turns to help out on each others' land, and thus there is considerable circulation between different rural areas. However, retaining a stake in Negara Jaya is regarded as important not because of its agricultural potential, but because of the availability of wage work during the first part of the dry season in the sugar cane harvest.

Circular migration between city and transmigrant settlement is even more widespread (as village records suggest). Yet in 1994, this was very rare, and confined only to those households with sufficient resources to meet travel costs to Java. In addition, most young women were afraid to travel long distances from the village.<sup>10</sup> Since the end of Lebaran this year, that has changed, as scores of women have gone to Jakarta to work as domestic servants. The spur to this temporary migration from Negara Jaya appears to be a combination of factors: difficulties during the long dry season in finding food for the family, a lack of alternative income sources particularly for land poor farmers, and, importantly, the arrival of an agency (*yayasan*) from Pakuon Ratu which arranges transport and domestic service employment in Jakarta for women from transmigration areas in North Lampung. While there is a belief that savings from such work has enabled certain families to buy cattle, buffalo and land, with an average monthly salary of Rp 80,000 this seems unlikely to be the case. Rather, the importance of domestic service appears to be the removal of a 'consumer' from poor rural households. Men remain in the village, working as labourers at the

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<sup>8</sup>It is likely that these records are incomplete as people may leave without obtaining official permission from the village secretariat.

<sup>9</sup>Locations include Rawa Jitu (North Lampung), Sekincau (West Lampung), Bengkulu, Central Lampung, and to Java (West Java and Yogyakarta).

<sup>10</sup>This is in marked contrast to the nearby Lampungese village of Tiuh Baru, where only four unmarried women remain in the village - the rest having gone to work in Tangerang factories, a phenomenon which began in the early 1990s (see Elmhirst 1997).

plantation, and young children are sent to live with parents, either in Negara Jaya or in Central and South Lampung.

### *3.5 Selling up and moving away*

Of the original sample, 30 per cent of households have sold up and left Negara Jaya. As was mentioned in a previous section, most of these households were landless second generation or spontaneous migrants, who were mainly engaged in off farm work, either at the sugar cane plantation, or, more commonly, in illegal logging activities. Those that moved did not have a family network in Negara Jaya that could support them when logging finished, and without the capital to buy land locally, were forced to leave. Two of the households that left have joined the transmigration programme to Mesuji in North Lampung, while a third has moved to South Sumatra where they have been able to buy land with money saved from earnings in illegal logging. However, the majority have returned to Java, principally to Jakarta to find work either as domestic servants or in construction. It is not clear what their success has been. In another case, one farmer has moved to East Java where his grandmother owns a small plot of sawah. Once logging had finished in Negara Jaya, he moved back to East Java with his young family, leaving his parents to farm in North Lampung. It is notable that only one of those households which has sold up and left in recent months is one of the original government-supported transmigrants. Permanent movement in and out of the transmigration settlement appears to be confined mainly to spontaneous and second generation transmigrants for whom the stakes are low as they do not own land in the settlement.

## **4. Factors which seem to mitigate downward pressure on farm livelihoods**

The combination of a long dry season, the monetary crisis and locally-specific problems associated with particular livelihood activities has exacerbated an already critical livelihood situation in the transmigration settlement of Negara Jaya. Incomes barely reach the province's poverty line, even when under-reporting of farm income is taken into account. However, there are a series of factors which appear to have mitigated the worst of the crisis for farmers.

### *4.1 Owning rain-fed rice fields (sawah tadah hujan)*









As has been pointed out in this report, transmigrant farmers have worked hard to build rain-fed sawah fields in low-lying marshy areas, from which they are usually able to achieve two crops of rice per year. Data from the sample households suggests that the top income quartile is made up of those farmers that own such fields. Sawah owners are able to grow sufficient rice to last the household from 3 to 6 months without having to buy (in two cases, the yield is sufficient to support the household year-round). As the monetary crisis has influenced prices for other household goods in the area, farmers have been keen to hold onto their rice as 'stock' to support them through the economic uncertainties which lie ahead.

Sawah fields appear to have been less vulnerable to the problems caused by the long dry season. Although many farmers report only having obtained one crop rather than two from their sawah, there has at least been a crop (unlike the dry land fields). Careful water management has mitigated the worst of the drought, at least for part of the year. Furthermore, while most farmers have been unable to purchase chemical inputs (fertilizer, herbicide and pesticide) for their sawah, some suggest that it is possible to get a harvest (albeit lower) without chemical inputs, providing a pest-resistant variety is chosen, and providing the rice stalks are mulched, post-harvest.

Finally, it is notable that of the sample, since 1994 a number of people have converted wetland bush into sawah, despite, or perhaps because of, their critical livelihood situation. Sawah is the one on-farm activity that people prioritise over and above going to work for daily wages at the sugar cane plantation.



**Legend**

-  Main roads
-  Secondary roads
-  Main rivers
-  Lakes
-  Lampung Province boundary
-  Protection & conservation forest zone
-  Krui KDTI
-  Research sites

**Lampung  
field visit  
June 1998**



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