

# **H O W FARMERS C O P E**

**Case Studies of  
Decision-making in  
Six Farm Households  
in South of Malang,  
East Java**

*Solichin Abdul Wahab*

## Stellingen

1. Given the availability of assets of households are very limited (land, equipment, and capital), and the constraints imposed by the environment (climatic and market price) the farmers did not select the alternative that could give the highest income but the alternative that satisfied their needs with the least possible risks (This thesis).
2. When it comes to major decisions related for instance to cropping strategies farm households living at subsistence level or even below it and which have to farm under difficult (risk prone) conditions there is extremely little room for pre-attentive decision making (This thesis).
3. Taking into account the social importance of "*slametans*" (religious thanksgiving meals) it is impossible for farmers not to perform them at specific occasions, even when it can disrupt the economy of the household or the development of the farm. The alternative comes close to ostracism from the community (This thesis).
4. In the whole limestone area of south Malang, where cassava and maize are cultivated as subsistence crops, men are mainly responsible for preparing the land and clearing the plots but the women decide which variety to plant, as well as where and when to plant it (This thesis).
5. Whatever governmental programmes will be designed and implemented for the limestone area of south Malang, or however rational, systematic and innovative the farmers and their wives are making decisions, agriculture development is only possible when the numbers of farmers is reduced either via diversification or via out migration (This thesis).
6. It is important for scientists to understand that farmers assess risks in a different way from them. These differences are rooted in contrasting world views, interpretations of causalities and experiences of economic security. (Van Dusseldorp and Louk Box. Local and scientific knowledge: developing a dialogue. Cultivating Knowledge: Genetic diversity, farmers experimentation and crop research. Walter de Boef et.al. Intermediate Technology Publications, 1993:p.23).
7. There is not a single society in which uniform criteria for all risk types have been established (Renn, Otwin. Concepts of Risk: A Classification. Sheldon Krimsky and Dominic Golding (eds). Social Theories of Risk, Praeger, 1992:p.54).
8. People have a tendency to reify their knowledge, that is, they tend to believe that what they know is reality (Rohling. Extension Science. Cambridge University Press, 1988:p.184).
9. Important knowledge of the world is knowledge of how the consciousness and intentions of individuals and groups interpret, mediate, and indeed structure it (Pepper, David. Eco-Socialism: From deep to social justice. Routledge. London. 1993:p.12).
10. Like a text, human action is an open work, the meaning of which is in suspense (Ricoeur, Paul. Hermeneutics and the Human Sciences. Cambridge University Press. 1991:p.208).



## **HOW FARMERS COPE**

**Case Studies of Decision-making in Six Farm Households in South of Malang, East Java**

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## **HOW FARMERS COPE**

### **Case Studies of Decision-making in Six Farm Households in South of Malang, East Java**

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# **1 INTRODUCTION**

## **1.1 Research topic**

The topic of this study is decision-making processes in farm households in the limestone area south of Malang in East Java. The study was conducted as part of an interdisciplinary research training project (INRES) and investigates six farm-households seen against the background of farmers' knowledge systems. The project was the final part of a long-term cooperative effort (> 15 years) between Brawijaya University in Malang Indonesia, Wageningen Agricultural University in the Netherlands and Leiden State University, also in the Netherlands.

The objective of the project was to train staff from UNIBRAW and the Wageningen Agricultural University, and to develop a quantitative farming systems analysis with a focus on development options for small farmers in the limestone area south of Malang (Stroosnijder et al., 1994). The research team comprised seven staff members of the Brawijaya University representing five disciplines and two Dutch scientists supported by their home universities in Wageningen and Leiden. The five major disciplines involved in this project were agronomy, soil science, animal husbandry, agricultural economics, and sociology. The study itself was undertaken by the sociologist of the team. As an integral part of an interdisciplinary research team, the main function of the sociologist was to obtain better insight into the decision-making processes of the farmers and their families, as well as into the rationale underlying their decisions.

## **1.2 Research question**

Decisions in the field of agriculture is the art of making good choices on the basis of the knowledge available. The study of decision-making is relevant since all agricultural activities are the result of decisions made earlier. It is for this reason that the processes of decision-making merits critical analysis.

The study uses a bottom-up analytical approach and focuses on the intellectual locus of the actors who make decisions. As such, it is fully aware of the importance of indigenous knowledge and the way it is generated and used by farmers (van Dusseldorp and L.Box, 1990; Sandoval, 1991; de Boef et al., 1993; DeWalt, 1994). The research investigates poor farmers and their families in the limestone

area south of Malang, East Java. The majority of farmers in this area are relatively poor. Compared to farmers in the lowland rice areas in East Java, who have been studied quite extensively by agricultural and social scientists (Roche, 1984:1b; Cederroth, 1995 ), relatively little is known about farming systems in the limestone area.

This study does not treat the farm and the household as separate units; instead, it focuses on the farm-household, despite the fact that farm improvement has been the main target of the INRES's research. The improvement of farm practices is placed within the context of the objectives, possibilities, preferences, and constraints of the individual farm-household (Norman, 1980; Shaner et al., 1982). The center of any farming system is the decision unit: the members of the households. It is they who determine how the available resources will be used. The farming system is shaped and adapted to its physical and human environment through a process of information which reaches the decision-making unit; therefore, the individual farm-household is considered the single most important, organized, decision-making-unit (Ruthenberg, 1980:3; Shanin, 1990:103) through which any decision-making concerning production (e.g. cropping), resource allocation, the purchase of inputs, marketing, and consumption activities, actually takes place (Ruthenberg, 1980; Blaikie, 1985; Huijsman, 1986; Fresco, 1988).

The central issue of this research is how poor farmers and their families in the limestone area south of Malang arrive at decisions concerning the farm-household and the motives that underlie their decisions. More specifically, its objective is:

1. to obtain reliable data about farmers' decision-making patterns and strategies, based on their actual objectives, goals, local knowledge, and motivation, by documenting these processes in as detailed a way as possible;
2. to understand the current farming system and the rationale underlying them.

At the start of the research it was my intention to present 12 case studies; however, to present all the information that has been gathered from the farmers would make this thesis too voluminous; therefore, I have included only six of the twelve. As mentioned above, a detailed description was the main purpose of the study.

## 2 THEORETICAL CONSIDERATIONS

### 2.1 Introduction

Decision-making is essentially a problem of making choices (Tversky and Kahneman, 1986:123). A considerable amount of literature is available in the field of choice theory, ranging from the so-called normative theory to descriptive theory (Elster, 1986). The green revolution, and to a certain extent farming system research, stimulated research on farmer decision-making in topics such as the adoption of technology (Gladwin, 1979), risk and uncertainty (Cancian, 1972; 1980; Wharton, 1976; Ortiz, 1980; Huijsman, 1986), livestock production (Aluja and McDowell, 1984), time allocation (White, 1984), crop protection (Norton, 1976), cropping systems (Vincent, 1977), land management (Blaikie and Brookfield, 1987), and external factors (Barlett, 1976).

The purpose of this chapter is to elucidate some of the theory used to analyze the problem of decision-making within the context of the farm-household. Following Hetler (1989:73), a farm-household includes both present and temporarily absent members. Because of widespread, seasonal, rural-urban migration the area south of Malang, many household members are temporarily absent. Nevertheless, this research includes these household members as long as the people involved return to a particular household in the area and eat and sleep together.

This chapter does not pretend to provide a comprehensive review of the massive amount of literature about decision-making. Rather, it will focus on issues pertaining to the processes of making decisions at the farm-household level and on some practical problems relating to these processes.

Of the many theories on decision-making, four recently developed ones suitable for my research topic will be described:

- The attentive and pre-attentive decision-making theory
- The theory of decision-making under risk and uncertainty
- The basic linking-loop-model of decision-making
- The theory of real life choice.

## 2.2 Attentive and pre-attentive decision-making

The attentive and pre-attentive theory was developed by two social scientists, Hugh Gladwin and Michael Murtaugh (1980). According to them, decision-making must be placed in a wider psychological perspective if we are to achieve a clear understanding of it. In other words, we should see decision-making as a cognitive process. Both scientists argue that the functions of information, experience, and different pre-suppositions affecting a farmer's decisions can be analyzed. Their underlying argumentation follows the view formerly advocated by Herbert Simon (1957) who asserted that the place to observe decision-making is at the interface between the rationality of the actors (with its limitations) and the complex environments in which they find themselves.

Gladwin and Murtaugh explore further the cognitive process and propose that decision-making can take place in two modes: the attentive mode (conscious) and the pre-attentive (unconscious) mode. This distinction explains some aspects of decisions which people make in the recent past and also suggests how past decisions are integrated or incorporated into behavior and patterns of choice. Striking to this point of view is the idea that decision makers do not necessarily always pay attention to the full complexity of their environment when making decisions. Instead, they make decisions more or less automatically in a routine or pre-attentive fashion. In a broader sense, the term pre-attentive process (borrowed from the psychologist Ulric Neisser (1967)), refers to any processing of information that takes place outside of the decision maker's ordinary attention and awareness.

Gladwin and Murtaugh maintain that a great deal of evidence can be found in everyday life to assert that people continually engage in a pre-attentive, unconscious process of decision-making. They support their hypothesis with observations of farmers in a Mexican village: Apparently the farmers there were able to observe the presence of a small worm that eats the roots of the maize plant, and were also able to observe small, white marks on corn leaves which were the result of recent hail damage. Coupled to the observations of the farmers was their ability to act accordingly without having to consider any potential, alternative courses of action they might take. In short, Gladwin and Murtaugh's theory asserts that the ability of very skilled persons, such as farmers, who handle complex, routine activities is due to pre-attentive or unconscious processing.

Pre-attentive decision-making is based on former, attentive decision-making that has taken place so often that it has been internalized. In short, it has become routine. Farmers with several years experience (i.e. using an extensive body of knowledge) have therefore developed methods for handling problems that occur regularly throughout the agricultural cycle. In other words, they have been able to define potential problems and alternative solutions at each point in the cycle and are not necessarily conscious of the criteria that determine a possible course of action.

A researcher interested in predicting and evaluating a farmer's decisions here has to discover how decisions were made in the past. Careful and intensive interviews in which farmers are asked about why and how decisions were made is one of the methods that can be used to find out about such preliminary decisions.

### **2.3 Decision-making under risk and uncertainty**

The second theory I would like to describe is Huijsman's (1986) decision theory focusing on risk and uncertainty. He used this theory in research conducted in a Philippine village. In this investigation, he assumes that the majority of people tend to behave rationally in most cases, meaning that the patterns they exhibit when faced with choices are subject to rules that can be understood.

Huijsman's theory basically focuses on production decisions, particularly those taking place within the context of the farm-household. In a quantitative way, it tries to measure the influence of risk and uncertainty in the choices made by farm-households. Huijsman argues that these households always face several choices regarding production and consumption. For instance, in the area of agricultural production they must decide what kind of production techniques they are going to use and how they are going to allocate the alternatives available to them in relation to the resources of land, labor, and capital. Household decisions are influenced by household needs and goals, as well as by the resources available to the household and the constraints imposed on it. Household needs determine short-term decision-making targets such as food, cash to purchase other necessary consumer goods, shelter, and health care etc. At the same time, though, goals and aspirations also direct behavior patterns and choices. Who within the household actually makes any given decision is culture-specific and depends on the composition of the household (i.e. life cycle stage of the family), as well as on the personal characteristics of household members.

In this theory, resources include not only physical items such as land and water, but also social resources such as agricultural information, security, and social influence. Furthermore, the environment can impose certain restrictions on the options open to a given farm-household. These restrictions may be of a technical nature (e.g. land, water, pest, and diseases) in the sphere of economic constraints (e.g. crop input and market prices), institutional and infrastructural limitations, or social restrictions (Huijsman, 1986: 19). The ideas Huijsman puts forward are more or less similar to Barlett's, which assert that each farmer usually makes choices within the context of his household. More specifically, the farmer is influenced by the household's needs and goals, as well as by the resources available to the household. According to him, these resources not only include land, water, and labor, etc., but social resources too, such as information about agricultural methods or credit (Barlett, 1980:9).

Huijsman has divided risk in agricultural production into several types (mainly in economic terms): e.g. physical-crop-production-risk, market related risk, net return risk, financial risk, and background risk (e.g. sickness in the family). In assessing a farmer's behavior towards risk and uncertainty, he uses some micro-economic models of decision-making such as the Expected Utility Maximization Analysis, the Safety First Approach, and the Game Theory.

His theory states that uncertainty in farm-household decision-making is created by two factors. The first one relates to environmental factors, which among other things, consist of physical conditions and market prices. Uncertain physical conditions include climatic and biological factors, while market price uncertainty consists of the variability of inputs and of product prices. Such factors cannot be influenced by the individual decision maker. The second factor is the behavior of other decision makers and organizations. Here Huijsman's conception is similar to one put forward by Dillon and Hardaker. They maintain that farmers always face uncertainty and the risks of income variability because they cannot control the climate, the markets in which they sell, and the institutional environment in which they operate (Dillon and Hardaker, 1980). As a result of these uncertainties, farmers have to face certain risks. Huijsman also states that knowledge about a farmer's response to risk is very limited. He asserts that economic studies hardly ever take into account how farmers perceive problems of choice and procedures to solve those problems. In addition to these gaps in our knowledge is a lack of information about how farmers perceive cost production, how they value output, and how they resolve conflicts about financing consumption and investment. Huijsman also argues that farmers actually cannot foresee the consequences of all their actions, nor can they predict the behavior of other farmers, persons, or organizations that can influence the outcome or viability of their activities. Dependency on external production-means such as land, casual labor, cash inputs, or decisions made by other persons (such as the type of crops cultivated by neighboring farmers) may further aggravate uncertainty in their agricultural decision-making.

Given this setting, Huijsman points out that making decisions in such a situation inevitably means simplifying the decision-making process. There are two ways in which farmers can do this: The first is through cautious optimization. This is a major tool which farmers use to gradually improve agricultural productivity and to increase income generated from agricultural activities, while keeping production and financial risks at a manageable level. Second, they may opt for sequential decision-making (economizing) within a number of years, based on the need to adapt to chance constraints and to opportunities as they evolve in the course of a production cycle (Huijsman, 1986:271-275).

## **2.4 The basic linking loop**

The third theory I would like to describe is the basic-linking-loop-model of van Dusseldorp (1994). The model owes its name to what actually happens in the decision-making processes. In the model, the farmer's objectives are confronted with the problems and resources in his situation as elements within the decision-making process. The last phase consists of the activities chosen in order to solve the problems perceived (Van Dusseldorp, 1994:28). This theory can be classified as a rational model of decision-making because it attempts to explain how people try to improve their socio-economic positions in society in a rational way. The basic postulate of the model is that all people have goals and objectives which they want to reach with the least amount of effort and cost. The model is presented in Figure 2.4(1) below:

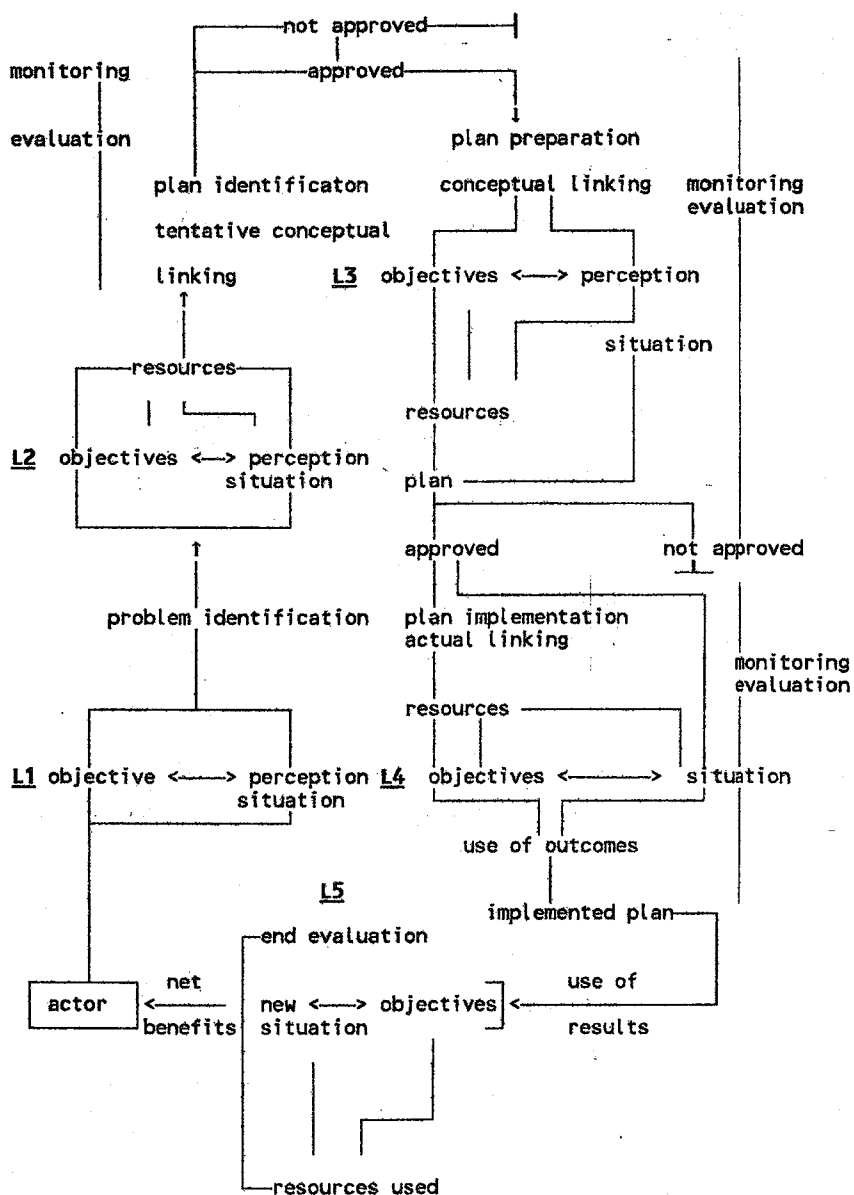
In the basic-linking-loop-model, the behavior of actors making decisions is delineated in five steps. How these steps are operationalized in the model is described in more detail later on. The first step, (L1), indicates how actors (decision makers) compare their objectives to a situation as they perceive it at that moment. Their perception and assessment of the processes that have led to the situation depend on the knowledge available to them. If the actors' perceived situation does not equal their desired situation, they have identified a problem. An actor may have several objectives and can therefore face several problems at the same time.

The second step, (L2), shows how decision makers find out whether a problem can be solved. To do this, they must have insight into the processes that have led to the (undesirable) situation. In finding an adequate solution, they must first explore the resources available to them at that moment. During this process, the actors might draw several conclusions:

- First, they might initially think that they have sufficient resources to solve the problem. After all, part of the resources are under their direct control: e.g. labor or land. Given such a case they can continue with step (L3).
- Second, when they cannot solve the problem with their own resources, they must find other people with the same objectives and additional resources. By combining resources, actors may change a situation (the communal linking loop).
- Third, actors may conclude that their resources are insufficient in order to change the present situation and that they cannot obtain the necessary means. In this case, they have three options. They can decide not to take any action and accept the situation as it is; they can adjust their objectives so that the



Figure 2.4 (1): The Linking Loop Model



Source: Van Dusseldorp and Zijdeveld (1994). Preparation and implementation of development projects in the Third World. Wageningen Agricultural University, The Netherlands.

present situation and desired situation more or less coincide; or they can reassess the situation in such a way that it is close to the desired objective.

The third step, (L3), shows how actors begin to assess how they must allocate their scarce resources and what activities should be performed in order to change the present, undesired situation. After having considered various alternatives, they will choose one pattern of activities. The choice of action they choose and the resources they allocate are both based on tentative cost-benefit analyses. Here, costs and benefits are not limited to monetary issues but also include social costs such as endangering their status or losing parts of their social networks. Benefits are the degree to which they will achieve their objectives. In carrying out their analyses, actors also take into account the potential risks involved. They will stop whatever course of action they have chosen if during its execution they see that its end-result is too risky or is going to end in an unfavorable result. Up until this moment, this process, otherwise known as linking, is only conceptual. This means that this process takes place only in the minds of the persons involved.

The fourth step in the basic-linking-loop-model, (L4), concerns the phase of action. In it, the actor starts to mobilize the available resources. However, it must be made clear here that professional knowledge, skills, and social influence can be used several times during the same activities or in others that follow.

The fifth step, (L5), shows that actors continuously monitor and evaluate the progress and the results of their actions during conceptual linking and actual linking, as well as during the outcome of the plan they have implemented. The outcome of this evaluation (a comparison between the new situation and the original objectives) gives a picture of how far the objectives have been achieved and at what cost. When the evaluation of an activity has a positive outcome, such as the use of fertilizer, the activity can be repeated.

Van Dusseldorp indicates that actors do not (fully) recognize large parts of their linking loops as meaningful actions. They are considered a part of their daily routine. Additionally, the more decision-making is done pre-attentively, the more it becomes a part of practical consciousness. Van Dusseldorp also stresses that the decision-making process as described above might not be so easy to reconstruct because it is an iterative process; therefore, it is difficult for farmers to say which decisions they acted on in a specific situation in the past.

## **2.5 A theory of real life choice**

The theory of real life choice presented here has been proposed by Christina H. Gladwin (1980). Gladwin derives her argument from Tversky's theory on the process of eliminating unfeasible alternatives (1972). Her theory tries to explain how farmers make choices in their daily life by using procedures meant to simplify

matters. She criticizes current, popular theories of agricultural decision-making, particularly those advocated by economists. The conventional assumption of economists has been that decision makers are able to rank all the alternatives available to them by preference. Gladwin rejects such an economic, deterministic approach and argues that people seem to need simple rules of thumb when making everyday decisions. She argues that such theories do not take into account the simplifying procedures that people use in real life in order to render the decision-making process easier (Gladwin, 1980:45).

She argues that farmers in their daily life must maintain consistent and communicable strategies for dealing with a highly complex environment, and that they deal with constraints on their cognitive, information-processing capabilities. The concept of a real life choice, then, implies that decision makers cannot rank all the available alternatives by preference or indifference. She hypothesizes that decision makers treat an alternative as a set of discrete characteristics. An aspect is one attribute, dimension, or feature of an alternative. It can represent values in fixed quantitative or qualitative dimensions (e.g. price, quality, and comfort), or it can be an arbitrary feature of the alternatives that do not fit into any simple structure.

Gladwin outlines the differences between two stages in decision-making. In stage 1, a wide range of options open to decision makers narrows to a few that actors will consider seriously. In stage 2, a final decision is made and elaborated on in detail. Her model of the decision process clearly states that the criteria for making a choice in the first stage of the process involves the elimination of aspects. It is on this point that she concurs with some of the arguments put forward by Tversky (1972). During the first stage, decision makers will eliminate rapidly, often pre-attentively, all the alternatives containing some unwanted aspect. In the event of a decision about whether to plant a certain crop, there are a minimum of six conditions or constraints that a specific crop must satisfy in order to pass stage 1:

1. Demand: The farmer must either have a need to consume the crop himself or be able to sell it at a nearby market or to a trader.
2. Altitude and soils: The crop must have good yields on the farmer's own fields.
3. Water requirements: The farmer must have either irrigation or land moist enough for a crop or a system of crops to grow.
4. Knowledge: The farmer must know enough about cultivating the crop.
5. Time or labor: The farmer must have adequate time or labor (family and/or hired labor) available to plant the crop.
6. Capital or credit: The farmer must have the capital or credit to obtain the necessary inputs (seed, fertilizer, insecticides, and labor) to plant the crop (Gladwin, 1980: 51).

If farmers feel that all the conditions mentioned above can be met for a particular crop, they go on to stage 2. If they think that a given condition is not suitable for the aspects (features) of a crop, then that crop is eliminated. When a viable crop or crop-combination is selected, it will be examined in more detail during the second stage of the decision process.

## **2.6 A discussion of the theories**

All the theories mentioned above can be said to use a behavioral approach to decision-making; they put the farmer at the focal point of the farming system. It can also be said that these theories, particularly those advocated by Gladwin and Murtaugh, van Dusseldorp, are actor-oriented theories (Long et al., 1986). Farmers and their families are determinant and crucial factors in agricultural decision-making. The actor-oriented theory, as Long puts it, assumes that actors are confronted with a series of possible, alternative modes of behavior or courses of action, and that they will select the alternative they think will give them a maximum return or value for their efforts (Long, 1977:128). As such, actor-oriented theories highlight some essential elements in farming systems: e.g. farmers or farm-household strategies.

These theories can also be classified as rational decision-making theories because farmers, having specific goals and objectives in mind, try to improve their socio-economic position. They also represent so-called "real world decisions" because they describe how people actually behave. The four theories also view decision-making as a process and not as a one-time unitary event (Bennett, 1980:205). The question here is, to what extent can these theories successfully illuminate the decision-making processes of these farmers?

As discussed earlier, Gladwin and Murtaugh see decision-making from a socio-psychological point of view and explain that the decision-making process of farmers manifests itself in two ways: pre-attentively and attentively. Most daily, routine decisions are made by farmers usually unconsciously or pre-attentively. Skillful farmers with a lot of experience in farming undoubtedly behave this way. They have a stock of practical knowledge which serves as a kind of cook-book. This knowledge can be used to solve their everyday problems efficiently. Given this information, it would seem that skillful farmers make decisions consciously (attentively) only when they encounter new problems or when a specific activity requires a considerable amount of their scarce resources. Even though the decision-making behavior of farmers is difficult to research, particularly pre-attentive decision-making behavior (van Dusseldorp, 1994), Gladwin and Murtaugh's theory still seems useful for highlighting the topic of our research because we can trace the cognitive maps of the farmer's involved. In-depth study focusing on this matter may be able to explore these cognitive maps (Barlett, 1986).

Following Cancian, Huijsman makes a distinction between uncertainty and risk. He argues that risk occurs in situations in which you know the probabilities of the various, possible outcomes of a particular action, and that uncertainty occurs in situations whose probabilities cannot be specified. Huijsman, however, does not explain how farmers process information and bring together the elements necessary to face the actual situation of their farming systems as explained by Long (1989:9). In order to shed light on the behavior of farmers when they make decisions, this theory to a large extent bases itself on quantitative approaches familiar to economists: e.g. micro-economic models of decision-making. By focusing on an economic approach, Huijsman neglects relevant, qualitative variables such as available stocks of knowledge, modes of reasoning, and socio-cultural value preferences.

The basic-linking-loop-model of van Dusseldorp approaches the problem from an entirely different angle: It tries to explain how the decision-making process develops. His model is an appropriate tool for systematizing the data collected in this study, provided that the model and the concept behind it is applied creatively. According to van Dusseldorp, the model is a rational one and resembles the "project cycle". It refers to a mental or logical construct which defines or makes up the actors' knowledge, world view, and system of reasoning at the moment a certain decision is made. In the basic-linking-loop-model, the process of making decisions is seen as iterative process and is divided into five logical steps which interlink with each other. Through it, it becomes clear that farmers, like many other decision makers, are not simple men taking simple decisions in a very simple environment (Lipton, 1982:263). In this respect, van Dusseldorp puts an almost identical line of reasoning forward as advocated by Tversky (1972), Gladwin (1980), Elster (1986), and Goulet (1986).

Gladwin's theory of real life choice explains stages and procedures of decision-making that directly correspond to a farmer's personal conception or understanding. It provides us with a useful analytical tool for studying the content or substance of decision-making at farm-household level. From her concept it becomes obvious that choices are the domain of assumptions, procedures, modes of reasoning, processes of classification, and standards of judgement which lead the decision maker to prefer one alternative over many other possible courses of action. In her theory, an individual's thoughts, needs, expectations, and, to a certain extent, his predictions are considered essential components and important determinants of farmer behavior in decision-making. In my opinion, the theories discussed in this chapter can be used in an attempt to understand the problems concerning decision-making processes at farm-household level.

### **3 RESEARCH METHODOLOGY**

This section presents the unit of analysis of the research and the rationale for choosing it. The setting of the research, its procedures for data collection, and an analysis of the data are then described in detail.

#### **3.1 Unit of analysis**

As in the work of van Dusseldorp and Southwold (1991), the main unit of analysis for this investigation is the farm-household in which the farm is considered a sub-system. The research will study the household as a whole. This means that it will not only deal with the head of the household as a single actor, but also with other important actors: e.g. wives and adult members of the household. The research will also attempt to describe the actual spheres of influence that each of the individual household members maintain. According to White (1984:29), decision-making in a real situation is only one aspect of family power relations, albeit an important aspect; therefore, I will also take into account some relevant elements concerning intrahousehold dynamics (Röling, 1988) and the politics within the household (Blaikie, 1985:6). I will particularly take the decision patterns of husbands and wives into account. The role of women in the household will need special attention for the following reasons:

- It will help to avoid the affect of biases, including those resulting from culture and sex (male).
- Women often have tasks and responsibilities distinct from those of men and so different management objectives. Even where they play minor roles in direct field production, women are still a major factor in maintaining food security. In that way they are an integral part of the farming system (Röling, 1988:99).
- The wives of farmers in the villages studied sometimes know more than men when it comes to the economic activities of the household and the farm. For instance, they might know more about the cost of agricultural inputs, how much of an agricultural yield has been obtained in a given season for a given crop, how much of the total yield is used for home consumption, how much

of it is sold, and what animal should be raised etc. Women, therefore, are often engaged in a broad range of activities pertaining to agriculture and livestock. Like men, they, too, fully participate as income earners of the household by doing various activities outside the farming system: i.e. off-farm and non-farm activities (van Dusseldorp and Southwold, 1991:107). Recent studies on the role of non-farming activity in rural Java also indicate that at least half of the rural incomes in contemporary Java, and in many cases a great deal more, were derived from non-farm and off-farm activities (Hetler, 1989; Alexander, Boomgaard and White, 1991:1); therefore, non-farm and off-farm activities done by either men or women will be investigated.

### 3.2 Data collection techniques

The method of investigation used is determined to a large extent by the study's topic and research population. As mentioned earlier, this thesis will discuss decision-making at micro-level; that is, at farm-household level. It will attempt to explain how farmers and their families arrive at decisions and try to discover the reasons underlying those decisions. Farmers as decision makers are seen as the key actors and are investigated within their real-life context. The investigation, therefore, starts with the knowledge, problems, and priorities of farmers and their families. (Chambers et al., 1989:XIX). Once again, this research consists of how and why questions. These kinds of questions can best be studied using the case-study approach (Yin, 1984:19). According to Yin, this is a kind of empirical inquiry which:

*investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used. (1984:23)*

The research for the interdisciplinary research training project started in January 1990 with a *sondeo* covering 184 households in four different villages in the limestone area south of Malang. The four villages involved were Sidodadi in the subdistrict Gedangan, Pringgodani in the subdistrict Bantur, Putukrejo in the subdistrict Kalipare, and Kedung Salam in the subdistrict Donomulyo. The last two villages were used for further study mainly on the basis of differences in land distribution and soil characteristics (see Chapter 4, "A Description of the Research Area"). A total of 35 farmers participated in a one-year Intensive Farm Household Survey (IFHS) that studied in-depth a number of ongoing technical processes, as well as socio-economic processes (e.g. decision-making).

The sample for the IFHS is basically a non-random one confined to certain farm-size-classes ranging between 0.25 and 1.0 hectare. The farm households had to be involved in the rearing of ruminants; additionally, households growing certain kinds of crops (such as irrigated rice and sugarcane) were excluded. As the IFHS

progressed, serious shortcomings in the results of the sondeo came to light. As a result, it was decided to carry out a survey in which more households would participate. A Rapid Rural Appraisal (RRA) of 556 households was then performed. Of the 556 households, 156 were randomly chosen for the expanded Farm Household Survey (EFHS). Apart from these general surveys, disciplinary surveys and data gathering were also carried out in the fields of soil science, agronomy, animal husbandry, development economy, and rural sociology (Stroosnijder et al., 1994:305).

Six farm-households were then selected from the IFHS in order to be able to make an in-depth study of decision-making processes. Among these six cases, five were Javanese; one was Madurese. The selection of these households was carried out on the basis of the following considerations:

1. The ethnic background of the farmers: Ethnicity has been taken into account because of its potential to reveal cultural differences among farm-households in terms of perception towards farm and non-farm activities, as well as in terms of the role women play in these two kinds of activities. Only one Madurese household was included because the number of case studies was reduced from twelve to six.
2. The assets available to households: e.g., land, livestock, and skills: Different possibilities and alternatives open to farm-households might be due to the resources available to them.
3. The life cycle of the farm-households: The life cycle of the household has to be taken into account because it plays an important role in agricultural decisions and in many other types of related decisions (Chayanov, 1966; Barlett, 1980; Ruthenberg, 1980).

Prior to the intensive study of cases a week was spent gathering information about local terminology. The glossary of local terms that has been compiled is necessary because it shows the terms farmers use to express their knowledge about their immediate environment. In my experience, using such terms to communicate with farmers increases understanding between the researcher and his subject. This communication not only took place at the farmer's house but also on the various plots of his farm as well.

In this research, the most relevant sources for obtaining information were the farmers, their wives, and, to a limited degree, their adult children. Each farm-household was visited approximately 12 times during which in-depth interviews took place. The interviews were taken between January of 1990 and December of 1991 so that the entire cropping cycle could be followed. The interviews lasted between three to three-and-a-half hours on average. We could visit only two farm households



each day because the interviews were quite intense. The observation technique was used also in a participatory way on the farms and in the villages; for instance, several *slamatan*<sup>2</sup> and festivities were visited.

Other sources of information that have been used were the (former) secretaries of the villages (*carik dongkol*), local traders, and the staff at the offices of the *kecamatan*<sup>2</sup> (sub-districts) offices. Each of these sources were interviewed. Former secretaries of the villages were asked via focus interviews about the history of their villages and the development of the farming systems in them. Similarly, local traders were interviewed about the price of commodities such as dried cassava, maize, rice, frying oil, and salted fish, as well as about the system of buying and selling. Staffs at the offices of the *kecamatan*<sup>2</sup> (sub-districts) were also asked about government programs which had recently been introduced in the area. These interviews lasted about one-and-a-half hours. In addition to the information sources already listed, our investigation also used several documents issued by the official of the *kabupaten* Malang, the official of the *kecamatan*<sup>2</sup>, and the heads of the villages. These documents were used to obtain a general picture of the area's population, occupational structure, land use, and socio-economic infrastructure.

Although there are disadvantages in using a case study approach which involves a limited number of farmers, we have chosen this option nevertheless for the following reasons:

1. Several quantitative methods have been used in the interdisciplinary research training project (INRES): e.g. the survey used by economists and the mathematical models which technical scientists applied in order to process and analyze their particular data. These mathematical models, however, have some disadvantages. They cannot, for instance, cover or deal with everything important to aspects of a farming system such as its social setting, the interrelationship between farmers (the exchange of scarce resources and the rationale behind it), the power structure or trade-offs among farm-household members, and the perception of farmers. In my opinion such a method or model has to be supplemented with a qualitative, in-depth type of research which uses case studies as a research strategy in order to observe and investigate the behavior of farmers in the decision-making process. Such an argument concurs with Yin's assertion that "human affairs should be reported and interpreted through the eyes of specific interviewees" (Yin, 1984).
2. An adequate investigation of decision-making as a process necessitates the close monitoring of behavior via in-depth interviews of farmers with respect to the rationale underlying their decisions.
3. The biography of farmers and their families must be known in order to obtain insight into what has happened in the past in regard to, say, the development-

stages of the farm and the household and in regard to how farmers made their decisions earlier. An intensive investigation about the life history of farmers is therefore needed.

4. Close or direct observations throughout the agricultural cycle are required in order to evaluate patterns of various decisions and to assess properly the consistency of choice making in uncertain environments.

The interviews were done in two native languages: Javanese and Madurese. The interviews with the farmers in Kedung Salam were carried out in the local Javanese dialect. In Putukrejo, however, interviews were done in either Javanese or Madurese because approximately one-third of the village's total population is Madurese and the other two-thirds Javanese.

Both native languages were used to communicate with farmers for two reasons: First, farmers in the area studied are more familiar and accustomed to their mother tongues than to the official national language, Bahasa Indonesia. Second, their local (indigenous) knowledge about farming practices, the cropping calendar, crop variety, and soil type is expressed more adequately in their native language. Third, social distance could be reduced (Box, 1989:69) and unnecessary biases inherent to languages could be minimized (van Dusseldorp, 1990:30) in order to create a relaxed, social relationship with the farmers and their families. The interviewer could carry out all the interviews himself and did not need an interpreter because of his ability to communicate in both languages.

Mechanical devices such as a tape recorder were not used during the research because farmers are less willing to provide information when it is recorded and, more importantly, the presence of such a device spontaneously draws a crowd of neighbors (and their children) eager to see what is happening in the farmer's house thereby impeding the interview.

A field assistant was present during the course of the interview. The assistant was Javanese with a rural background and was responsible for making field notes. He was also responsible for the final, written report of the interviews. Most of the field notes were directly translated and written into the official, national, Indonesian language; however, certain statements made by the interviewee(s) were written down in the local language as much as possible.

This research deals with qualitative data often difficult to analyze in a systematic way; therefore, a database was developed and processed into "Kwalitan". Kwalitan is a program designed for carrying out qualitative data analysis (Peters and Wester, 1990). All data stored in Kwalitan is divided into a number of documents, each of which has several key words. In addition to using Kwalitan, each case study was put into work files which have document numbers, document codes, the name of respondents, the name of the interviewer or of the assistant, and the location where the interview took place. Storing the data this way transforms it into a

database which others can check and use quite efficiently at any given moment. The development of such a case-study-database minimizes the errors and biases in the study (Yin, 1984).

## 4 DESCRIPTION OF THE RESEARCH AREA

### 4.1 A short history

The area researched has been settled gradually during the course of the last hundred years. Until the 1800s, most locations in the limestone area south of Malang were still primeval forest. Apart from perennial fruit trees such as jackfruit, perennial woody trees such as *klupu kethek*, *wadang* (*pterosperum acerifolium*), and *bendo* made up the landscape. According to Elson, the most southern part of Malang running down to meet the Indian Ocean was still uninhabited up to the early nineteenth-century. The terrain there consisted of crocodile infested swamps and thick jungle with many tigers (Elson, 1984:2). On the island of Java, population centers at the start of the nineteenth-century were found in some limited locations: e.g. in the lower foot slopes of the volcanos and on the faintly, sloping alluvial plains where irrigated paddies could be easily cultivated.

By the middle of the 1800s, the only forest in the hilly area south of Malang which people opened and gradually used for settlement and agriculture was the Sumbermanjing. The development of the limestone area south of Malang in terms of its settlement and, to certain extent, its agricultural activities began in the late eighteenth-century and early nineteenth-century. During this period, huge numbers of villagers came from parts of central Java. These people moved into unoccupied or formerly abandoned areas in East Java depopulated during the wars of the late eighteenth and early nineteenth centuries. This wave of migration had a dramatic impact on many parts of central Java, particularly on Bagelen where most of the migrants came from.

In 1845, approximately fifteen years after the war of Java and after the implementation of the Cultivation System, some forest areas situated in the Brantas watershed and around the village/district Mojokerto were opened up. The process of opening new land by clearing forest continued in the following years. This was especially true for areas along the Brantas river. From 1860 to 1885 many people, presumably from parts of central Java such as Bagelen, Solo, and Yogyakarta, moved into the area around central Brantas and Kediri.

From the early 1880s to late 1910 many people moved into the unoccupied areas south of Malang and established villages. These villages became administrative units around 1888 when the colonial regime gave them a status via

the 1825 *Inlands Gemeente Ordonantie*. When farmers cleared the land during this time period they generally constructed flat, dry fields (*tegal*) for growing grain and vegetables; they had neither the need nor the numbers to construct the more intricate irrigated fields (*sawah*) used for wet rice (Elson, 1984:4).

The inhabitants of the area consisted of predominantly two ethnic groups: the Javanese and Madurese. The Javanese settled the area first; the Madurese migrated to it later on. The population of the villages by today's standards was very small, particularly before the arrival of the Madurese (Elson, 1984).

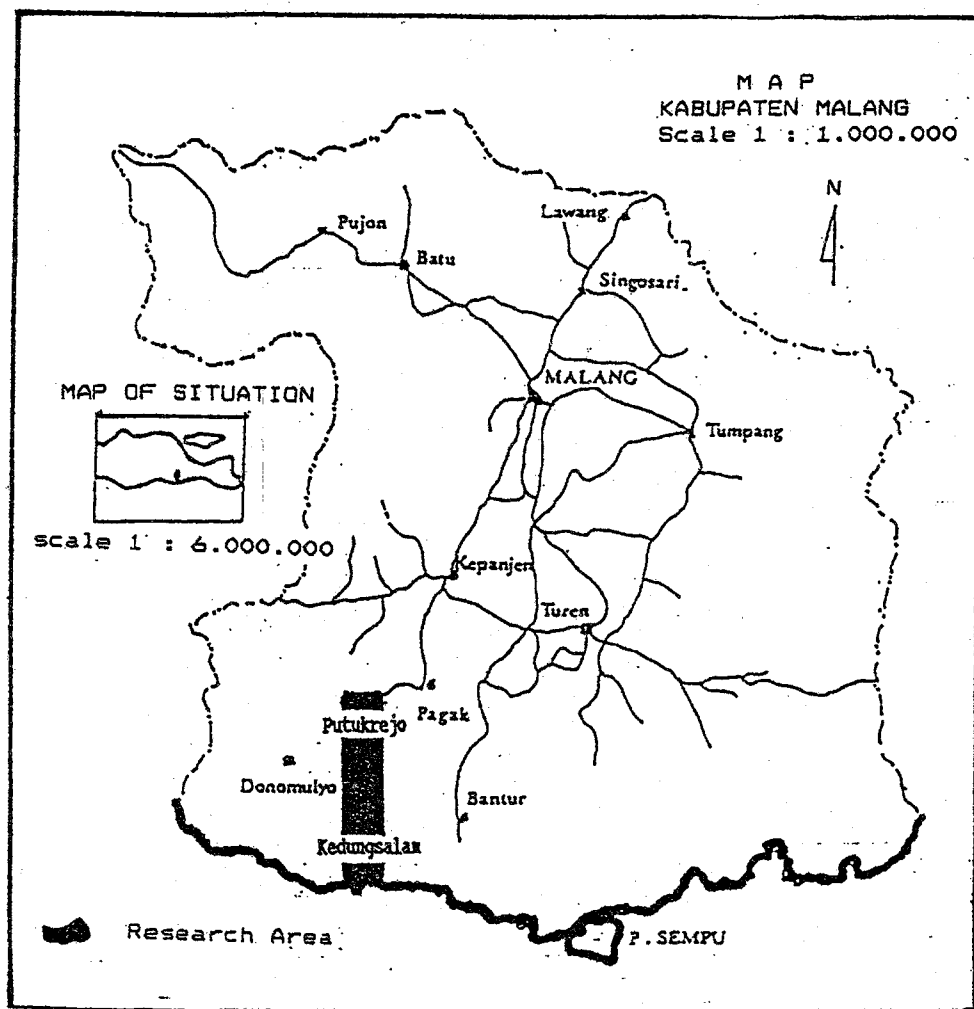
The Madurese have a long-standing pattern of migration. Their emigration to some areas in East Java and, much later, to the limestone area can be traced back to the beginning of the nineteenth-century when they travelled in huge numbers along the Pasuruan and Probolinggo littoral and made the land their own (Elson, 1984). Additionally, large numbers of them also migrated to the new tobacco plantations of Besuki and to the new coffee plantations of the highlands (Dick, Fox, and Mackie, 1993:14). Many other Madurese also migrated to the south of Malang during this time for the large coffee areas located in 1820 in the upland areas of the Malang Regency and along the north coast foothills (Elson, 1984:9).

Old villagers in Putukrejo still recall that the Dutch established a plantation called *Alas Tledak* in the late nineteenth-century. During its golden age, the plantation was one unit of a large enterprise that had its central office in the Besuki Residency, a booming frontier region in East Java at the time (Dick et al., 1993). It was during this time that the company recruited many Madureses as both foremen and part-time laborers. The total area used for plantations took up some four hundred hectares then. The plantation mainly grew export crops, coffee and rubber being the predominant ones, followed by cocoa. Its presence, then, was a reminder that colonial policy subjected the Putukrejo area to the compulsory cultivation of some exported crops: e.g. coffee (Palte, 1989:137). The plantation was destroyed during the revolution of 1945 and the land distributed to local smallholders by the newly established government.

#### 4.2 Geography and climate

Administratively the limestone area south of Malang covers some 534.54 square kilometers and is part of the *kabupaten* (District) Malang, East Java (see Map 4.1). Malang itself is a large and mountainous area which in 1983 contained 57,167 hectares of irrigated rice fields (*sawah*) and 126,773 hectares of dry-cultivated fields (*tegalan*) on which traditional, annual food crops (*palawija*) and various tree crops were grown (santoso, 1993:214). The limestone area has five subdistricts (*kecamatan*) and 41 villages. The subdistrict is the unit of government between the *kabupaten* and the village. By the end of 1988 the total population of the entire area was estimated at 285,320 inhabitants.

Map 4.1 Location of the research area in the *kabupaten* Malang



Geographically, the area is located between the Brantas river in the north and the Indian ocean in the south. It is also part of the Kendeng chain of mountains and so naturally consists of hilly and mountainous terrain: 8%-25% and 25%-35% slopes respectively. The top of the mountain chain divides the area into two, parallel hydrological zones with a west-east orientation. The northern slopes drain into the Brantas river, otherwise known as the Brantas watershed. The southern slopes drain into the Indian Ocean. The area has a diurnal temperature variation between 19.8° C and 32.5° C and an average daily temperature range between 24° C and 26° C. The relative humidity is always between 80%-90%. The average evaporation dissipating from open surface water amounts to 1,250 mm per year, or 3.4 mm per day; the average annual rainfall is 2,076 mm. Data collected between 1960 and 1988 indicate, however, that the area experiences a pronounced dry season which varies in length: nine months of the year in 4% of the years, eight months in 20% of the years, seven months in 4% of the years, and one month in 15% of the years. In nearly 30% of the years mentioned above, then, there has been a pronounced dry season lasting approximately seven months or more; hence a rather irregular dry season.

Farmers are still able to recall a time when food was scarce in Kedung Salam and in Putukrejo between 1960 and 1963 because of a long drought lasting approximately eight to nine months. Hundreds of poor people died of starvation, particularly those older than fifty or younger than five. In 1963 the *musim paceklik* was especially bad. (*Musim paceklik* can be translated either as "the drought season" or "the famine season".) Many wells and springs dried up and scores of agricultural activities failed. Many animals also died. The situation forced large numbers of people to head for the forests and cut down trees which they could sell for cash, while others scoured the woods in search of sugar palm and other edible, wild plants.

The area is dominated by a substratum of limestone, covered by volcanic materials. This layer of volcanic material is often very thick, but not distributed homogeneously. Erosion in the area has been caused mostly by surface run-off. In many level places it has eroded to such a degree that the underlying limestone comes to the surface. Most of the soil washed away from sloping areas has been deposited in valleys has formed flat, deep bottoms; consequently, there are steep and shallow soils on slopes and ridges, and deep soils in the valley. Valley bottom-lands are used mostly for transplanted wet rice, if water is available. Upland areas lacking irrigation can be used for food crops other than flooded rice: e.g., maize and cassava, often intercropped. Small, individual fields may be used for cultivating a mixture of tree crops and lay further away from the farmer's house.

Rural areas in the limestone area south of Malang have long been perceived by policy makers at the *kabupaten* level as less developed in comparison to those in the north. A report to the *bupati* (head of the district), for instance, states that the per capita income of the north of Malang was approximately 368,657.48 rupiahs at the

end of 1987, while the per capita income of the area south of Malang was only 281,341.51 rupiahs (*Pertanggung Jawaban Bupati Kepala Daerah Tingkat II Malang*, 1988:2). The report also notes that the priority of regional development within the *kabupaten* has been the south of Malang because of this disparity.

#### 4.3 Location of the case studies

Kedung Salam and Putukrejo are 15 kilometers from each other. The former is part of the *kecamatan* Donomulyo, while the latter a part of the *kecamatan* Kalipare. The elevation of the area ranges from 450 to 550 meters above sea level. It is situated six kilometers south of Donomulyo, the capital of the *kecamatan*; about 66 kilometers south of Malang, the capital city of the *kabupaten*; and about 156 kilometers south of Surabaya, the capital city of East Java. Kedung Salam occupies an area of 33.56 square kilometers. Fifty-eight percent of the area was used for dry field; 34% percent for shrubs, coastal rain forest, and teak forest; 5% for flooded rice; and 3% for settlement.

Putukrejo is about 49 kilometers south of Malang and 136 kilometers from Surabaya. Its elevation ranges from 450 to 550 meters above sea level. This *desa* occupies an area of 8.9 square kilometers of which 43% is used for dry field, 34% for sugarcane, 5% for flooded rice, about 2% for settlement, and 16% for shrubs, forest re-growth, and teak forest. Approximately 72% of the *desa* consists of lithosol: earth low in natural fertility. Soil erosion has taken place in the *desa*, yet many parts of the *dusun* are still covered with a reasonably thick layer of top soil, except when it lies on steep to very steep slopes.

#### 4.4 Soil description in land units

In a detailed classification, Widiyanto (1992) divided the soils in the limestone area in south of Malang into 24 land units. The basic criteria for the classification are landform, slope, terracing, soil depth, stoniness, texture, and soil type. Because this classification is too detailed, he aggregated the 24 land units into four classes of land units. These land unit classifications were given a number from one to four: the number one to signify good soils and four to indicate poor to very poor soils.

##### Land unit 1:

Soils are deep (75 cm or more). They are clay to heavy clay textured both in top and sub-soils, usually flat or very gently sloped and terraced. These soils are found in valley bottoms and are suitable for all crops.



**Land unit 2:**

Soils are deep (75 cm or more). They are light clay to clay textured and range from gentle to steep slopes with a grade of 3% to 50%. They are usually found on upper to lower slopes and are suitable for maize, cassava, and soybean.

**Land unit 3:**

Soils are medium deep (25 to 75 cm). They are clay to heavy clay textured and range from steep to very steep slopes with a grade of 16% to 50%. These soils are sometimes slightly gravelly or stony, and are usually found in upper or lower slopes. They are suitable for cassava and maize.

**Land unit 4:**

Soils are very shallow (less than 25 cm). They are clay to heavy clay textured, gravel and stone-like, sometimes with many rock outcrops. They are found on very steep slopes and range from 16% to more than 50%. These soils are suitable mainly for tree crops.

A land unit map was made for each parcel a farmer worked. A section of a parcel with one land unit is called a sub-parcel. A parcel may consist of several sub-parcels. Table 4.4.1 depicts the overall situation regarding the distribution of land according to the quality of land in the villages.

Table 4.4 (1): Distribution of land according to the quality of land in the villages from October of 1990 to October of 1991

Villages Researched	Land Units				Total	
	LU1	LU2	LU3	LU4	%	Ha
Putukrejo	12	83	4	1	100	33.46
Kedung Salam	17	25	26	32	100	99.23

Source: INRES EFHS Data Base (File: Ardes dbf)

Table 4.4.(1) shows that 95% of the land in Putukrejo belongs to LU1 and LU2, and only 5% belongs to LU3 and LU4. In Kedung Salam, 58% of the land belongs to LU3 and LU4, while only 42% belongs to LU1 and LU2. This means that farmers in Putukrejo have a better quality of land than farmers in Kedung Salam.

#### 4.5 Land tenure

Table 4.5(1) indicates the land tenure of the households. It shows that 90% of the farmers in Putukrejo and 92% of the farmers in Kedung Salam own the farmland

they cultivate. It also shows that a few farmers operate farmland which they themselves do not own. Leasing is confined to Putukrejo. In Kedung Salam 14% of all households were involved in other tenure arrangements, notably with *Perhutani* based on a biannual contract.

There are five ways in which farmers can get access to agricultural land: by inheriting it, buying it, renting it, engaging in sharecropping, or obtaining a special contract with the State Forest Enterprise (*Perusahaan Hutan Negara Indonesia, PERHUTANI*).

Table 4.5 (1): The land tenure position of the households in the villages researched

Land Tenure	Putukrejo	Kedung Salam
	Percentage	Percentage
<b>Own farm land</b>		
Operated	45 (90)	98 (92)
Shared out	3 (6)	8 (8)
Leased out	2 (4)	-
Number of households	50 (100)	106 (100)
Total area (ha)	40.82	81.07
<b>Operated farm land</b>		
Owned	34 (68)	82 (78)
Shared	4 (8)	8 (7)
Leased	12 (24)	1 (1)
Other tenure arrangement ( <i>Perhutani</i> )	-	15 (14)
Number of households	50 (100)	106 (100)
Total area (Ha)	52.92	98.46

Source: INRES EFHS Data Base, 1990/1991 (files: ARDES.dbf and ELANI1.dbf)

### Inheritance

Farmers in the area researched considered land as private property and a form of wealth that heirs can inherit. Heirs obtain the same amount of land from their parents regardless of their gender. This means that a farm initially moderate in size is subdivided among several heirs; therefore, economic holdings of two and four

hectares, for instance, can be transformed into plots of land insufficient to support a household. When a person inherits land with good soil, he is normally given less of it. Decisions regarding the inheritance of land are usually made by the head of the household *kepale somah*.

Although there are exceptions, land is subdivided among heirs after the death of the father or of the parents. It is not usually given to heirs as long as the parents are still alive and active in farming for economic reasons. This often means that young married farmers do not have any farmland of their own; however, these couples, particularly if they still live in the same house as their parents, are sometimes allowed to operate a piece of their parents' land and to use its production for themselves. Legally, however, the parents are still the owners.

### Buying

Another way to obtain farmland is through buying. Unfortunately, no transactions of buying or selling land took place during the research period. This may be due to the increasing scarcity of land in the area. Most farmers in the villages researched would not sell their land quickly unless extra ordinary circumstances forced them to do so. Land, after all, greatly distinguishes personal rank in these communities (Jay, 1969:262). Moreover, it is an important factor in securing a livelihood. Without it, life is uncertain.

### Renting

Renting land is also a common way to gain access to farmland and is determined by several factors: e.g. location, size, fertility, and accessibility to a source of water. The land to be rented for a given period is usually owned by relatives or neighbors in the same hamlet. The length of a lease for cultivating a food crop is not always fixed but depends on negotiations and on the personal relationship between the owner and the tenant. Land for cultivating sugarcane, for example, can be leased for approximately three to six years.

### Crop sharing

Farmers who do not have enough land of their own or no land at all may be able to access land through crop sharing. In doing so, they can "share land" either with relatives or with others. The words "share land" have been put between quotation marks in order to indicate that the partners involved do not really share the land on which a crop is planted, but merely the crop. The land itself remains under the control of the owner. Several crop sharing arrangements exist in Kedung Salam and in Putukrejo. The differences between them are determined by the risks which the

partners take. The crop sharing arrangement in the two villages researched can be divided into three types: the *maro*, *mertelu*, and *kedokan* systems.

### Maro system

*Maro* or *maron* (fifty-fifty) is a crop sharing arrangement in which both a landowner and a sharecropper agree to take equal responsibility in investing and allocating the inputs needed for planting and nursing a crop. In return, both obtain an equal share of the harvest's yield.

Under the *Maro* system, the landowner is usually responsible for paying the land tax and the costs for the pesticide and the seed. The cost of the fertilizer, however, is likely to be the responsibility of both partners, because many farmers consider it the most crucial factor for the success of a crop. The responsibilities of the land owner include paying the costs of preparing the land, planting the crop, weeding the field, and picking the harvest. The person who agrees to work under the *maro* system can pass his workload on to relatives or close neighbors if, for example, he has insufficient time or resources to till the land himself. Given such a case, the *kedokan system* is then said to be applied. Clearly the portion which the crop sharer obtains here is less than when he cultivates the farmland himself. I will discuss this topic problem more in the sub-section *Kedokan system* below.

### Mertelu system

The *mertelu* system, or one-third system, may take two forms: the *mertelu nyisip* or the *mertelu penuh*. The *mertelu nyisip* is a crop sharing arrangement in which the land owner takes the responsibility of preparing the land and providing the seed and fertilizer, while the crop sharer bears the burden of planting, weeding, and harvesting. This type of arrangement is typical to farmers with certain kinship ties. Here the cost of the seed is deducted before the harvest is divided. The ratio of the harvest's split can be 5:2, meaning that five shares of the harvest go to the land owner and two to the crop sharer.

The *mertelu penuh* is a system of crop sharing in which the land owner is responsible for providing agricultural inputs such as seed, fertilizer, and pesticide, while the crop sharer assumes the responsibilities of preparing the land, planting the crop, weeding the field, and picking the harvest. The ratio for dividing the crop is 4:2, four shares going to the owner and two to the sharer. Very often decisions in the *mertelu* system pertaining to what crops should be planted, where they should be planted, and how much input will be used are in the landowner's hands, regardless of whether the people involved work with the *mertelu sisip* system or the *mertelu penuh* system.

### **Kedokan system**

*Kedokan* sharecropping is a system of crop sharing and labor relations in which a *pengedok* (a contracted laborer) receives a share of the harvest from the land owner. *Pengdok pengdok* involved in the *kedokan* system are usually landless farmers. No fixed rule exists in the *kedokan* system to determine how much a *pengdok* will receive of the harvest. His share depends not only on his contribution, but on the social relationship or kinship ties between him and the landowner. The *kedokan* system divides the harvest up in different ratios: e.g. two-sevenths, two-eighths, one-fifth and one-fourth,

Although there are exceptions, usually the land owner is responsible for the costs of preparing the land, providing the seed, and paying the land tax. The *pengdok* is usually responsible for planting, nursing, and harvesting. Both in Putukrejo and Kedung Salam this system is not only applied for crops such as rice, but for maize and cassava. Not surprisingly, the share which poor farmers obtain from the *mertelu* or *kedokan* system never satisfy their family's needs.

### **Perhutani land**

Another way in which a farmer can gain access to farmland is to sign a renewable, bi-annual contract with the State Forest Company (*Perusahaan Hutan Negara Indonesia, PERHUTANI*). This arrangement became available in 1970. In local terms, this land is called *tanah Perhutai* (meaning *Perhutani* land) or *tanah babatan*. *Tanah babatan* literally means the land where the trees have just been cut down. Through the eyes of the farmers, most of the *tanah babatan*<sup>2</sup> are still fertile soil.

How much *Perhutani* land has been distributed among farmers is not clear. According to key informants in Putukrejo and Kedung Salam 450 blocks of it have been distributed to farmers in both villages. Each block of land is normally one *cethet*, or 12.5 by 200 meters. Farmers wanting this land have to cut the trees growing on it and clean it as well. After this, they are obligated to plant perennial trees such as teak or albizzia on it. To this end, some inputs like seedlings and fertilizers are given to the farmers. Apart from these tasks, farmers must also nurse the trees. They then have the right to use about 0.25 hectares of land to cultivate food crops or cash crops such as rice, maize, cassava, and groundnut.

Farmers not directly involved with the *Perhutani*, however, may still be able to get access to its land by sharing it with their relatives or neighbors. They may even rent it from these people. Table 4.5.(2) illustrates the situation pertaining to the distribution of landholdings in both Putukrejo and Kedung Salam.

Table 4.5(2) shows that landholdings in the villages are unevenly distributed. Small holdings of less than 0.5 ha dominate Putukrejo (54%) in comparison to

Kedung Salam (33%). Holdings larger than 2 ha belong to *desa* officials, traders, and sugarcane growers for the most part.

Table 4.5 (2): Distribution of landholding size

Farm size (ha)	Putukrejo	Kedung Salam	Total
no land	7	6	13
0.01-0.25	4	10	14
0.26-0.50	16	19	35
0.51-0.75	10	15	25
0.76-1.00	4	19	23
1.01-1.25	-	10	10
1.26-1.50	2	7	9
1.51-1.75	3	7	10
1.76-2.00	1	4	5
>2.00	3	9	12
Total	50	106	156

Source: INRES EFHS Data Base: 1990/1991 (file: Ardes dbf). Not all plots or farms were measured. Estimates have been used

## 4.6 Demographic, social, and cultural aspects of the villages

### 4.6.1 Population and ethnicity

In 1990, Kedung Salam had 12,309 inhabitants of which 51% were male and 48% were female. The village's households totalled 2,000. Among those of working age, 64% did agricultural work to earn a living, and 33% worked as laborers doing other things. Less than 1% of the population engaged in trade and transport. Digging and burning limestone had become an important occupation since the beginning of 1970. The profession arose not only because of the increasing demand for limestone from newly established industrial centers north of Malang, but also because the scarcity of agricultural land for cultivation made non-farm activities necessary. The limestone in the area was collected either from the surface or from deeper pits. Some pits were a source of quartz as well; however, farmers do not usually undertake mining activities as a full-time occupation, but as a subsidiary one in order to complement their traditional subsistence economy. By the end of 1990

the population density of Kedung Salam was 366 inhabitants per square kilometer. Almost all its inhabitants are Javanese; only a few are Madurese. A local Javanese dialect is used for daily communication.

In the same year, the total population of Putukrejo was 4,927 inhabitants of which 49% were male and 50% female. The village's households totalled 877. Approximately two-thirds were Javanese and one third Madurese. In Putukrejo, the Javanese and Madurese dialects were both used for daily communication. The majority of inhabitants were farmers: 95% in total. Three percent of the people engaged in trade. Only 1% or less participate in other economic activities such as handicrafts and transport or work as civil servants. In 1990 the population of Putukrejo amounted to approximately 533 inhabitants per square kilometer. Indications suggest that the village's population growth and demographic characteristic did not differ from other *kabupaten*<sup>2</sup> in East Java. The annual increase in the population rate of East Java slowed during the 1980s (from 2.2 between 1971-1980 to 1.9 between 1980-1985). This has been attributed to the implementation of the family Planning Program, as well as to out-migration (Hartveld, 1995:24).

#### 4.6.2 Migration

Many families engaged in agricultural production commonly had one or two members employed elsewhere outside of agriculture in order to supplement their household's income. The villagers south of Malang call this *boro*. The term is taken from the Javanese phrase *ngumboro* which means "those who work outside the village". The phenomenon is by no means new. It started slowly in Kedung Salam and Putukrejo in the 1960s. Since 1970, more and more young men and women have been working outside their villages. Field work done in 1990 has established that 322 persons from Kedung Salam and 111 persons from Putukrejo were working outside their respective villages. Of those who had migrated from Kedung Salam, 257 persons (77.4%) worked in the cities of Malang, Sidoarjo, Pasuruan, Surabaya, and Jakarta, and 71 persons (21.4%) on the outer islands such as Kalimantan and Lampung. Only a few young men and women worked in the economic centers of the subdistricts within the limestone area south of Malang. Similarly, of those who had migrated from Putukrejo, 91 persons (81.98%) worked in the cities of Malang, Sidoarjo, Pasuruan, Surabaya, and Jakarta, but only 14 persons (1.26%) worked in the outer islands such as Kalimantan, Lampung, and South Sumatera.

The jobs of the migrants concerned vary. All of those who migrated were engaged in various non-farm activities often in urban, informal sectors performing menial labor (called *buruh kasar*) as construction workers, shop assistants, drivers, drivers assistants, noodle soup sellers, and domestic servants (*rumah tangga*). Naturally there was some variation in the jobs preferred among those who migrated.

Young men claimed to prefer work as a driver or as a *bakso* seller (noodle soup seller); young women preferred work as domestic servants or shop assistants.

Regardless of gender, most migrants moved when they were single and between the ages of 15 and 34. The high percentage of migration from the limestone area south of Malang to the core region of East Java is due to the development of industrial projects which began in the 1960s. These projects were a strong attraction for job seekers. Most of the new industrial projects in East Java underway between 1967 to 1976 were located in the corridor of Gresik, Surabaya, Sidoarjo, Pasuruan, and Malang (Tirtosudarmo and Meyer, 1993:103). The limestone area south of Malang became a relatively permanent source of migrants. Migration from this area was facilitated by the availability of relatively cheap transport. Thirty years ago, for instance, people in Kedung Salam and Putukrejo would walk for twenty-four hours to bring their produce to Malang markets. During that time there were no alternatives for them other than an occasional truck. Nowadays, however, for a thousand rupiahs each way people can ride a Mitsubishi Colt mini-bus into Malang or back in less than two hours. Moreover, the educational level of young men and women in Kedung Salam and Putukrejo may have risen aspirations for jobs outside the area (Nibbering, 1993:180).

#### 4.6.3 Education

In the 1960s there were no schools at all in the two villages. During that time only a few primary schools were available in the capital city of the *kecamatan*. The situation changed gradually since the *Pemerintah Orde Baru* (New Order government) came to power in early 1970. Realizing that education was an important prerequisite for development, the New Order government began an early expansion of its educational facilities (Cederroth, 1995: 171-172). In the 1970s, the government launched a national education policy aimed at primary education known as Program INPRES SD (*Sekolah Dasar*). It was a massive program activated by a presidential decree whose main purpose was to set up primary school facilities in rural areas throughout the country. Propaganda programs also rose and were especially directed towards the rural population, stressing the need to provide children with an education. The government established a six-year basic education program and made it compulsory for all children. It also enhanced the opportunities dramatically for students to continue on to junior high school. In 1990 Kedung Salam had nine primary schools, one junior high school, one senior high school, and one kindergarten. The government operated all of the primary schools; a private foundation operates both the junior high school and the senior high school. The kindergarten, however, was run by the local community. In the same year, Putukrejo had four primary schools and one junior high school. Unlike Kedung Salam, however, it had no senior high school.



Sixty percent of the inhabitants in Kedung Salam had completed their primary school and about 5% had completed junior high school. Two percent of the population graduated from senior high school. The population which could not finish primary school and those who were illiterate amount together to approximately 30%. The level of education of the inhabitants in Putukrejo was a bit higher than of those in Kedung Salam. In Putukrejo, 85% of those who went to primary school graduated from it, and 11% had completed junior high school. Only 2% had completed senior high school and less than 1% completed a university education.

#### 4.6.4 Religion and culture

##### Religion

In Kedung Salam 99% of the total population is Islamic and 0.75% is Christian. The village had many religious buildings and counted 31 mosques (26 of which were small) and one chapel. The mosques were scattered throughout different hamlets. Likewise, most of Putukrejo's inhabitants were Muslim (99.59% of the total) and the rest Christian (0.41%). Putukrejo on the other hand had 34 mosques, five of which were rather big. All of the religious buildings in both villages were built by the local communities themselves through *gotong royong* or *sayan* (mutual help).

Despite the fact that the majority of the inhabitants in both Putukrejo and Kedung Salam were Islamic, only few of them were *santri*: strict moslems. Following *aqidah*, Islamic regulation, *santri* must pray five times a day and fast during the Ramadan. They contrasted with the other villagers in their perception of Islam and defined their lives as Muslims within narrower and more exacting boundaries. Ordinary villagers regarded a man as *tiyang islam* (a muslim) as long as he was circumcised (*selam*), registered his marriage at the local office for Islamic Affairs (*kantor urusan agame*), and celebrated lebaran day. In their eyes, a moslem did not necessarily have to pray five times a day or fast during the Ramadan. As an elite group, the *santri*<sup>2</sup> could read the Koran and regarded those who do not behave within the bounds of Islamic rules as *abangan* or as *Islam statistik* (statistically a moslem). These people did not usually perform the *slamatan*<sup>2</sup> as many other villagers did.

##### The function of the belief system

Fundamental to the farmer's world view is that God the Almighty (Gusti Allah) determines a person's place in life and the entire environment in which he lives. In his belief system, the farmer's future is linked closely to *rejeki* (God's gifts) and is

therefore related to *takdir* (fate). *Rejeki* and *takdir* are two sides of the same coin and are pre-ordained by Gusti Allah when an individual is still an infant.

Nevertheless, men do wrong if they do not work at self improvement (*rekodoyo*), and so *rejeki* is denied to them who do nothing to improve their lot. If someone is strongly motivated (*krenteg*) to do something and goes about it seriously, God will help him realize his goals. Still, when efforts at self-improvement fail again and again a farmer has often said say that it was *takdir* (fate) and subsequently resigned himself to God's will. A person should always be happy with what God gives them (*nrimo ing pandum*); he should not feel guilty and blame himself or God because he has not achieved something he has set out to do. If he does, God might punish him now or in the future (in the after life).

Everything in the universe exists because of God's will (*kersaning Gusti Allah*): e.g. natural resources which people can exploit. A person's entire property (*donya brono*) and the household that he might have at a given moment (e.g. his farmland, livestock, house, personal belongings, and children etc.) are gifts from God; therefore, they are *rejeki*. Many of the farmers studied believe that God gives *rejeki* to people in many shapes and forms, but that all his gifts still belong to Him. Men only have the right to use them responsibly. If they do not behave as they should, God can become angry and take his gifts away at any given moment without advanced warning. In socializing, men should not do what is referred to as *the five Ms* (*Mo limo*): The first "M" stands for *Madon* (to touch women), meaning that God prohibits a man from having a sexual relationship with a woman other than his wife. The second "M" stands for *Main* (gambling) and indicates that a man should never gamble. The third "M" stands for *Minum* (drinking) and prohibits the consumption of alcohol. The fourth "M" stands for *Madat* (drug addiction) and outlaws the use of drugs like marijuana and opium. The fifth letter, finally, stands for *Mailing* (stealing) and prohibits the act of stealing.

The belief system of the farmers also interrelates the present (*wektu samengko*) and the future (*wektu tembe mburi*), though the two are not without their distinctions. For example, the present is a product of the past (*wektu mbiyen*) and is much more concrete (*cetho*) because the future is full of uncertainty (*samar*). Still, the present can determine future happiness if one properly handles everyday problems. Farming activities or non-farming activities are therefore regarded as strategic ways of obtaining *rejeki* from God and for securing the future.

### The slamatan

The *slamatan* and its cultural values are the center of the Javanese religious system. In *The religion of Java*, Geertz explains the meaning of the *slamatan*. He writes that the *slamatan* is the Javanese version of what is perhaps the world's most common religious ritual, the communal feast. As most everywhere, it symbolizes the mystic and social unity of those participating in it. By virtue of their commensality,

friends, neighbors, fellow workers, relatives, local spirits, dead ancestors, and nearly-forgotten gods, all merge into a defined social group pledged to mutual support and cooperation (Geertz, 1960:11). In short, the *slamatan* often serves as a kind of universal joint to the Javanese which connects various aspects of social life and individual experience together so that uncertainty, tension, and conflict are minimized.

An individual in Putukrejo and Kedung Salam can initiate a *slamatan* to celebrate, ameliorate, or sanctify almost any event he wishes. An organized group may also start a *slamatan*, but this is done less frequently: e.g. to begin a political meeting. It is difficult to confirm an accurate estimate of the costs for carrying out the ritual because people do not keep records of such expenditures. Still, Table 4.6.4(1) illustrates the many occasions for which people organized a *slamatan* and the many different costs that went along with it while I was carrying out my research.

Table 4.6.4 (1): Types of *slamatan*<sup>2</sup> and their costs

Types of <i>slamatan</i>	Cost
Birth of calf	750 Rs
Changing the direction of the house	15,000 Rs
Birth of an infant	30,000 Rs
Wedding	200,000 Rs
Funeral (from seven days of chanting at prayer house until fortieth-day <i>slamatan</i> <sup>2</sup> )	200,000 Rs
Thousandth day <i>slamatan</i> (nyewu)	45,000 Rs
Start of burning limestone	4,000 Rs
Start of planting (tandur)	500 Rs
Rice harvesting (petik)	5,000 Rs

Source: Personal Observations: 1990/1991

Most *slamatan*<sup>2</sup> are held in the evening just after the sun has gone down (*wayah surub*) and the evening prayer has been concluded (*bakda Maghrib*). If the occasion is a name-changing, a harvest, or a circumcision, the host will employ a religious specialist to determine an auspicious day according to a numerological interpretation of the Javanese calendar system; if it is a death or a birth, the event itself determines the timing (Geertz, 1960: 12).

The rituals during the *slamatan* is well illustrated by Jay. According to him: ... *immediately before the ritual, the guests, always males and usually mature men, are called to attend. They seat themselves at the place the host has chosen for the ritual, usually the front room of the his own house. Each guest is served an ambeng, all identical in size and content, featuring a*

large pound of rice in the center and some dishes specific to the occasion. (Alternately, the food is served from a common tray after the invocation). The host does not receive a tray or join in the eating. After the trays have been served, but before the guests eat, the host or a muslim teacher states the purpose of the ritual to the guests, thanks them for coming, and asks their blessing on the occasion. He then invokes in high Javanese a list of spiritual forces. Upon the conclusion of this invocation there follows a short Arabic chant, usually a standard quotation from the Koran. During the invocation the other guests join in with regular interjections of *inggi* (yes) during the Javanese part and *amin* (amen) during the Arabic part. When the invocation is over, the guests begin to eat, but only a small amount. A few comments are exchanged, cigarettes smoked, and then the guests gather up their trays, beg leave, and depart (Jay, 1969:208-209).

Jay's observations show that everyone is treated the same at a *slamatan*. The result is that no one feels different from anyone else; no one feels lower than another, and so no one has a wish to split off from the other person. After offering a *slamatan*, local spirits will not bother you: they will not make you feel ill, unhappy, or confused. The goals are negative and psychological; that is, they absent aggressive feelings toward others and eliminate emotional disturbances (Geertz, 1960: 14). The wished-for-state is *slamet*, which the Javanese express as *ora ana alangan sawiji apa* (there will be no troubles or obstacles).

When anyone discusses the importance of the *slamatan*, he should realize the social importance of these rituals. It is impossible for farmers to avoid performing them on specific occasions even though it may mean the disruption of the economy of his household or the development of his farm. The alternative is near ostracism from the community.

## 4.7 Infrastructure

### 4.7.1 Roads

Kedung Salam had a network of roads of which 60 kilometers (82%) was non-paved and 14 kilometers (18%) paved. To the west, a road connected the *desa* with the *kecamatan* Pagak and the *kecamatan* Sumbermanjing, while to the east it connected the *desa* with Donomulyo, the capital city of the *kecamatan*. Non-paved roads were found mostly in the remote, hilly side of the *desa*. Some of these roads were built during the 1970s, while others just recently by the local community via *gotong royong* (mutual help among neighbors). The main road in Kedung Salam was originally a non-paved one constructed by the colonial regime in 1925. It was renovated and paved in the 1970s. During holidays or on the weekends it was

usually crowded with motor cycles, minibuses, and cars from cities travelling to the seashore at Ngliyep.

Putukrejo had mostly non-paved roads. Its main road was put down when the Dutch established a plantation company. In 1972 the road was renovated by the *kabupaten* Malang. New roads were built four years later in order to facilitate transportation and to link the core hamlet with other hamlets.

All hamlets in Putukrejo and in Kedung Salam could be reached by road; therefore, no areas within these villages were isolated from the outside world. Some roads were four meters wide, others only three. In the dry season, dirt roads did not present a problem for truck-transport. Since early 1986 there has been a local transportation service called *ojek* in Putukrejo; two years later one also began in Kedung Salam. People performing these services used a motorcycle to take a passenger to a certain destination, particularly to remote areas of the villages. The *ojek* apparently provided an extra opportunity for middle class families and poor families to earn money: it gave middle class families the chance to rent their *ojek* to poorer families who then rendered transportation services to those in need of them.

#### 4.7.2 Electricity

Electricity in rural areas was a fairly new phenomenon. Villages in a few areas were connected to facilities established in colonial times, but these were exceptions. The idea of providing rural areas with electricity came to the foreground in the 1970s when the government initiated programs to reduce socio-economic inequalities (Husin, 1993:264); however, in the south of Malang the provision of electric power was mainly concentrated in three types of areas: those situated close to the power generation centers, those near the major centers of economic activity, and those adjacent to the main towns in the *kabupaten*. As a result, many remote areas were not provided with electricity.

The State Electricity Corporation (*Perusahaan Listrik Negara*, or PLN) began providing electricity to Kedung Salam in March of 1990. Its customers were mostly rich people and people living near the main road. At the time of my research, electricity was still a thing for the future for many people residing in hamlets. People used kerosene lamps or carbide lamps for light. Approximately 11% of all households had electricity. The PLN charged as much as 4,500 rupiahs per month. In Kedung Salam, payment was organized by the LKMD, the local development planning committee. Before Kedung Salam received electricity, only 15 to 20 households had a television set. That number had grown threefold in 1990.

Unlike Kedung Salam, Putukrejo was not connected to the electricity network. At the time, the PLN had only been able to hook up the capital city of the *kecamatan* and its immediate area. Similar to Kedung Salam, the villagers in Putukrejo used kerosene lamps, oil lamps, or carbide lamps; however, two wealthy

persons living in the village operated a generator privately. The generator had a capacity of 7000 watts and could provide electricity for approximately 101 households. Each household could have power-watt-connections totalling about 10 to 20 watts. Those people rich enough to maintain a power connection at home had to pay as much as 1,750 rupiahs each month to the owners. In 1990, 50 households in Putukrejo owned a television set.

#### 4.7.3 Markets and shops

Most farmers in the two villages produced crops and products for direct consumption or for the market. They produced food crops such as maize, cassava, and rice for their own consumption, and fruit perennial crops such as banana, coconut, *Parkia speciosa*, and *Gnetum gnemon* for the market. Their ability to produce a surplus was minimal; consequently, their dependency on the market was limited. Only a small number of them could produce a relatively large surplus. Their sale of surpluses provided them with a small cash income which they usually used for buying food and (especially) non-food items they did not produce themselves: e.g. salt, salted fish, sugar, and kerosene. There was no specialization in the production of crops. Between planting and harvesting and harvesting and planting many farmers carried out non-farm activities such as weaving bamboo baskets and collecting forest products and limestone for sale. Having extra cash income from off-farm and non-farm activities enabled them not only to buy more consumption goods from the market but to satisfy socio-cultural or religious needs such as sending children to school, holding *slamatan*<sup>2</sup>, or attending parties.

Until the early 1960s there were only two small shops (*toko pracangan*) in Kedung Salam which sold items for people's daily needs: e.g. rice, maize, dried cassava, soap, kerosene, salted fish, spices, and cigarettes. Such shops did not exist at all in Putukrejo; yet new ones have taken root since 1970 as a result of increasing economic activities. The numbers of these *toko pracangan*, mostly operated by women, increased more and more in the following years. In 1990, Kedung Salam could boast of 76 small shops, and Putukrejo 17. Exchanges of food-stuffs like rice, maize, and dried cassava were usually channelled through these small shops. Sometimes these shops even bartered, especially when cash was in short supply just before the harvest. Many of them also sold *jamu* (instant herbal drinks) for men and women. In addition to these shops, Kedung Salam has 41 *warung*<sup>2</sup>, or food stalls, while Putukrejo had six scattered throughout its hamlets.

Up until recent days, Kedung Salam had one marketplace which had been established during the 1950s. Farmers in Putukrejo usually went to Tumpakrejo, the neighboring *desa* or to the capital city of the sub-district, Kalipare. Markets were held after the five-day cycles of Javanese market days (*hari-hari pasaran*). Farmers in Kedung Salam also went to other market places located in Donomulyo or Sumbermanjing. Neither Kedung Salam nor Putukrejo had a market place for

animals (*pasar hewan*). This could be found in the capital city of the *kecamatan* and was open once every five days; consequently, farmers usually sold their animals directly to the local animal trader.

#### 4.8 Organizations and groups in the villages

Different types of organizations in the villages have been studied. The government established and authorized some of these organizations, while the villagers formed others privately. There were many variations in structure, rules, purpose, and membership. The Village Government Law of 1979 (*Undang-Undang Republik Indonesia No 5 Tahun 1979 Tentang Pokok-Pokok Pemerintahan desa*) divided local government into five levels: the *propinsi* (province), the *kabupaten* (district), the *kecamatan* (sub-district), the *desa* (village) and the *dusun* (hamlet).

##### 4.8.1 The administrative unit

Under 1979 law, the *desa* was considered an autonomous unit with legal rights in its territory. On the basis of this law, the administrative structure of the *desa* consisted of three core institutions: the *Pemerintah Desa* (village administration) itself, the *Lembaga Musyawarah Desa/LMD* (village council), and the *Lembaga Ketahanan Masyarakat Desa/LKMD* (Development Planning Committee).

##### 4.8.2 *Pemerintah desa* (village administration)

In Indonesia, the *desa* has several units of which the *kepala desa* (head of the village) is the leader. Most *desa*<sup>2</sup> are divided into several *dusun*<sup>2</sup> (hamlets); the *kepala desa* is assisted by the *kepala dusun* (the leader of a hamlet). Kedung Salam had four *kepala dusun*<sup>2</sup>, while Putukrejo had only two, despite the fact that it had four hamlets. The *kepala desa* is assisted by the *carik* (secretary of the village) who on behalf of the *kepala desa* handles all clerical work. Below the *carik* is the *urusan* (section), of which there are several. Each *urusan* is responsible for carrying out specific functions and is broken down as follows: the *urusan umum* (general section), the *urusan pembangunan* (development section), the *urusan kesejahteraan masyarakat* (social welfare section), the *urusan perekonomian* (economic section), and the *urusan keuangan* (financial section). Each *urusan* is headed by a *kepala urusan* (section head).

It should be noted here that the government launched a *bantuan desa* program (village grant) in an attempt to improve the welfare of the rural sector. With this program, the central government provides each village with an annual grant. It initiated the program in 1969 and conferred a grant worth 100,000.00 rupiahs to each village. Over the years, this grant increased. In 1990, for instance, Kedung Salam and Putukrejo each received 3,500,000 rupiahs.

*Kepala desa*<sup>2</sup> began to be elected to office in rural areas south of Malang early in the twentieth-century. Before this, such authority was appointed through a semi-hereditary process. Villagers participating in elections during my research had to be older than 17 and have the approval of the *bupati*. The *kepala desa* appoints the *carik* and many other *desa* officials. Most of the strategic positions within the *desa* government are dominated by upper and middle class people or by their relatives. In the case of Kedung Salam, positions were filled by wealthy local traders like *juragan gamping* (big limestone traders). In Putukrejo, wealthy traders and sugarcane growers filled these positions. The *kepala desa* of Kedung Salam was a retired school teacher and an active member of the Golongan Karya or GOLKAR (the government party). The present *kepala desa* of Putukrejo was also an active member of the GOLKAR. Additionally, he was the son of the former *kepala desa* who was a big cattle trader and sugarcane grower. The *carik*<sup>2</sup> in Kedung Salam and Putukrejo were kin to the their *kepala desa*.

According to Tjondronegoro (1984:27) the number of village officials in a village depends on the allotment of available office land (*tanah bengkok*) that officials receive as an emolument for their positions. The *tanah bengkok* is usually part of the village's most fertile land. In Putukrejo, for instance, officials have the right to operate a piece of the *tanah bengkok* during their term in office in order to supplement their income. Putukrejo had 25 hectares of such farmland. The land consisted of several parcels, was situated in the central hamlet (*dusun krajan*), and was considered *bondo deso* (village property). Of it, about 15 hectares was distributed unequally to the village officials. In this case the *kepala desa* and the *carik* each obtained approximately 3.5 hectares and 2.5 hectares respectively. Ten hectares of the total land amount were leased to interested villagers. The revenue collected from these leasees was mainly used to pay the operational costs of the village administration. Village officials in Kedung Salam, however, were not given a *tanah bengkok*. For their period in office they receive a fee. This fee is a percentage of the total amount of taxes (*pajak ternak* and *pajak bumi dan bangunan*) which the villagers pay annually to the government. The percentage amount of money received by the officials varied from person to person in accordance with their position in the village administration. The *kepala desa* of Kedung Salam, for instance, received 6% of the total tax collected, the *carik* and some other *desa* apparatuses received 2.5%, and the *kepala dusun*<sup>2</sup> received 1.5%. In Kedung Salam such system of payment was called the *pletrekan*.

#### 4.8.3 The *Lembaga Musyawarah desa* (village council)

This is the legislative body of the village and is supposed to represent the interests of the local people. Its task is to discuss every program in detail which is to be implemented in the *desa*. The *carik* always automatically becomes the secretary of the *desa* council. Likewise, the *kepala desa* always becomes head of the village



council; therefore, nearly all of the programs he proposes are accepted by the village council. There are three main units in the structure of the council (economic development, administration, and social affairs) involving seventeen persons. In Putukrejo, nine persons out of the 17 are retired public servants, school teachers, and traders. In Kedung Salam nine persons out of 17 are retired public servants, retired soldiers, local school teachers, sugarcane growers, and wealthy local traders.

#### 4.8.4 The *Lembaga Ketahanan Masyarakat desa* or LKMD (Development Planning Committee)

The LKMD was also established by Law NO 5, 1979. This institution is primarily responsible for the village's development plans. As stated in the law, there are 15 units in the LKMD. These units and their functions can be described briefly as follows:

First there is the *ketua umum* (the top leader). He is assisted by what is tantamount to a first Vice President, then a second Vice President and then the secretary followed by the treasurer. The LKMD is split up into a number of sections: e.g. education, internalization of state ideology Pancasila, religion, environment, development, and cooperatives. In Kedung Salam these units were filled by civil servants, traders, or the wives of *desa* officials. In Putukrejo, some positions in these units were filled by members of the sugarcane growers association and the wives of *desa* officials.

Among the units mentioned above, the *ketua umum* is central. The *kepala desa* is the head of the LKMD. It is he who recruits and appoints the members of the organization. Because of the *kepala desa*'s central position in this organization, most of the programs he proposes are implemented. There is seldom a situation in which members of the organization reject an idea or program he has proposed. The *kepala desa*, however, does not automatically accept a program which a member proposes. For example, a member of the organization made a proposal to renovate some wells in a particular hamlet in 1989 only to have the *kepala desa* reject it. The *kepala desa* also rejected an idea proposed by another member to renovate an old school building in the central hamlet. Obviously poor farmers and the landless are hardly represented in all of the institutions mentioned above.

#### 4.8.5 The sugarcane growers association

Perhaps the strongest association in the villages was the *Kelompok Tebu Rakyat Intensifikasi*, abbreviated as TRI (Intensified Sugarcane Grower's Group). This association was established by the government in the early 1980s. In Putukrejo, many farmers grew sugar-cane, but not all of them became members of this association. Putukrejo has nine TRI groups with more than 150 members, each of which is led by a wealthy farmer. Kedung Salam, on the other hand, had only one of these

groups with eight members. *Desa* and sugar factory bureaucrats refer to cane growers who do not participate in a TRI as *kelompok tebu bebas* (free sugarcane growers group) or *kelompok tebu liar* (wild sugarcane group).

Some key informants in Putukrejo stated that many people of the *kelompok tebu liar* were formerly members of the TRI and that they withdrew from the association because of the disappointing way the organization was managed, particularly in regard to the sharing of profits from the sale of sugarcane. Some farmers stated that they were not allowed to harvest and sell their sugarcane when they wanted if they were a member of the TRI. Moreover, they also had to agree to sell their product at a price fixed by the factory.

By not becoming a TRI member, however, farmers must provide all the required inputs and bear all the risk themselves. The availability of seedlings and fertilizer is the most crucial factor in cultivating sugarcane. In order to deal with this situation many farmers must *utang* (borrow money in advance) from local money lenders or wealthy farmers who often play a role as *penebas*. These money lenders normally help farmers, but only when the farmers agree to sell their crop to them. The *penebas*, therefore, is the local middleman who buys a nearly mature crop. Observations during my research about the structure of the TRI group, however, have led me to conclude that many of the *penebas*<sup>2</sup> in this *desa* were actually the leaders of the *desa* and core members of the TRI groups.

Outside the village there were at least four parties involved in the sugarcane business: the Bank Rakyat Indonesia (BRI), the sugar factory at Kebon Agung, the sugar factory at Kreet, and the village unit cooperatives (*Koperasi Unit Desa*, KUD). Applicants had to meet the following requirements to be a member of the TRI:

- a. show that they have a Pethok D or girik (certificate of ownership of land) to the official of the Village Unit Cooperative (KUD)
- b. sell the harvest to the sugar factory via the KUD
- c. sign a declaration stating that they are willing to be a TRI member

Generally speaking, most farmers in Putukrejo and Kedung Salam had limited access to credit. Those participating in a TRI group, however, could borrow a fixed amount per hectare to buy farm inputs. They also received the necessary agricultural inputs such as fertilizer and cash from the KUD village cooperative unit as part of their credit package. The amount of fertilizer or cash received depended on the size of the land the farmer used to cultivate sugarcane. In the rainy season of 1990, a member of a TRI received 500,000 rupiahs and about 1,100 kilograms of fertilizer (200 kilograms of TSP, 100 kilograms of KCL, and 800 kilograms of ZA) for each hectare of land he cultivated. Before the crop was harvested, the sugar factory sent a team to test the sucrose content of the crop.

#### 4.8.6 Women's club (PKK)

PKK is an acronym for *Pendidikan Kesejahteraan Keluarga* which means Motherhood Association for Educating and Improving Family Welfare. This association is officially supported by the Ministry of Home Affairs, is established nationally, and is based on instructions issued in the mid 1970s by the Minister of Home Affairs and the Minister of Women's Role Affairs. One PKK chapter usually covers an entire *desa*. All women in the *desa* above the age of seventeen or married are obliged to become members. Women married to public servants or government officials are obliged to work as members of the steering committee. Meeting regularly, the steering committee plays an important role in the decision-making and implementation of the association's activities. Although work programs are decided on at these meetings, they follow the policy directives given by the government and must be approved by the village committee. The budget of this association is derived from the central government and its revenue given annually along with a *bantuan desa* (*desa* grant). This grant amounted to 750,000 rupiahs in 1989/1990.

The association in both villages consisted of 13 units and was dominated by the wives or relatives of the *perabot desa* (village officials). In Kedung Salam the wives of the *kepala desa* and of the *carik* were the head and the vice-head of the association respectively. The wives of the heads of the *dusun*, furthermore, were the leaders of this association at *dusun* level in addition to being core members of the association at *desa* level. Wives of the heads of the *Rukun Tetangga* or of the *Rukun Warga* (neighborhood associations) become leaders of the *PKK kelompok* (small group of PKK), otherwise known as the *dasa wisma*, a group consisting of 10 households. During the period of my research, many of these *dasa wisma* programs in Kedung Salam and in Putukrejo had not worked as planned because many women did not participate in it; instead, they preferred to spend their time working in their own fields or doing off-farm and non-farm activities.

#### 4.8.7 Neighborhood association

Neighborhood associations in the village can be divided into two levels: the *Rukun Warga* (RW) and *Rukun Tetangga* (RT). The RW consists of several RTs, and an RT can consist of several households (*somah*). Both the RW and RT are headed by persons appointed by the *kepala desa*. Putukrejo had four RWs and 28 RTs with 877 households, while Kedung Salam had 17 RWs and 86 RTs with more than 2,000 households. Although these associations are not directly linked to the *desa* administration, in practice all government programs such as the mobilization of non-paid labor among villagers for maintaining *desa* roads or public buildings (known as *gugur gunung*) are implemented via these associations. All household heads in the *desa*<sup>2</sup> are obliged to participate. The heads of the hamlet or the head of the RW and the RT are told when participants are needed for work and how

many of them are needed. The participants themselves are provided with a snack and a cup of coffee for their labor. When a villager called upon to work cannot participate, he must find a replacement (e.g. a member of his household) or provide snacks. The RW and the RT are regarded as the lowest level of village administration.

#### 4.8.8 Savings club

One of the most popular associations in both *desa*<sup>2</sup> was the *arisan*<sup>2</sup> (saving clubs). An *arisan* is a kind of lottery and is the most popular way to save wealth. Villagers in Kedung Salam and Putukrejo organized several *arisan*<sup>2</sup> privately, and nearly all the RT's in both villages have *arisan*<sup>2</sup>. Furthermore, *arisan*<sup>2</sup> are voluntary, spontaneous in nature, and easy to join. Those wanting to take part contact the organizer (*pengurus*) and sign up. The organizer himself is elected and is usually *orang yang dipercaya* (the most trustworthy person).

Men and women have their own *arisan*. In fact, it is common to find in every household a husband, a wife, and an adult son or daughter each participating in different kinds of *arisan*<sup>2</sup>.

Women usually participate in *arisan*<sup>2</sup> which use rice and plates, while both men and women participate in *arisan*<sup>2</sup> involving money. Each member or participant contributes a fixed amount of money, rice, or plates. A drawing is then held and the winner is given the proceeds from the pot. This person then makes a contribution to the subsequent lottery but may not participate in the drawing of a winner. The *arisan* is dissolved when everyone has won the lottery one time. Depending on the commitments made by the members of the *arisan*, it may be carried out weekly or monthly. As far as the *arisan* in the form of money is concerned, the amount of money that should be delivered to the organizer varies from 100 rupiahs to 500 rupiahs. The number of people who participate in an *arisan* may vary from one RT to another and can range from 15 to 20 people. An *arisan* may be held in the afternoon or in the evening and can take place in the house of the organizer or of the participants. Because the structure of an *arisan* is very simple, it minimizes the risk of default. Default is minimized again by giving the winner his proceeds immediately. Default is still more unlikely because membership is limited to neighbors tightly connected by location, affinity, and kinship (Kawagoe, Ohkama and Sri Bagyo, 1992:229).

#### 4.8.9 Reading the Koran

Another popular association in both villages was one in which participants read the Koran. This association is organized privately by a group within an RT. Reading the Koran can take several forms: e.g. *Tahlil*, *Selawatan*, or *Munakiban*. Whatever its form, reading for women or girls above 10 years of age usually takes place

every Thursday afternoon and every Friday evening for men or boys. Depending on the number of participants, it can take place in both the mosque or in the house of the participants. During the reading, participants will pray for the spirits of their ancestors in addition to listening about the life history of the Prophet Mohammed - a lecture usually given by a religious teacher. In Putukrejo prominent leaders of Koran-reading-associations were Madurese, while in Kedung Salam they were Javanese who completed a course in the *pesantren*: the boarding school for muslims.

#### 4.8.10 Political organization

After the Indonesian Army put down the Communist's attempt at a coup d'etat in October of 1965, the New Order Government came to power and overthrew Soekarno, the former Indonesian President. This political change had a significant impact on Indonesian political life, including on those living in rural areas. Soon after the new regime seized power, it issued a policy known as the *Kebijaksanaan massa mengambang* (the floating-mass policy). This policy prohibits any direct or indirect political activity involving villagers; consequently, villages have hardly exercised any autonomous political power. Since the New Order has been the major power broker in the country, there have been three political parties in Indonesia: (1) the *Partai Persatuan Pembangunan*, otherwise known as PPP (Development Unity Party), an amalgamation of several islamic parties; (2) the *Partai Demokrasi Indonesia* otherwise known as PDI (Indonesian Democratic Party), an amalgamation of some Christian parties and the *Partai Nasional Indonesia* (National Indonesian political Party); and (3) the *Golongan Karya* (Functional Group), the government sponsored party, otherwise known as *Golkar*. The first two parties were prohibited from maintaining offices at village level or from conducting political activities in the villages.

Political parties can only occupy office branches and carry out activities at the *kecamatan* level. Because it is the government in power, however, GOLKAR is able to execute any political activity in the villages via the villages' administrative structures. A regulation issued by the Ministry of Home Affairs states that all strategic positions in the administration of the villages must be filled by *orang-orang Golkar*: those belonging to or affiliated politically with Golkar. Not surprisingly, the orang-orang Golkar dominated nearly all of the strategic positions in the administrative structure of the villages, both in Kedung Salam and Putukrejo, from the *kepala desa* level on down to the lower ranks.

Key informants in Kedung Salam claimed that the village was known politically as *daerah merah* (red influenced area) during the 1950s to 1960s, meaning that it was under communist influence. And indeed, during that time communists were well represented in the administration of the *desa*. A year after the coup, however, the army killed many communist cadres and sympathizers, including the former

*kepala desa*, and then controlled the village from 1965 to early 1967. For several years after, army personnel filled key positions in the administration of the *desa*.

#### 4.8.11 Obligations to the neighborhood

Communal norms in Kedung Salam and Putukrejo insisted that adults help each other, regardless of their socio-economic status. According to established norms, people living in a given neighborhood should be willing to help each other or take a part in various activities done within the neighborhood. This norm was closely related to the concept of *guyuban*, which means living in a harmony and with social reciprocity. *Guyuban* is reflected in various activities ranging from building or renovating houses to ceremonies relating to the life cycle of individuals like birth, marriage, and death. For example, in Indonesia, it is common for people to spontaneously help a neighbor when they hear that the neighbor wants to construct or renovate a house. What is more, people will help this neighbor until the end of the project. Given such a case, these people will postpone their own business and make their assistance to their neighbor's plight a priority. Although professional artisans like carpenters and plasterers perform the major construction, neighbors and relatives will do the relatively simple jobs. This kind of mutual help was called *sayan* in both Kedung Salam and Putukrejo.

In an important social event such as a marriage ceremony, people living within the neighborhood will spontaneously come to celebrate the marriage. The same also applies when *slamatan*<sup>2</sup> are given to celebrate a new birth. In that case, people will come and celebrate with the baby's parents and give their blessings to the infant. In such events women give rice (normally 3 kilograms), whereas men will give 2,500 to 3,000 rupiahs. Villagers are willing to do these things because they have learned that others will reciprocate in the future. Someone not willing to help a neighbor or someone who shows an unwillingness to participate in such activities is condemned publicly and isolated by the members of the community. Mutual help is also widely applied in farming activities: e.g. exchanging labor during harvesting.

#### 4.9 Existing cropping systems and the introduction of new crops

The main food crops in Kedung Salam and Putukrejo were cassava and maize, mostly intercropped with each other. Sometimes maize was intercropped with either soybeans, chilli, or peanuts. In Putukrejo irrigated rice was grown because some irrigation was available. Farmers could grow up to two crops per year. Rain flooded rice fields could also be used for soybeans during the dry season if sufficient water was available. Quite a bit of sugarcane was grown too, and coffee was an important crop, as well as coconut and banana. In Kedung Salam, teak and acacia were grown in addition to intercropped cassava, maize, and gliricidia.

Farmers in this area divide the seasons (*mongso*) into three. First there is the *rendengan* (rainy) season; this usually starts in October or November and ends sometime in February or March. The *lemarengan* is the second season. It starts in February and ends in May. The *ketigo* is the dry season and lasts from May to October. The cultivation cycle started at the beginning of the rainy season, between late September and early November. Farmers usually planted their crops after at least seven successive days of rain in order to reduce the risk of pre-mature crop growth. Preparation of the fields usually started after the cassava harvest in the dry season between the months of July and September. For land of medium to light texture farmers preferred ploughing with animal traction. Heavy textured or stony soils were tilled by hand. The land was left bare until the onset of the rainy season when the last ploughing or tilling was done. This system helped rain water penetrate the soil.

Maize was usually planted first, followed by cassava a few days later. The seed for maize was usually purchased at the market. The varieties planted depended on the availability of seed. When a second crop of maize was grown within the same year, part of the harvest from the second crop could sometimes be used for planting during the next rainy season. A farmer usually obtained his cassava seedlings from a supply he saved from his last harvest. Sometimes farmers used material from neighbors or from relatives. Both maize and cassava nearly always received some fertilizers (*pupuk*) and farmyard manure (*rabuk*). Manure was applied during land preparation at the end of the dry season. The rate and number of fertilizer applications depended on the availability of cash for the purchase. The first application of urea, sometimes with triple superphosphate (TSP), was given 15 days after the maize had been planted. A second application was given 35-60 days after planting. This length of time was extended for cassava: 90-120 days after planting. Almost every farmer was aware of the importance of farmyard manure for improving his soil. Farmers who reared animals applied manure regardless of the kind of animals he had: e.g. cows, goats, or sheep. Because farmers did not ordinarily buy manure, they applied it in accordance with the number and type of animals they rear. The fields were usually weeded twice, often in combination with ridging. The first weeding was done after the second application of fertilizer, and the second after the maize was harvested. Depending on the variety they used, farmers generally harvested maize 90-120 days after planting. After drying for about three or four days, bundles containing 40-60 good cobs with husks were stored above the fireplace (*pogo*) in the house. Small cobs were consumed directly. The time for cassava harvesting depended on the crop's variety and on food preference. Several local varieties like *menthik urang*, *penadu Arab*, and *kastal* were usually consumed fresh and were therefore harvested gradually. Other varieties like *sembung*, *kabru*, *karet*, and *faroka* were mostly processed into *gaplek* dried cassava.

Older generations of people in both Putukrejo and Kedung Salam were still able to recall that some farmers in the 1930s grew groundnut, soybean, and a local

variety of cassava called *kastal*. The farmers who cultivated these crops grew in number, particularly during 1940s and 1950s. Due to the re-greening program (program *penghijauan*) in 1950, *gliricidia* (*kelor wono*) was introduced successfully in the area south of Malang. The government launched a similar program again during the 1970s. As a result, *gliricidia* was spreading fast throughout the area at the time. *Kaliandra* (*caliandra calothyrous*) was also introduced in Putukrejo and in Kedung Salam in mid 1973. Farmers obtained the seedlings required for it from *desa* officials and extension agents.

From the late 1950s until the early 1960s farmers in both villages grew *goter* and *genjah tongkol* varieties of maize, together with some varieties of cassava such as *nyonya ndoro*, *pandemir*, *faroka*, and *montro*. When farmers had access to water, they also grew different kinds of *gogo* rice such as *menthik urang* and *lembayungan*. Some farmers in Putukrejo, particularly the relatively rich ones, grew tobacco as well, but usually only after the rice harvest; however, many of them had given this crop up because of its declining price.

In the mid 1960s farmers started cultivating local varieties of cassava such as *cecek*, *sembung*, and *kabru*. Other farmers soon found out about this via *getok-tular* and decided to plant it as well. In most cases, they could obtain the seedlings from their neighbors or relatives. In some cases, such information or material transcends the administrative boundary of the *desa* and the *kabupaten* itself. In fact, seedlings for cassava can be obtained from friends or relatives living hundreds of kilometers away. In 1964, the central government introduced high yielding varieties of maize called *jagung amerika* and *jagung metro*. A new variety of *sawah* rice called *pari bengawan* was also introduced. *Pari bengawan* came from seed stations in East Java. In the 1950s it was the most important rice variety planted in *sawah*<sup>2</sup> throughout the province from Madiun to Banyuwangi (Fox, 1993:127).

The government introduced sugarcane into the limestone area south of Malang in the 1970s using the sugar factories at Kebon Agung and at Kreet Malang. Before they were nationalized in 1961, these two factories were owned by the famous Chinese tycoon, Oei Tiong Ham. Farmland in Putukrejo, especially land owned by wealthy farmers and which formerly cultivated tobacco, was rented by the sugar factory at Kebon Agung as early as 1978 for about three years and planted with sugarcane. In order to minimize the cost of labor, the people involved used hand tractors to prepare the land. When the contract ended in 1981, there were about thirty wealthy farmers who began to crop sugarcane on their land. These farmers then became members of the TRI.

Knowing that sugarcane was sound and profitable compared to crops like maize and cassava, some wealthy farmers started to rent land from small farmers for about three years. Since then, the process of renting has continued. At the time of my research, hundreds of hectares of farmland (approximately 350) in Putukrejo were cultivated with sugarcane. Farmers grew two varieties of cane here: the 32-variety and the 42-variety. Many farmers preferred the 32 variety over the 42 because it



was thought to be drought resistant. The rapid expansion of its cultivation in the south of Malang may have been caused by the policy of the *kabupaten* Malang which in 1981 prohibited the use of fully irrigated *sawah* land for the production of sugar (Edmundson and Edmundson, 1983:49).

In 1954 the government introduced some perennial crops to the limestone area south of Malang like *petai* (*Parkia speciosa*), coconut, and kapok. During that time many farmers in Putukrejo and Kedung Salam were obliged to cultivate such crops. Some seedlings of the crops were planted on the farmers' land, while others were planted on the left and right sides of the main roads passing through the *desa*. The production obtained from the trees on the sides of the roads went to the *desa*.

Nearly all farmers in Kedung Salam and Putukrejo planted teak trees on their land, regardless of the size of their plots of land. This tree species was considered the most valuable because of the price it fetched. Teak was first introduced to the area by the colonial government in the beginning of the twentieth century. In fact, seedlings for it may have been taken from the former Dutch Plantation Company. During the colonial time in Kedung Salam, hundreds of hectares of teak trees were planted under the administration of the Dutch Forestry Company located in Donomulyo. Since Indonesia's independence, managing teak has become the responsibility of the Indonesian State Forest Enterprise (*Perhutani*). Nowadays, farmers can obtain the seedlings for teak trees either from neighbors, relatives, or *Perhutani* land.

Many areas in upland Java, including land in the limestone area south of Malang, have suffered from severe soil erosion for quite some time now. In some upper-slope gradients, erosion reached a point where once cultivated land was abandoned due to a serious decline in soil fertility. With the intention of contributing to the income and employment of lower income groups in rural areas, the central government had since launched the *Penghijauan* and *Reboisasi* Program: a program which was attempting to rehabilitate the areas suffering from severe soil erosion. Soil deterioration in these upland areas was widespread and covered nearly 80% of all *kabupaten* areas (Birowo and Hansen, 1981:17). The program was launched in 1975 in order to introduce a re-forestation effort for upper-slope areas and to initiate a terracing program in low gradient slopes for more appropriate soil conserving cropping regimes.

The government used the same program in 1979 to introduce some species of woody perennials like albizzia and kaliandra into Putukrejo and Kedung Salam. Other species like mahogany (*Swietenia macrophylla*), acacia, *lamtoro gung*, and albizzia were also introduced. The government even tried to stimulate farmers into growing some crops by using demonstration plots in the Brantas Watershed Project. The project also included other plant species: e.g. the *arjuna* variety of maize, groundnut, *petai* (*Parkia speciosa*), *melinjo* (*Gnetum gnemon*), avocado, a high yielding variety of coconut, and *rumpit gajah* (elephant grass, *Pennisetum*

purpureum)). Cacao (*coklat*) was introduced to Putukrejo in late 1984. A new variety of maize known as CPI was introduced into both *desa*<sup>2</sup> three years later.

The responses which farmers gave to these programs varied. More specifically, they responded positively to the perennial crops that were introduced. In fact, many farmers not addressed as target groups also started to cultivate trees, obtaining access to seedlings from their neighbors or relatives. Most of these farmers cultivated trees on their infertile land. Their eagerness to plant trees may be explained by the large amount of wood that farmers in both villages require for domestic use: e.g. for constructing houses and burning limestone.

The farmers studied claimed that *gliricidia* and *acacia* should not be planted too close to coconut, *gnetum*, or *gnemon* because the latter crops will not bear fruit. They did not like to cultivate the high yielding variety of coconut, because it needed a lot of fertilizer during the first year, and because its produce was hardly marketable in comparison to the *kelapa biasa* found locally. Women, for instance, mostly used this local variety for their domestic activities: e.g. cooking and ceremonial activities. These fruits could also be used as gifts during marriage ceremonies. Most farmers, therefore, viewed the high yielding variety of coconuts only as a *pethetan*, an ornamental tree with no commercial value.

Likewise, farmers did not like to plant the high yielding variety of maize called CPI because the price of the seed at the local market was expensive or unavailable. Moreover, the crop was simply not preferred by the local population. According to the wives of the farmers, this maize is not *punel* (tender) when cooked and could not be stored for more than three months. Farmers, therefore, preferred to plant the local maize variety. These farmers also rejected cacao because it took too much time to grow and, to their knowledge, neither the soil type nor the climate were suitable for cacao.

#### 4.10 Livestock and sharing arrangements

##### 4.10.1 Requirements for becoming a cattle sharer

Owners who share out their animals have to select prospective candidates carefully because they take a considerable financial risk. For example, if an animal dies while in the sharer's possession the owner receives no compensation from the sharer. Not surprisingly, owners will only put their animals up for sharing if they are confident that the animals will be taken care of properly. In evaluating potential sharers, an owner will demand the following: (1) The household concerned must have prior experience in keeping animals; (2) the potential sharer must be able to collect fodder regularly; (3) he should not be a commuter (*nglaju*) or a person who works and stays outside the village for several months a year; (4) he should not be single; (5) and his children should be grown or belong to the work force (10 years of age or older).

It is not always easy for an owner to monitor the performance of sharers or to evaluate applicants; therefore, he first chooses relatives living in the same hamlet. His second choice is neighbors, friends, or laborers working on the cattle owner's farm. His last choice is farmers with a favorable reference from a person he knows. Cattle owners who entrust animals to others claim that landless farmers (laborers) tend to take better care of animals than those who farm crops because they concentrate more on managing and feeding them. Landless farmers are also thought to be more motivated because they expect more from the animals than households with land. By keeping a shared cow, landless farmers expect themselves to own cattle in the future.

#### 4.10.2 Obligations and rights of cattle sharers

Both an owner and a potential candidate can initiate a sharing-contract. Because of the socio-economic position of the potential candidate, however, it is usually the sharer who takes the first step in approaching someone. There are no written sharing-contracts; nevertheless, the conditions for sharing are well defined. The sharer is responsible for the daily management of the animals, including the feeding and breeding. He must inform the owner when the animal is pregnant, is about to calve, or is ill. As compensation, the sharer can use the animal's manure for fertilizer and its strength as draft power on his land. With the owner's prior consent, the sharer may also use the animal to plough another farmer's land, or rent the animal to other farmers for ploughing. The period during which the animal is shared and during which her offspring is housed on the sharer's farm is not stipulated in advance. In principle, both the rearer and the owner have the right to terminate the sharing contract at any moment. The time when offspring should be sold is negotiable. If the sharer dies, the sharing contract is automatically stopped. The contract itself can take two forms: one to regulate how profits are shared (*maro bathi*), the other to regulate how offspring are shared (*maro anak*). Though there are exceptions, normally profit sharing applies to male animals, whereas offspring sharing applies to females.

The principle underlying the sharing of profit is that the value of the animal (when it entered the sharer's farm) is deducted from the selling price of the animal and the difference split equally between the owner and the rearer when the animal is sold. The rules in Putukrejo were identical to those in Kedung Salam. Shared cattle was only sold when both the rearer and the owner agreed to sell the animal. A common reason for selling is that the owner or the rearer needed cash immediately. This led to frequent and sudden transactions. In one case, for example, a young bull was sold 55 days after it arrived on the rearer's farm because the owner needed cash to cover his wife's medical expenses.

The contract for sharing offspring applies to female animals and is much more complicated because benefits can take the shape of property rights to the offspring

or cash. Here there is a difference between Putukrejo and Kedung Salam. In Kedung Salam the rearer was entitled to the firstborn calf and the owner to the second calf if the animal was one year or younger when it arrived at the rearer's farm. If the animal entered the rearer's farm at an age of more than one year, the first calf went to the owner and the second to the sharer. In both cases property rights to a third and following calves were divided fifty-fifty between the cow's owner and the sharer. In Putukrejo, the owner received one-third and the sharer two-thirds of the value of all offspring produced during the rearing period if the animal entering the sharer's farm was one year old or less. If the animal was more than one year when it came to the sharer's farm, the value of all the offspring was divided fifty-fifty. If the animal was less than one year at the beginning of the contract period, therefore, the owner in Putukrejo received a smaller share in the progeny but received his first return sooner. If the animal was more than one year old when it arrived on the sharer's farm, the owner in Kedung Salam received a bigger initial return, without the decrease in the total return that owner's received in Putukrejo. In both villages, a first calf goes to the owner and the second to the sharer if a cow is already pregnant when it arrives on a sharer's farm. From then on, a fifty-fifty scheme applies to the sharing of progeny.

If one partner wants a shared calf entirely for himself, the rules of *susuk-sinusuk* apply: the partner who wants to obtain the calf must pay half the value of the animal in cash to the other partner. Similarly, if one partner needs cash, the other partner must pay half of the value of the animal. The calf must be at least eight months old before the two parties can begin to negotiate. When a shared cow has had two calves and no transaction has yet taken place, the owner and the sharer of the cow are both entitled to 50% of the value of both calves. If one of the partners wants the bigger calf for himself he must pay half the difference in value between the big and the small calf to the partner who keeps the smaller calf. This arrangement is only possible when the younger calf has reached the age of eight months and its value can be assessed.

Although the initial agreement for female cattle is usually the sharing offspring type, the agreement may be changed if the animal is found *majer* (infertile) or if either the owner or rearer need cash badly. In such cases, the parties involved may decide to apply the principle of sharing profit. In the case of infertility, the owner may replace the animal with another cow or heifer, which may or may not be pregnant. Cows are considered infertile if they do not become pregnant after being served five times or more.

#### 4.10.3 The importance of shared animals

As noted above, a poor household which cannot purchase cattle must start off by sharing animals. If all goes well, it will eventually have animals of its own and sell the offspring in order obtain the funds needed to improve its house, to rent land,

or to purchase extra land. The history of several households included in this study show how important the role is of livestock and the institution of sharing (see Chapter 5).

#### 4.10.4 The role of traders

Monetary value of animals (*kertoaji*) is always estimated with the assistance of a cattle trader. There are three categories of cattle traders in the area. The first category encompasses big cattle traders (*blantik gede*). People here belong to the village elite, have capital, and own a means of transportation which they use to move from village to village. They purchase animals directly from farmers, though they may also purchase them from the second category of cattle traders in the area, the small local traders (*blantik cilik*). This group has limited funds and a smaller network in which to work. The third category consists of *blantik nampar*, persons hired by the *blantik gede*. The role of traders in the third category is to bring animals to the marketplace and sell them on behalf of the big cattle traders. In both Kedung Salam and Putukrejo, assessing the value of animals under sharing arrangements is done by the small local trader (*blantik cilik*). This person makes his assessment on behalf of both the owner and the sharer. The trader receives 1,000 to 2,000 rupiahs from the owner of the animal for his services.

In the case of male animals and profit sharing contracts, the *blantik cilik* assesses the value of the animal at the beginning and at the end of the rearing period. The price depends on physical characteristics like color, teeth, age, size, and weight. Using these criteria, the animal is valued according to the price which prevails locally. The role of the trader is not only to arrive at a good standard price but also to avoid conflicts between the owner and the rearer that arise as a result of a different assessment of the animal's value. This assessment is an essential part of sharing agreements.

## **5 DECISION-MAKING PROCESSES: CASE STUDIES OF SIX FARM HOUSEHOLDS**

### **5.1 Introduction**

This chapter will present a detailed description of the case studies of six families: Pak Simin's, Pak Bani's, Pak Bagong's, Pak Karman's, Pak Sabar's, and Pak Matori's. I have changed the names of these families and the individuals in them in order too protect their anonymity.

First I describe the background of the farmer and his wife. I then continue with the stages of the farm's and farm household's development, emphasizing some relevant issues such as how the farm was started, history of the land, history of the crops, history of the house, social relationships, and the social status of the farmer and his wife. "Non-farm" activities refer to actions not related to work on the people's own farm but still within the realm of agriculture and keeping livestock. These activities can be broken down into the following:

- activities on the farm not related to agriculture: e.g. basket weaving and snail collecting
- off-farm activities involving agricultural tasks on other farms: e.g. cutting sugarcane, weeding, ploughing.

Finally there are non-farm activities outside agriculture, e.g. burning limestone.

For each household, a summary of the position of the farm and of the household will be presented. Highlighted will be the household's composition, labor units, land units, the location of its parcels, land use, livestock, non-farm activities, and income. The labor units available to the household have been calculated in the following way: Adults 16-59 years of age are regarded as one labor unit, children 10-15 years old are considered as 0.5 labor units, and persons older than 60 count as 0.5 labor units. A detailed description of the decision-making processes will be given afterwards and will emphasize three major areas of decisions: cropping pattern strategies, livestock, off-farming activities, and non-farming activities. Concluding remarks are given for each type of decision. The decision-making process was systemized according to the steps presented in the basic linking-loop-model.

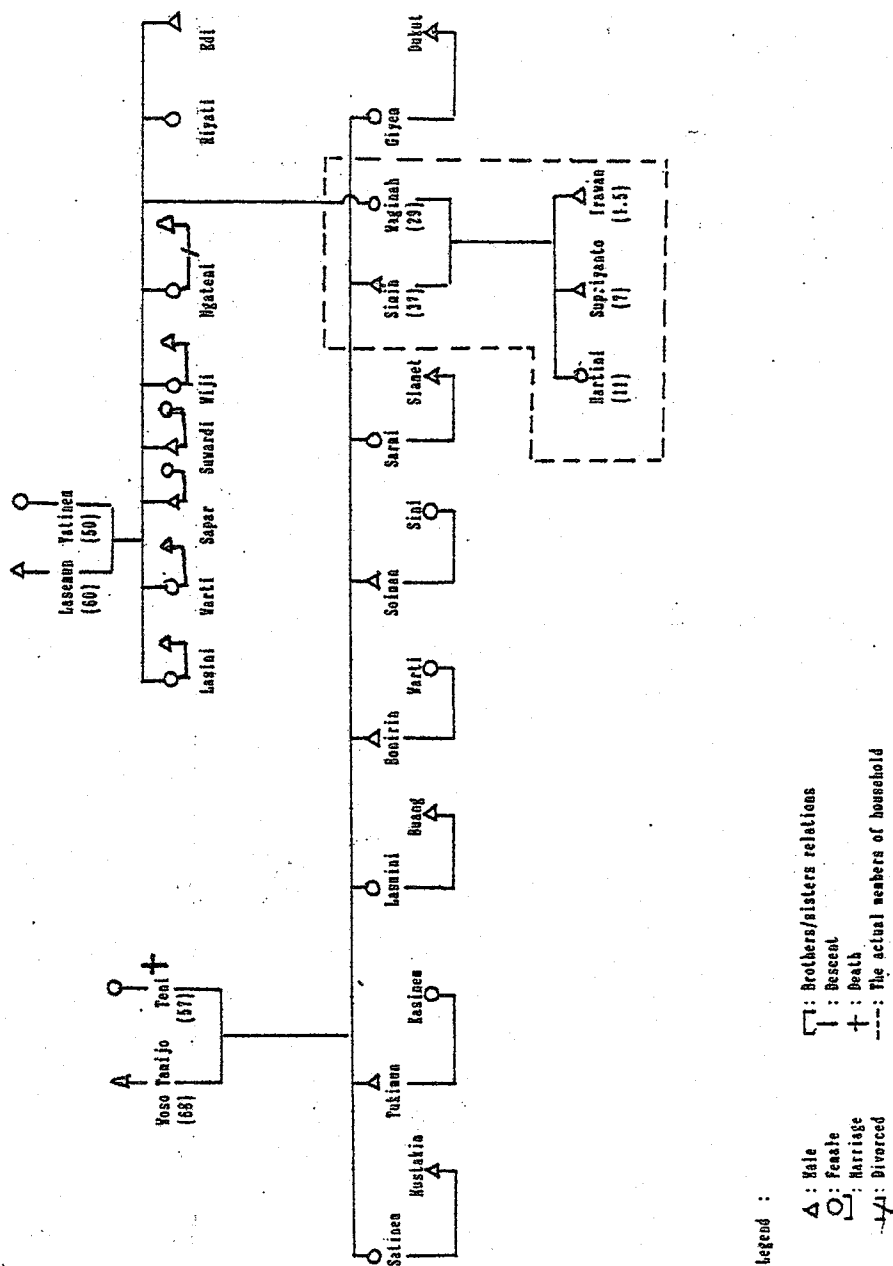
## 5.2 A case study of the household and farm of Pak Simin

### 5.2.1 Family background of the farmer and his wife

Pak Simin was a Javanese farmer in the *dusun* Summersih, Kedung Salam. He was relatively well educated and spoke Bahasa rather fluently, though sometimes he mixed it with a local Javanese dialect. He always used Javanese for his daily communication with relatives and neighbors. His parents, Pak Woso Tamiyo and Mbok Teni, were farmers in the *desa* Kedung Salam. His father was still alive, but at 80 years of age, he was too old and sick to farm actively. For daily farming activities, he depended on the help of Simin's youngest sister, Giyem, and her husband who had been staying with him since they have been married. Simin's mother died many years ago when Simin was six years old. Pak Simin himself was born in Kedung Salam in 1954 and turned 37 years old in 1990. He had four sisters and three brothers, all of whom lived in the same *desa*, were married, and had children. (See the family tree of Pak Simin and Bu Waginah in Figure 5.2.1-1.) His siblings could be broken down as follows: Satinem (female, the eldest), Tukimun (male), Lasmini (female), Bonirin (male), Soiman (male), Sarmi (female), and Giyem (female). Of Pak Simin's brothers and sisters, Sarmi was the best off. She married a local trader and together they ran a shop in Kedung Salam selling items for people's daily needs and some agricultural inputs such as fertilizer. They also grew sugar cane.

When Simin was seven years old in 1962 he went to primary school in a *desa* located approximately two kilometers away from home. He walked to school because there was no public transportation, unlike today. He walked barefoot and did not wear a school uniform. Simin finished his primary education at the end of 1968 and, although his academic record was not spectacular, he was still eager to continue studying. In 1969 he went to the *Sekolah Lanjutan Pertama*, the junior high school. This school was private and owned by *Muhammadiyah*, a Muslim organization which stimulates such social activities. Simin wanted to become a school teacher and was supported by his parents in his wish. Immediately after finishing junior high school, he continued his education at the *Sekolah Pendidikan Guru* (teacher training school) located in the capital city of the *kecamatan* (sub-district) Donomulyo. This program lasted three years, but Simin did not get a certificate because he failed the final examination in 1974. He was disappointed about this, but not for long. Commenting on it in the local dialect, he suggested that *mbok menawi mawon jalur guru niku mboten cocog kalih gesang kulo, sing, cocog ggih dados tiyang tani niki* (perhaps being a school teacher did not fit in so much with my life as a farmer). After he failed his exam, Simin began to help his parents at home and worked in the field more eagerly than before. He learned how to farm from his father and decided to become a farmer. In 1979, he married Waginah, a woman from the same *dusun*. By then, he was 25 years old.

**Figure 5.2.1 (1): The family tree of Pak Simin and Bu Waginah**





Waginah, his future wife, was born in 1962 in the *dusun* Summersih in the *desa* Kedung Salam. She was the daughter of Pak Lasemun (now 55) and Mbok Yatinem (50). Her parents were still alive at the time and farmed actively. The land they cultivated was three hectares. When she was living with her parents Waginah helped plant and harvest crops and collected water and forage for the animals. Like many girls her age, she also helped her mother prepare food in the kitchen for the other family members. But, she said, she was not so serious about her work when she was young and that now, as a married woman, she takes her tasks more seriously. When she was seven years old, Waginah went to primary school and, like Simin, walked two kilometers everyday because there was no public transportation to and from the *dusun*. Unlike Simin, however, she was unable to finish her education and dropped out in the third grade. Luckily, she said, she is still able to read a little bit, but can neither write nor speak the official Indonesian language, Bahasa. She married when she was about 17 years old. Her parents had eight children: Lasini (female, the eldest), Suwardi (male, worked in Surabaya as a laborer for a construction company), Sapar (male, works in Surabaya like his brother), Ngateni (female, divorced and subsequently employed as a house keeper by a Chinese family in Ujung Pandang, South Sulawesi), Warti (female, married and lived with her husband in the *desa*), Wiji (female, also married and lived with her husband in the *desa*), Riyati (female, not yet married), and Edi (male, also not married). Riyati and Edi still attended school and lived with their parents.

### 5.2.2 Development of the farm and farm household

#### How the farm was started

Schedule 5.2.2(1) illustrates an overview of the stages of the household's and farm's development. Long before Simin married Waginah (probably during the 1960s), he had obtained 0.55 hectares of land from his father. This is indicated as parcel 1 in the schedule. His father bought the land for him after having sold five heads of cattle. Simin himself did not cultivate the land then because he was too young and still unmarried. Up until his marriage, the land was considered *namung dibongkoraken* by Simin. At the time it was purchased, some banana, coconut, and teak trees were growing on it, planted by the former owner.

The field remained uncultivated when the Simin family started their own farm and built a house for themselves there. For approximately one year after the couple married, they lived in Simin's father's house. His father also helped him and Waginah earn a living. Soon after their first daughter was born, however, they moved into their own house and started their own farm. In the beginning (up until the late 1980s), their household economy always posted a deficit. They cultivated maize, cassava, cowpeas and, when water was available, paddy. For the most part, Waginah's parents supplied them with their seeds and seedlings, but neighbors also

## Schedule 5.2.2 (1):

## Stages in the development of the farm and household of Pak Simin and Bu Waginah

YEAR	Simin's Parents		Waginah's Parents				
	Pak Moso Taminyo (Simin's father)	Mbak Teri (Simin's mother)	Pak Laseman (Waginah's father)	Mbak Yatines (Waginah's mother)			
	Both are farmers		Both are farmers				
1954	Simin is born						
1960	Simin inherits parcel 1 from his parents						
1962	Simin goes to primary school						
1968	Simin finishes primary school						
1969	Simin goes to Junior High School						
1970a	Simin learns how to plant vanilla						
1971	Simin goes to the Teacher Training School						
1972							
1974	Simin fails his exam at the Teacher Training school						
	- learns how to farm instead						
1978	Simin cultivates gliricidia in LU6 parcel 1						
<hr/>							
1979	Simin marries Waginah						
1980	They start to farm						
	FAMILY		FARM				
	- Hartini is born						
	- Simin starts to collect limestone						
		LAND	CROP	LIVESTOCK	STABLE	EQUIPMENT	HOUSE
		Parcel 1 (0.55 ha)	Gliricidia maize, cassava, rice, banana acacia, coffee jackfruit Parks upgious breadfruits and local variety of coconut	Shares one head of cattle	A bamboo stable is built	2 sickles hoe hooked stick hammer	they stay in Simin's parents' house
1981				Simin receives a susuk of 125,000			Klenengan house is built
early 1982				shares cow on basis of maro anak;			
by the end 1982				owner sells mature cow for which Simin receives susuk of 116,000 rupiahs for the calf; shares cow on basis of maro anak again;			
1983							
by the end 1983				female cattle is returned to the owner for which Simin received compensation of 2,000 rupiahs; the family buys three sheep			
1985	- Supriano is born		Gnetus-gneton				
	- Waginah starts to collect lantoro mol leaves						
1986			Local variety of coconut				
1989	Waginah starts to collect snails		Kelapa puyuh	Have 12 sheep 1 sheep dies			
1990	Irawan is born	0.22 ha Perhutani's land (parcel 2)	Cucumber, amarath elephant grass vanilla, coconut in parcel 1; Local variety of coconut, coffee in LU6	1 sheep is sold			
Early 1991							
May 1991				10 sheep 1 sheep is sold			
July 1991							
1991			Maize and cassava in parcel 2	9 sheep			

supplied them with other items they needed. Nonetheless, the couple could not rely on the income generated from their agricultural activities; therefore, Simin had to work as a hired laborer carrying wood to burn limestone in the *dusun* Ngliyep, a half kilometer away from their dwelling. Waginah, too, had to work and found employment as a weeding laborer in the rice fields and as a *buruh derep ngrampyang* (someone who harvested crops only). When she worked as a *derep*, she started at 8:00 am and finished at 4:00 pm. For her labor she received about six and one-half kilograms of unhusked rice. During these difficult days, the couple also had to clear the land from scrubs, remove stones from the soil with a hooked stick, and arrange the house properly. In the meantime, their first born had to be cared for and fed by the mother. Fortunately, their parents helped them by giving them food.

### Stages of the household's development

As mentioned earlier, Pak Simin and Bu Waginah married in 1979 when they were 25 and 17 years old, respectively. In 1990 their farm household was a typical child rearing household with having three small children: one daughter and two sons. Hartini was the first born (female, 11 years old), Supriyanto the second born (male, six years old), and Irawan (male, nine months) the third born. The differences in age between the children is due to the family planning which Simin and Waginah practice. Their daughter, Hartini, was currently in the sixth grade of primary school. As many girls her age in the *desa*, she helped her parents with a range of chores: e.g. taking care of her little brother and collecting feed for the animals. She acquainted with some prices of agricultural products which her parents usually sold to a local trader, such as the prices for banana bunches or coconuts.

Like other children, however, she also played with her friends. Most of her friends were girls, though she mingled with some boys as well. All were neighbors living in the same RT (*Rukun Tetangga*: a neighborhood association). In 1991 Waginah informed Hartine that she would be able to continue with junior high school when she finished her primary school studies. Her father agreed with the idea because he believes that education is important and knew that his wife could handle the household budget along with the school fee. Knowing that her academic record was never very good, Hartini did not like the idea of continuing her education at junior high school, but did not dare complain. On the July 1, 1991, she continued her education in a school located a few kilometers from her house. She soon realized, however, that she could not keep up with the lessons and, after discussing the matter with her parents, quit school in the middle of September of 1991.

Simin and Waginah's second born, Supriyanto, was not yet in school at the time. The couple had hoped that their son could enter kindergarten, but the school was too far away from their house (1.5 kilometers). Because it would have taken too

much of their time to bring him to school everyday, they eventually decided to send him directly to primary school.

Irawan, the youngest, was still breast fed by Waginah at the time. Waginah also fed him porridge along with some vegetables such as amaranth and cowpeas which she and her husband grew in their fields. The couple also kept some local chickens which produced eggs for them. Waginah brought her baby to the POSYANDU (*Pos Pelayanan Terpadu* (a sub-unit of the public health service)) to be weighed. The POSYANDU was located in the house of the chief of the hamlet and was run by health cadre (local people trained in health care) with the assistance of the local public health center. According to Waginah, her baby was given some immunizations such as BCG and DP. POSYANDU also taught her to nurse her baby properly.

### History of the land

As mentioned in section 2.1, Pak Simin's father gave him 0.55 hectares of land in the 1960s, long before Pak married. Simin himself paid the costs of obtaining the legal rights to the land under his name (*suwalikan*). Since then, he pays 2,140 rupiahs to the *desa* office each year for land tax. The size of his family's farmland remained the same up until 1989. In the early part of 1990, however, the family obtained 0.22 hectares of land called *tanah babatan*. This land belongs to the Forest State Enterprise known as "Perhutani", which stands for Perusahaan Hutan Negara.

How Simin acquired this land is a story in and of itself. Simin did not clear the forest as many other farmers did in order to get their land. Instead, his brother-in-law, Sapar, cleared it. Sapar, however, was unable to cultivate the land because he was working in Surabaya at the time. He asked his father, Pak Lasemun, Simin's father-in-law, if he could cultivate it; however, he, too, was unable to work Sapar's land because he was preoccupied with his own. Pak Lasemun then asked Bu Waginah whether her husband would like to cultivate the land. Simin accepted the offer, but first had to get permission from the Perhutani's foreman in the hamlet. This foreman gave Pak permission to use the land if Pak promised to plant some albizzias and look after them as best as he could. Simin agreed, of course, and has been cultivating the land since then.

Pak Simin expected to obtain another 0.25 hectares from his father. Apparently his father announced this decision at a family meeting in which all family members were present. The land Simin was to receive was located next to his own. Furthermore, it was an inheritance and would be handed over to him when his father died. In exchange for the land, Simin agreed to carry out several ceremonies after the death of his father: *slamatan* or giving of meals. Simin and his wife had since been rearing sheep with the hope that the costs of conducting these ceremonies could be covered by selling the animals.

## History of the crops

In 1978, before Pak Simin married, he grew only gliricidia on his land. He obtained the seedlings for it from *desa* officials as a part of a re-greening program. His situation gradually changed after he married. When he and Bu Waginah built a house and started farming in 1980, they began with maize, cassava, and paddy (*gogo* rice) for their staple food. Years later, when their second born was one year old, Waginah was presented with the opportunity to sell 500 kilograms of *gaplek* dried cassava at the Donomulyo market for 50,000 rupiahs; however, she did not take advantage of it because she had only enough for her family's consumption. Since then, Waginah has never taken market prices into consideration when planting food crops.

The family used urea, TSP (Triple Super Phosphate), and sheep manure to fertilize its maize, cassava, and paddy. Both Simin and Waginah stated that they consulted with each other when deciding how much fertilizer should be used for a particular crop during a particular season. Based on their experience, they maintained that at least 150 kilograms of fertilizer was needed to fertilize paddy, whereas only 15 kilograms of urea was needed for maize. Waginah always selected the seeds for the new crop and applied the fertilizer.

During the *rendengan*, the couple always planted paddy instead of maize in parcel 1 on land unit 1 (see Map 5.2.3(1)). Simin explained the reasons for his actions as follows:

*If I plant maize instead of rice first, the crop will only subur godong. This means that only the leaves of the crop grow well, but that the crop will not yield a useful product. Besides, if I do not plant rice first, there will not be enough of a supply of water for it later on.*

During the *lemarengan* season, the family cultivated maize and longbean in LU1, and maize and cassava in LU3. In the Perhutani land (parcel 2), however, it always cultivated maize and cassava. When the time came for planting and harvesting the paddy, Waginah was always helped by some of her neighbors (women) Ngatminah, Taniyem, Sominem, and Sulastri. Each of them received a *bawon* (a share of the harvested rice) for their efforts.

In addition to the food crops Simin and Waginah grew, the couple also cultivated *suweg* and *mbote*. (Both are root crops.) The crops they planted were based on their consumption needs. Bu Waginah managed this consumption throughout the year in the following way: First, she provided her family members with maize mixed with rice, then with *tiwul* mixed with maize. She based this strategy on her family's needs and on the *mongso*. If she were to feed the family rice only, she would need at least one *batok* (1.5 kilograms) per day. Such was also the case if she were to provide them grain and maize only. Given such situations, the production of rice and maize which the family derived from its land would be finished within a short

period time; therefore, she always served her family *uji* or *mbote* for breakfast. These root crops could be planted easily anywhere (even by her daughter) in the home garden (*pekarangan*) and did not need fertilizer.

Since 1980, the family has also been cultivating bananas and has been able to sell them quite regularly. Waginah did not bring the bananas to the market any more as she previously did because there local traders buy them at the gate of her homestead instead. Some of these traders have even bought the family's bananas when the crop was not mature enough to harvest.

In the same year, acacias and coffee trees were planted on parcel 1. Waginah's mother supplied the seedlings for the coffee. Although the trees soon bore their crop, the final yield from them was scant, and so the family used it for their own consumption or to serve guests when it received them. The Simin household still hoped that it would be able to grow more coffee trees on their land and to be able to sell its production at the market. The seedlings for the acacia were obtained from the *program penghijauan* (the re-greening program) which the government launched at the time. Some of the acacia trees were cut down and their wood used to construct the family's house; other portions of the wood from these trees were sold to limestone burners.

Pak Simin and his wife also planted jackfruit, *kedondong* (*Spondias pinnata*), *petai* (*Parkia speciosa*), *kluwih* (bread fruit), and some coconut trees. In 1985 they planted some melinjo trees (*Gnetum gnemon*) and in 1986 *klopo biasa* (coconut trees of a local variety). The family also planted a quantity of *kelapa puyuh* (a high yielding variety of coconut trees), but these are considered *pethetan* (ornamental trees). Pak Simin derived the seedlings for the local coconuts from his own farm, whereas the seedlings for the *kelapa puyuh* came from *desa* officials as a part of a re-greening program. Pak himself did not like this kind of coconut but could not refuse to plant it at the time; consequently, he sowed the seeds somewhere on his land and did not tend to them. His wife went as far as to say that the *kelapa puyuh* did not have any value whatsoever. Some of the approximately 30 local variety-type coconut trees that the family planted some years ago were already bearing fruit at the time of my research and, according to Waginah, she would be able to harvest at least 100 coconuts within a month. She was right; all of the coconuts were indeed sold. Waginah was responsible for selling the coconuts. Pak Simin was usually responsible for bringing the harvested coconuts to Pasar Wage, the market in Kedung Salam situated about 0.5 kilometers from the family's house. When Waginah was pregnant with her third child in 1990, she suggested to Simin that he cultivate cucumber (*timun*) and amaranth. The production from these crops were not sold, but used for home consumption, particularly for the couple's children, though some of the yield was also distributed among their neighbors. The family's motive for giving their neighbors a portion of their crop was so that they could maintain good personal relationships with them. Though Waginah could not remember the exact year, she advised her husband some years ago to try and grow soybean and

groundnut, but her husband did not go along with the idea because the clay-like soil of their land, *tanah lempung*, is not suitable for growing such crops.

When Simin obtained the Perhutani's land in 1990 (parcel 2), he planted it with maize and cassava. He did not use fertilizer on it because the land was categorized as *lemah gembrung ireng* or *lemah enom*, meaning "young soil recently brought under cultivation". However, people farming this young soil can expect their yields to decline when the soil's organic materials have been used up. It is therefore categorized as poor soil (LU4).

In the same year, Simin started to cultivate elephant grass on parcel 1. His neighbor, Pak Wagiyo, gave him the seedlings he needed. Simin used this grass as a kind of feed stock when the grass or forage collected outside the farm was not enough to feed the animals, or when he, his wife, and their eldest daughter did not have the time to collect grass. He also planted some vanillas in parcel 1 in 1990 on the left hand side of the house. Pak had learned how to cultivate this crop from his father during the 1970s. Pak also had a plan to replace some of the existing root crops with vanilla and coffee. Recently the price of vanilla was good and, according to Waginah, one kilogram of it fetched 2,000 rupiahs.

Simin planted a local variety of some coconut trees in early 1991 on the somewhat hilly side of his land (land unit 4), where he usually dug limestone which he then sold. Apart from this, he also planted some coffee trees. When asked why he was so eager to plant more coconut and coffee trees instead of other crops he replied:

*I am eager to plant coconut and coffee because once they are planted they will grow with no extra work, and there will be no costs for the fertilizer. I do not have to nurse them everyday. Above all, I have to do it now because I am still strong enough to do some heavy work. I will not be able to do such things when I am older. More coconut and coffee trees in my field will serve as a kind of pension in the future not only for myself, but for my family as well.*

### History of the livestock

In 1980, several months after they had started farming on their own, Pak Simin and Bu Waginah had reared, for the first time, a young male cow (*pedet*) on the basis of *amro bathi*, meaning that the profit was shared. The owner of the animal was a neighbor of theirs, an old man. A close friend to the man, Simin's father introduced Simin to him. Simin said that it would have been rather difficult for him to get access to cattle on a sharing basis without the help of his father, because normally the owner of an animal must feel he can trust the person with whom he is about to share an animal. Soon after getting the cow, Pak built a bamboo stable to house the animal. The stall has never been renovated.

In 1981, having been assessed by the cattle trader, the animal was sold by the owner for 250,000 rupiahs. As was agreed by both sides, Simin received 125,000

rupiahs from the owner for his efforts. The money was used to buy some items required for daily use and to cover some health-care expenses. The following year, 1982, Simin shared a cow on the basis of *maro anak*, meaning that the cow's offspring would be shared by the parties involved. (See section 4.10 for more details.) This animal was also owned by their neighbor. After a while, this cow gave birth to a calf. When the calf was seven months old, Bu Waginah requested a one-half of the cow's value from the owner. The owner agreed with the proposal. The value of the animal was assessed by the *blantik* (cattle trader) and she received 116,000 rupiahs. Later, the owner sold the mature female animal.

In 1983, the family shared yet another animal on the basis of *maro anak*; however, the cow had still not become pregnant after having been served seven times. It was, consequently, returned to the owner in 1984 and the family received compensation of 20,000 rupiahs. Based on Waginah's advice, the family then bought three female sheep. The family bought the sheep from a neighbor, Pak Jemirin, instead of at the market, because it thought the price would be much cheaper. As time went by, their sheep grew in number and in 1989 Pak Simin and had 12 of them. The sheep, however, became infected with a disease. Pak Kusto helped Simin and his family cure the sheep, though one died despite their efforts. In 1990, the family had to sell one of the animals because it had to pay a midwife and had to give a *slamatan* for the birth of their son. I discuss the decision in regard to selling the sheep in detail in Section 5.2.4. In May 1991, there were 10 sheep and in July of the same year one of them was sold for 85,000 rupiahs. The money from this was used to get back their daughter's necklace which they had used as security on a loan in order to buy fertilizer. The family kept a few chickens for conducting meals meant to give thanks and for their own consumption.

### Non-farming activities

Non-farming activities had always been important for both Pak Simin and Bu Waginah, in addition to farming and rearing cattle. Since his marriage, Simin has "mined" limestone from his own land. To dig up the limestone, he used such tools as a hammer, chisel, and a hooked stick. According to him, he could collect 12 cubic meters of limestone for three truck loads. The limestone was picked up by his cousin, a limestone trader in the *désa*. For each four cubic meters of limestone, he could earn 5,000 rupiahs. Simin also often worked as a laborer, *manol*, loading white sand and limestone into trucks. He usually worked from 9:00 am to 3:00 pm for which he received 2,500 rupiahs. He did this kind of work particularly during the *lemarengan* and the *ketigo* seasons when he was not cultivating paddy. Due to these activities, he very often had to postpone the planting of his maize for several days (three to four days) during this season.

Bu Waginah, too, always did off-farm work. Since 1985, she has been collecting *lamtoro moi*, leaves either from her farm or from her neighbor's farm. She did this



without the help of her husband and only had to stop when she got sick in the last term of her pregnancy and several weeks after the birth of a baby. Despite her other domestic activities, including taking care of her baby, she could collect six gunnies of leaves per day. Before these leaves could be sold, they first had to be dried in the sun for about two days. Within 20 days, she was able to "harvest" 50 kilograms of dried *lantoro moi* leaves. These were sold to a local trader close to her homestead. Waginah claimed that a kilogram of these leaves fetched 85 rupiahs. She has been told that the leaves can be used as chicken feed when they are processed in a particular way.

In 1989, Bu Waginah, assisted by her daughter, began gathering snails. She forced herself to do this because she realized that she could not depend solely on the income of her husband to purchase items needed everyday.

### Equipment

The family had a number of tools for farming and for off and non-farm activities: a plough, two sickles, a hoe, a hooked stick, a hammer, and a chisel. All of these tools were bought shortly after the family started farming on its own.

### History of the house

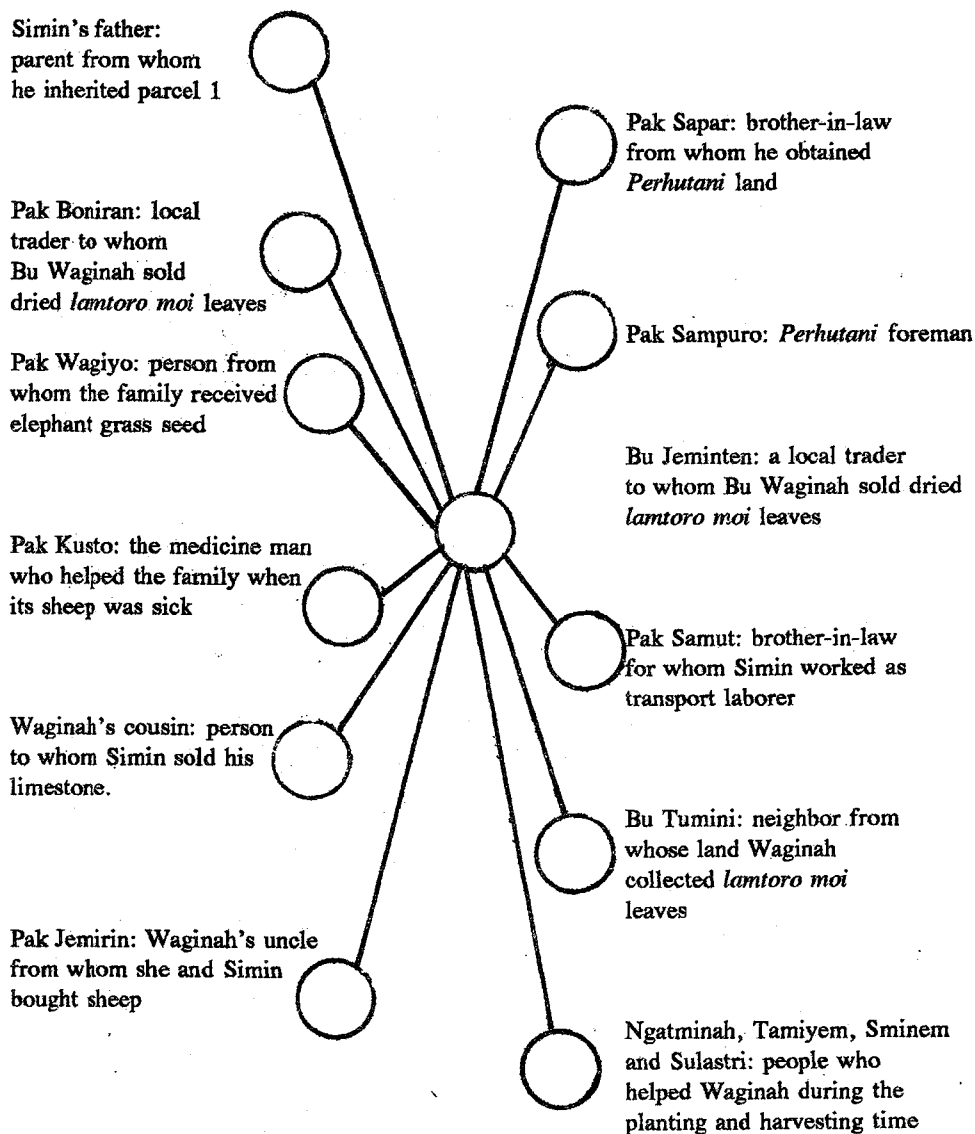
Pak Simin and his family had been living in a *klenengan house* since 1980. The floor in the house was cemented. Simin's father supplied all the construction materials for Pak Simin to build his house, including the tiles. According to Pak, building the house took 10 days. During this period, 50 persons, mostly neighbors and relatives participated spontaneously, without pay, though Simin's wife did provide meals. This is referred to as *sayan* among neighbors and relatives in the area.

Their house was furnished with simple furniture made locally, such as a small table, two wooden benches, a bamboo platform for sleeping, and a cupboard. Because there was no electricity, the family used a kerosene lamp for lighting. The kitchen was situated on the left hand side of the house. For cooking, Waginah used wood for fuel. She did not buy it, but collected it either from places surrounding the house or from the Perhutani's land.

### Social relationships and social status

Figure 5.2.2(1) illustrates the social network of Pak Simin, as far as it was used in his various activities. Obviously family relations, neighbors, and traders played an important role in his life. He and his family had good relations with their neighbors and everyone helped each other when it was needed: e.g. during the harvest time, but also when it was necessary to build houses. Relatives of Simin's family helped

Figure 5.2.2 (1): Social Network of Pak Simin used for generating income



his family several times by giving them food; his brother-in-law was crucial in obtaining *Perhutani* land for them.

Simin was a member of the LKMD, a local development organization, where he was responsible for improving the environment. He was also head of the Rukun Tetangga (RT). Bu Waginah was a member of an *arisan* (a savings club) and a member of a woman's group that read the Koran.

### 5.2.3 Summary of the position of farm and household in 1990

Before analyzing the decision-making processes in Simin's family, I will first summarize the situation the household and farm was in at the time.

#### The household's composition and the labor force

When the research took place in 1990, the family consisted of Simin, 37 years old, Bu Waginah, 29 years old, and three children: one daughter, two sons, and a baby of 11 months. In my labor unit calculations, this means the family had 2.5 labor units at its disposal in the household. It is a typical example of a child rearing household where only the parents could provide labor, and the mother was occupied with household duties in addition to looking after a young child.

Both husband and wife came from reasonably well-off families who supported them in setting up the farm and in building the couple's house. Pak Simin was considered relatively well educated. He wanted his children to acquire more education than he was able to obtain.

#### Land units and the locations of parcels

In 1990, Pak Simin had two parcels of land: one owned and the other recently shared with the Perhutani. The total area of these parcels amounted to 0.77 hectares. The largest part of his land, 0.36 hectares, was of a very poor quality (LU4). Only 0.27 hectares belonged to LU1 and LU2, meaning that the soil was good to very good. (See Table 5.2.3(1) and Map 5.2.3(1)).

Pak Simin's family lived in a house on parcel 1. Parcel 2 was at a distance of 5,100 meters of which 4,900 was made of a good road and 200 meters of poor path.

Table 5.2.3 (1): Land units and land tenure in 1990

Land tenure	Parcel	Land unit (LU)	Area in ha	Sub total
Owned (Inherited)	1	1	0.20	0.55
		2	0.07	
		3	0.14	
		4	0.14	
Perhutani 1990	2	4	0.22	0.22
Total				0.77

## **The land use**

Map 5.2.3(2) below shows how Simin's land was used in 1990. Around the house on parcel 1 was a home garden with mixed croppings and trees. The land with the best quality of soil (LU1) subject to flooding was planted with paddy and maize. LU2 and LU3 were planted with cassava, while LU4 was initially covered by scrub, but gradually planted with perennials. The second parcel (LU4) was used for a mixed cropping of maize and cassava. The production of the annual crops were mainly used for home consumption; however, over the years, perennials had been planted and their produce marketed; therefore, they had since become an important source of income.

## **The livestock**

After having shared several cows with their neighbor, the family bought three sheep. In 1991, they had 11 sheep, one of which was sold to buy a necklace for their daughter.

## **Off-farm and non-farm activities**

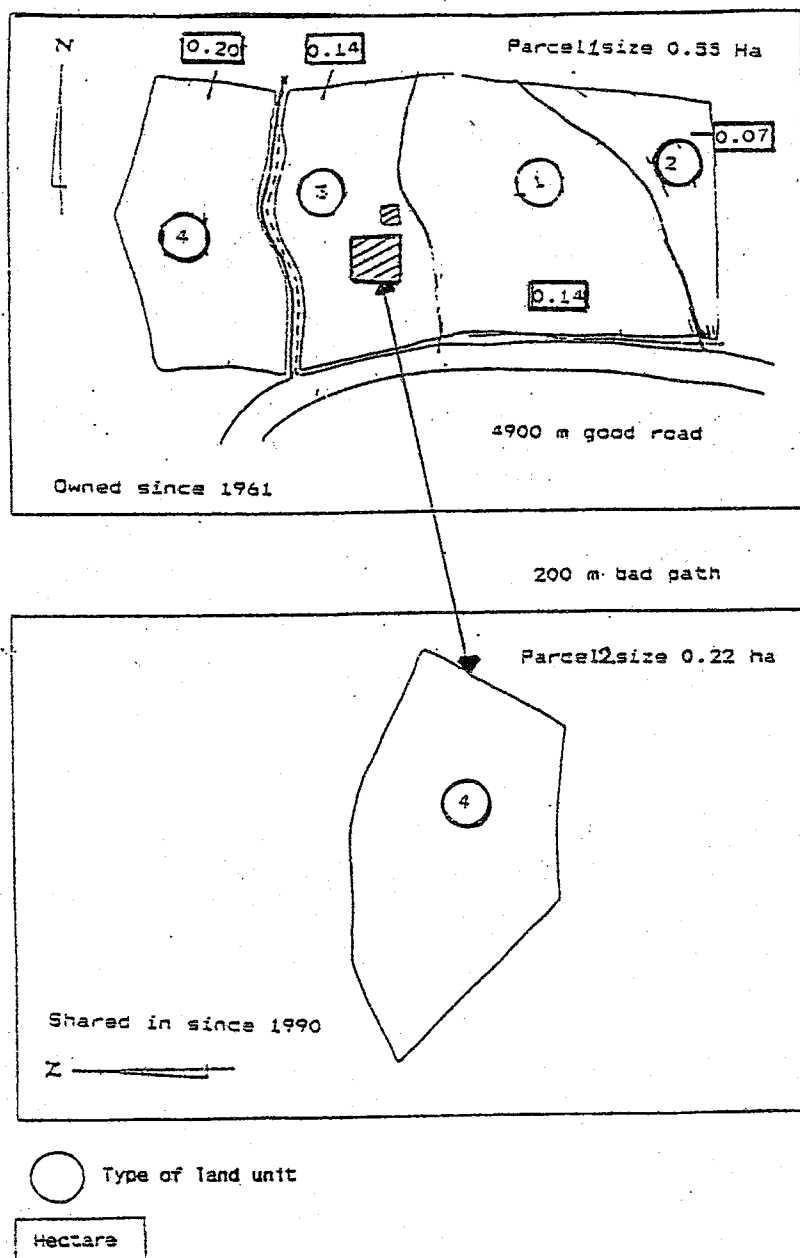
The income of the farm and livestock was not enough to provide for the household's needs; therefore, Pak Simin collected limestone from the farm and worked in the off-season as a laborer, and Bu Waginah collected and dries lamtoro leaves which she sold to a trader. She and her daughter also collected snails.

## **The income**

Table 5.2.3(2) indicates the household's sources of income between October of 1990 and October of 1991. The total incomes reported at the right hand side of this table are denoted in amounts after initial expenditures have been deducted (value added). This information must be used with care because it has been obtained via an intensive farm household survey taken by the INRES. Nonetheless, it does give an impression of the economic position of the household.

Quite obviously off-farm and non-farm activities played an important role in the household. After all, the household's largest portion of income was derived from these activities. Selling sheep proved to be a minor part of the family's income. Moreover, the family's efforts to grow pernnial crops was paying off, as it has become their second source of income.

Map 5.2.3 (1): Location of parcels and land units



Map 5.2.3 (2): Land use 1990/1991

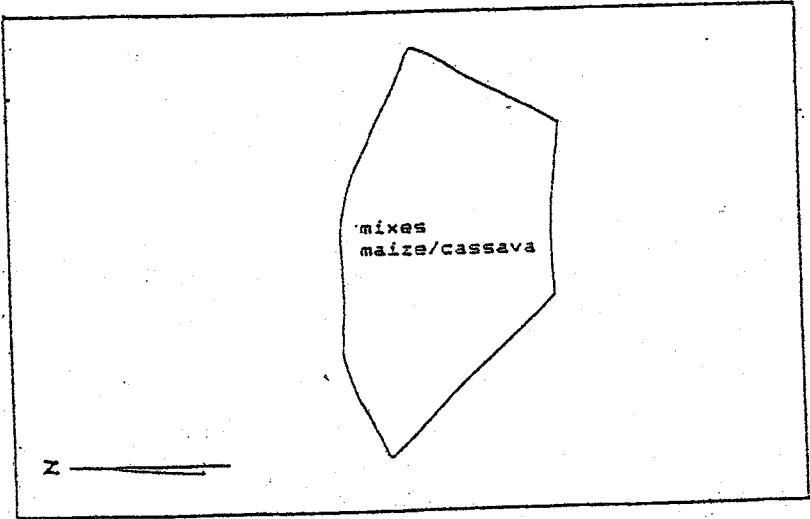
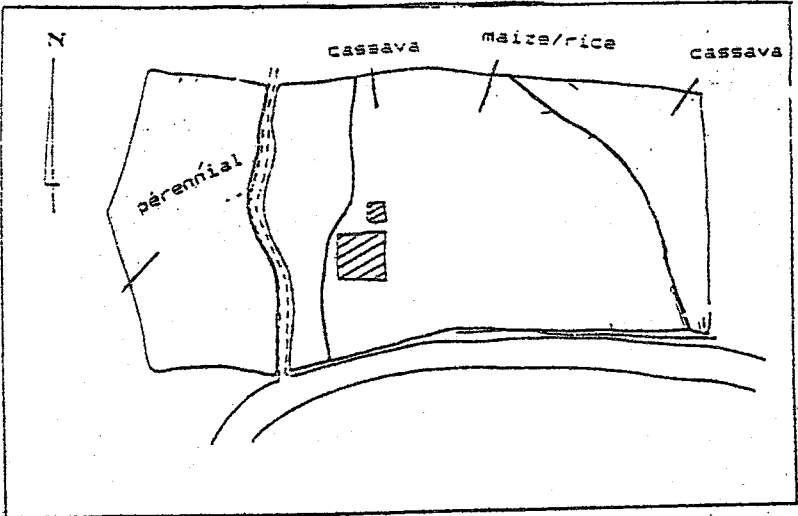


Table 5.2.3 (2): Sources of Pak Simin's income 1990/1991

Month	Income				Total income	
	Food Crops	Other seasonal Crops	Perennial Crops	Off and Non Farm	Livestock	
Oct '90	0	0	0	0	0	0
Nov '90	-6.200	0	9.250	4.050	0	7.100
Dec '90	0	0	15.500	17.900	0	33.400
Jan '91	0	0	6.050	3.900	0	9.950
Feb '91	0	0	15.910	15.200	0	31.110
Mar '91	0	0	17.520	10.000	0	27.520
Apr '91	-3.575	0	32.100	15.150	0	46.250
May '91	0	0	27.875	15.700	0	43.575
Jun '91	0	0	750	19.500	0	20.250
Jul '91	18.500	0	2.800	16.500	85.000	104.300
Aug '91	20.000	0	1.875	29.500	0	51.375
Sep '91	0	0	3000	29.500	0	32.500
Oct '91	0	0	1.800	34.150	0	35.950
	28.725	0	134.430	211.050	85.000	459.205

Source: INRES IFHS, 1990/1991

## 5.2.4 Some decision-making processes

### Introduction

Three types of decisions are analyzed below. The first decision relates to the cropping strategies that were chosen. The second concerns the activities embarked on in order to acquire an income from selling sheep. The third centers around non-farm activities. My purpose in analyzing these matters was to discover the main arguments and motives behind the decisions that were taken and to see how these arguments were used in the decision-making process.

To analyze the decision making process, I applied van Dusseldorp's simplified decision making model: the basic linking-loop model discussed in Chapter 2. In using this model, I started with an approved or implemented activity and traced the decision-making process (the conceptual linking) back in time.

### Decision-making regarding the cropping strategy

Below are listed the alternatives that Simin and Waginah considered in regard to their cropping strategy. These decisions were made in October of 1990 and implemented between November of 1990 and October of 1991. They were

determined by the household's needs through the course of the year (the objective), the view that farmers in this area have about the seasons, and the types of soil (see Table 5.2.3(1)) available to them (the physical environment). Consult Map 5.2.3(1) to see how the land units have been broken down.

**Alternative 1:** To cultivate the land with maize, cassava, and groundnut. Maize and cassava could be planted in LU1 of parcel 1, but not always in LU3 of this parcel. It was possible to cultivate groundnut in LU1, but this required a lot of fertilizer. The seed for the groundnut was expensive (600 rupiahs per kilogram). Groundnut in LU1 was also possible, but would be more difficult to harvest because of the soil type (*lemah lempung* or clay loam soil). This soil is sticky when wet and hard when dry. The situation is aggravated when women and children must harvest the crop. The price of groundnuts was good at the market, but the family needed more staple food.

**Alternative 2:** To cultivate the land with maize, sweet potato, and cassava. Sweet potato could be planted in LU1 and LU3 of parcel 1; however, the family could not consume the entire production, so some of it had to be sold. The price of sweet potato was low in comparison to cassava. Pak Simin did not consider sweet potato a drought resistant crop; he also claimed that it absorbed too many nutrients from the soil and gradually made it infertile.

**Alternative 3:** To cultivate the land with maize, soybean, and groundnut. Soybean could be planted in LU3, but not in LU4 of parcel 1 because the ground was too stony. Soybean fetched a good price at the market but could be planted only once a year. This crop also required a lot of fertilizer and its seed was expensive (800 to 900 rupiahs per kilogram).

**Alternative 4:** To cultivate the land with various annual crops. Rice would not grow in LU3 during the *rendengan*, but would grow well in LU1. (Bu Waginah had the skills required to plant rice, including the ability to select good seed.) Conversely, both maize and cassava were not good choices to plant in LU1, especially during the *rendengan*. In the event of heavy, continuous rain, this piece of ground flooded often because of its position in the valley; consequently, the stamps of the maize and the young root of the cassava decayed.

Pak Simin and his family did not want to make a canal along the parcel because they claimed the rain would wash the top soil away; therefore, they only planted rice in LU1 during the rainy season instead of maize and cassava. By planting rice together with maize, cassava, and longbean, he and Waginah hoped to provide the family with staple food. The seed for rice was inexpensive and could be used several times (from one planting season to another). Pak and Bu did not have to buy cassava cutting, because they could obtain them from their neighbors any time they



needed it. They claimed that rice was not only important as food and so forth, but that they could use part of its harvest for gifts when Bu Waginah attended the marriage or circumcision ceremonies of their neighbors or relatives. Village custom has it that women should bring three kilograms of rice plus a kilogram of sugar and some noodles. The quantity is even more when the people involved are relatives. During the *lemareng*, the family could still grow maize and longbean in LU1 and maize and cassava in LU3. Longbean could be harvested three to five times so that part of its yield could be sold. Maize and cassava could also be cropped in parcel 2.

### Making the decision and implementing it

After comparing all four alternatives with each other, Simin and his wife found alternative 4 to be the most viable cropping strategy. The question is, what was the rationale underlying their decision to implement it?

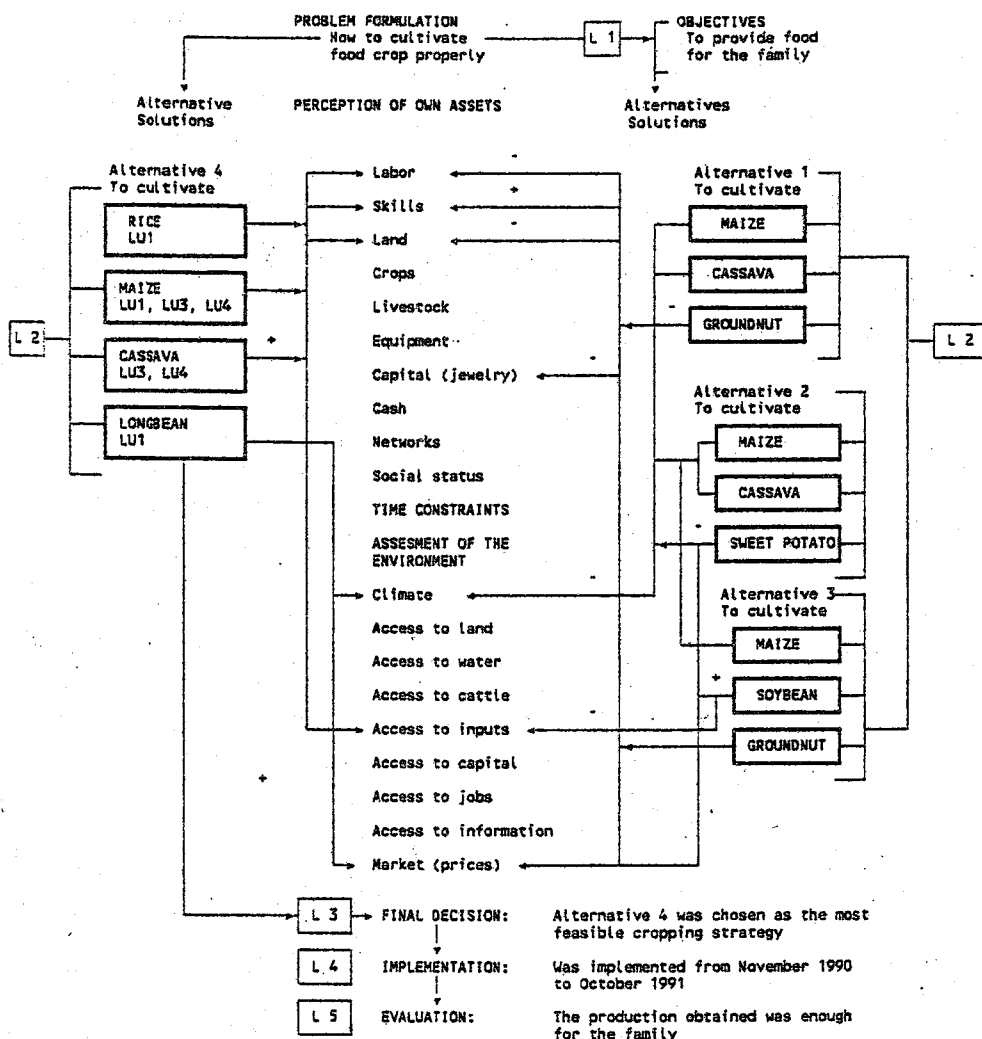
Put simply, they were married and their family was facing food shortages, particularly during the off-season periods. To solve the problem, they planted various food crops in such a way that if a certain crop failed they could still expect production from other crops. This intercropping strategy, they hoped, would provide their family with enough food for the entire year.

As a result of decisions made in October of 1990, the following cropping strategy was followed from November of that year until October of 1991: Simin and Waginah grew *goter*, a local variety of maize, and some local varieties of cassava such as *kastal*, *nyonya*, *nodoro*, and *penadu arab* in LU3 during the *rendengan*. Because Simin believed that LU1 was his most fertile land, he and his family cropped rice or maize there. (This option depends on whether the rain was relatively heavy and whether it was continuous or not.) In the meantime, the family cropped maize (*goter*, local variety) and some local varieties of cassava such as *menthik urang*, *penadu arab*, *nyonya*, and *ndoro* in parcel 2 (forestry land) situated approximately 5.1 kilometers away from the house. During the *lemareng*, they cropped maize and longbean in LU1, maize and cassava in LU3, and maize in parcel 2. During the *ketigo*, the farm household waited for the harvest of their cassava, which usually took place in the second week in August.

### Concluding Remarks

The decision-making process regarding cropping has been systemized in Schedule 5.2.4(1) according to the decision-making model described in Chapter 2. The main objective of Simin and his wife during their decision-making process was simply to provide enough food for their family. They realized, however, that they had a problem after they had compared their objective with the resources (assets) they had at their disposal (L1). In an attempt to solve their problem, they considered four

## Schedule 5.2.4 (1): Decision-making process regarding cropping strategy



alternatives or options. They then compared the conditions required to effectuate each alternative with the resources available to them such as labor, skill, experience, and soil type. In comparing and assessing their options, the family took into account opportunities which their environment provided: e.g. climate and their access to the inputs required (L2). Their line of reasoning finally lead them to adopt alternative 4 as the most viable cropping strategy (L3). The decision was then implemented (L4). Their evaluation was that they could provide enough food for the members of the family by adopting this particular cropping strategy.

### Decision-making regarding the sale of a sheep

In October of 1990, Pak Simin and Bu Waginah sold one of their sheep for 65,000 rupiahs. The question is, what was the rationale behind their decision?

In early October, 1990, the family needed 60,000 rupiahs for 1) the midwife who had helped Bu Waginah deliver her baby and 2) for a *slamatan* for the newborn baby. Being Javanese, the couple considered it an absolute necessity to carry out such a ceremony in order to give thanks. The parents believed in supernatural powers and feared the *sing mbau rekso deso*, the spirits who are supposed to guard the village. By holding a *slamatan*, the family hoped to secure the life of the child. By ignoring their communal duty, the parents ran the risk that their baby will become seriously ill and even die. At the time, Simin and his wife did not have the money for the *slamatan* and therefore considered the following alternatives.

**Alternative 1:** Sell their agricultural production. This was Simin's proposal. After making some calculations, Waginah rejected this suggestion completely. Only some of their coconut trees were bearing fruit at the time and there was just enough for home consumption. Their banana trees had not yet produced anything. They could have sold dried cassava, but this, too, would ultimately have put the family in jeopardy because there would be no food left for its members. From Bu Waginah's point of view, Simin's alternative was too risky to take seriously.

**Alternative 2:** To borrow money from Waginah's brother. Bu made this proposal. Simin rejected this idea because the couple had already borrowed fertilizer from his brother-in-law a couple of weeks ago. He was uncertain whether Waginah's brother would help them again and also thought it impolite to borrow money from him without having paid back the first loan. In short, he did not want to damage good relationship he had with his brother-in-law.

**Alternative 3:** To undertake off-farm activities in a neighboring village. Bu made this proposal too. Simin realized that he could earn between 2,000 to 2,500 rupiahs per day working as a ploughing laborer in his neighboring *desa*. He had a plough of his own and the skill to do the work, but did not have the time he needed to

collect the money required. To collect the 60,000 rupiahs, he would have to work for almost a month, and the ceremony had to be given within a short period of time. The constraint in time was the main reason for rejecting this alternative.

**Alternative 4:** To undertake a non-farm activity, such as collecting limestone. Also proposed by Bu. At first Simin agreed because he thought he could handle it. He had the skills and the tools such as a hammer and a hooked stick. His experience as a limestone digger told him that he could collect six tons of limestone from his field worth about 3,500 to 4,000 rupiahs within four to five days. The problem here, however, was how to combine the collection of limestone with the gathering of forage and with land preparation. He could, true enough, delegate the collecting of forage to his children somewhat, but even then he would still not be able to collect limestone for a month and at the same time prepare the land for the next rainy season.

**Alternative 5:** To sell one of the sheep they owned. Both Simin and Waginah proposed this idea. At the moment of the decision, the couple had 11 sheep. One of them was even pregnant. Apart from their labor, these animals were the only resources under their control. Collecting forage for such a number of sheep during the dry season had always been a problem. Bu Waginah thought that they could sell one of their sheep to their neighbor for 65,000 rupiahs. They chose to sell a male. This solution meant that the family would not have to sell their food stock, nor would they have to borrow money from others.

### **Making the decision and implementing it**

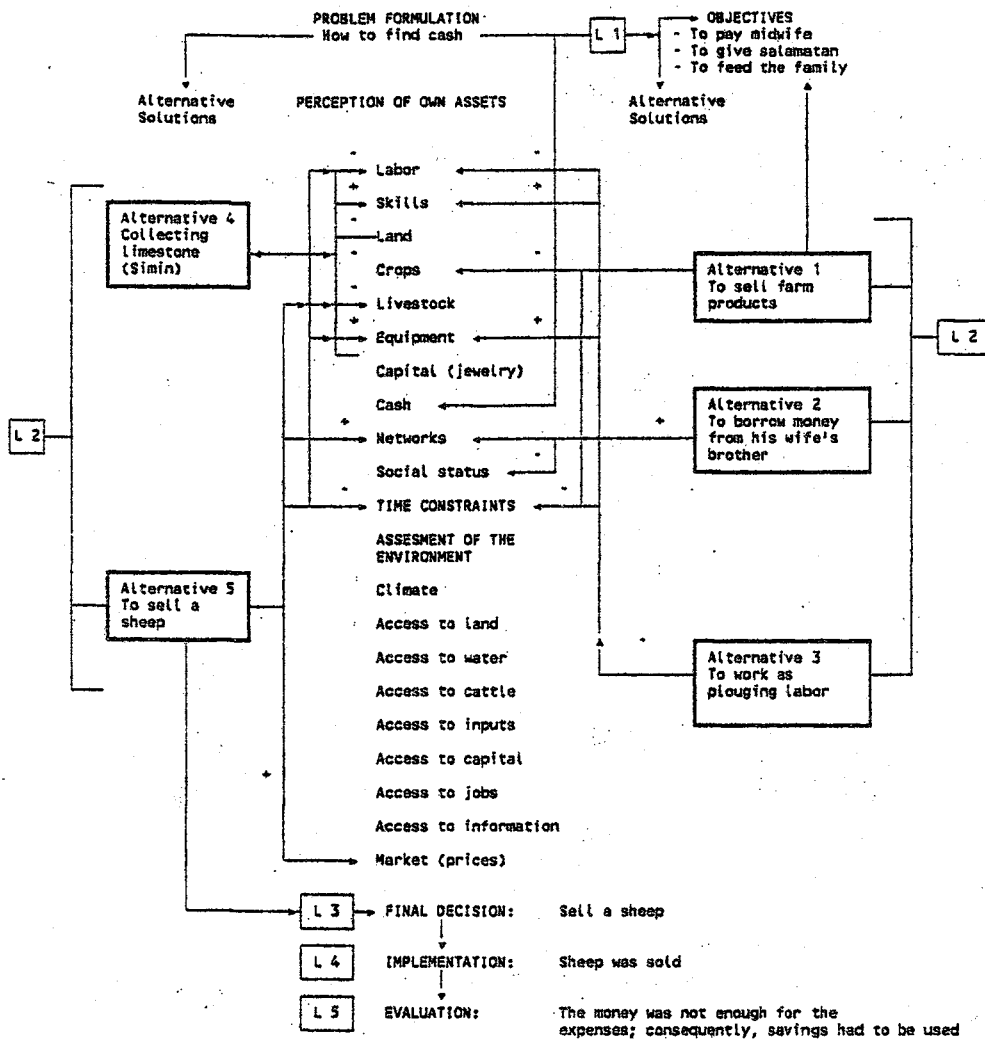
Having considered and compared the various options, alternative 5 was finally chosen as the most viable. The sheep was sold for 65,000 rupiahs, enough money to cover all the household's costs.

### **Concluding Remarks**

In Schedule 5.2.4(2), the various steps in the decision-making process regarding the sale of a sheep are systemized according to the simplified decision model elaborated on in Chapter 2. The difference between this decision with the other two types of decisions discussed in this section is that here there was an emergency. The decision had to be made within a short time, and all the alternatives had to be assessed at once; alternatives in the other decision processes could come forward gradually.

The main objective of Simin and his wife in this decision process was to pay off the mid-wife and, even more important, to give a *slamatan*. When the couple compared the costs needed to do these things with the resources available to them, they knew they had a problem (L1). The couple then considered five alternatives

## Schedule 5.2.4 (2): Decision-making process regarding the sale of a sheep



to solve the problem. The consequences inherent to each alternative were then compared with the resources which the couple thought were available to them (L2). This eventually led them to the decision to sell one sheep (L3). Then the decision was implemented (L4). Their evaluation was that alternative 5 solved the problem.

Striking is that so many alternatives were considered while alternative 5 is the most logical one. The main reason why Pak Simin and his wife were initially so reluctant to seriously consider this alternative was that the sheep were originally meant as a means to pay for the *slamatan* that would be needed when Pak's father died. If you remember, Pak's father obliged his son to give certain ceremonies in return for the land that Pak would inherit when he died. One year later, they sold another sheep so that they could retrieve their daughter's necklace.

### Decision-making with regard to off-farm and non-farm activities

From the very beginning of their efforts at farming, Pak Simin and Bu Waginah had been involved in activities not related to their farm. The main reason for this was that the income of the farm was not sufficient to cover the costs of their daily needs. As mentioned in section 5.2.2, several activities were undertaken: Pak Simin worked as a laborer (an off-farm activity) and collected limestone from his farm (an on-farm and non-farm activity). At the same time, Bu Waginah collected *lamtoro* leaves and dried them (partly an on-farm and partly an off-farm activity), and collected snails as well. These activities were neither chosen at random nor in a pre-attentive way, but rather selected after husband and wife had discussed several alternatives which, in their eyes, were relatively open to them. I list and discuss these alternatives below. Apparently these decisions were made at the very start of their efforts in farming, but were explained to me in 1990.

**Alternative 1:** Pak Simin considered seeking work in a city (Malang or Suabaya) as a noodle soup seller. As a noodle soup seller or as a *kerja kasar* (manual laborer) in the city he would be able to earn money regularly and to save some of it. Many people his age in the *desa* had done this. He was afraid, however, that the crops and animals on his land would not be well managed during his absence because his wife could not handle all the problems on the farm and in the household by herself. Their three children were still young, their eldest being 12 and the youngest a baby. After considering the advantages and the disadvantages which this option presented, they decided not to go through with it.

**Alternative 2:** Pak Simin was also willing to work as a factory laborer, as long as the factory was located in the *desa* so that he could still farm in the evening; however, there was no factory in the *desa*. Moreover, he did not have the required skills or the social circle which could help him get into this kind of work; consequently, this option had to be dropped.

**Alternative 3:** Pak Simin and Bu Waginah considered setting up a small shop (*pracangan*) at home in which they could sell various items for people's daily needs. Simin actually had some experience in running this kind of shop because he used to help his brother-in-law run a grocery store in the *desa* a long time ago before he married Bu Waginah. According to Simin, however, he would need *bondo rangkep telu* (triple capital) in order to start this shop; that is, he would need three times as much money as is needed to stock the store: one-third for the stock itself, one-third for stock sold on credit, and one-third to live on while waiting to make a profit.

**Alternative 4:** Collecting limestone. To do this, Pak would not have to leave the *desa* and he could still farm his land and take care of his family. Collecting limestone was also an attractive option because he could do it during the off-season and needed no other resources except his labor. Moreover, he could collect the limestone from his land. Even better, he could sell it to the *juragan gamping* (big limestone trader) or to his brother-in-law, so there would be no problem in getting rid of it. Additionally, he did not need to carry the limestone he collected to the *Juragan* because this man would pick it up at Simin's farm gate and pay him cash. This was a viable option.

**Alternative 5:** Collecting *lamtoro moi* leaves. During her attendance at the savings club (*arisan*), Bu Waginah's close neighbor informed Bu that the leaves of the *lamtoro* can be used as chicken feed, and that there were two lady traders in the *desa* who were willing to buy it. No special skills or any capital was needed to collect these leaves. Bu could use her knife or sickle. The leaves could be collected either from her own farm or from their close neighbor's farm. She told her neighbor that she was not prepared to pay anything to the neighbor for the leaves because the neighbor often collected forage from Bu's farm free of charge. This option was attractive to Bu because it meant that she did not necessarily have to travel so far from home.

Bu also kept snail collecting in the back of her mind as a potential option to raise revenue as many other women in the *dusun* were already doing. Thirty kilograms of snails would fetch about 100 rupiahs. What is more, she could collect the snails with her daughter close to the house, before the rainy season, and after the planting. This would enable her to carry out her household activities and nurse the crops.

### **Making, implementing, and evaluating the decision**

After having considered alternatives 4, 5, and 6 and comparing them with alternatives 1, 2, and 3, Pak Simin and Bu Waginah decided to choose the last two as possible courses of actions. The main reason for these decisions have already

been mentioned, but will now be expressed in the words of Pak Simin and Bu Waginah below. According to Pak Simin:

*My family would hardly be able to survive and cope with its many problems if it had to depend on agriculture only; the harvest is mostly used for our own consumption. If I did not do any non-farm work, I would not be able to pay the school fees of my children, to buy fertilizer or seeds, to buy food during the off-season, to pay taxes, and to buy clothes for the lebaran day. Moreover, by doing non-farm work, I can attend marriage ceremonies which our neighbors and relatives conduct quite regularly; I can then pay the 3,000 rupiahs which a man normally gives to the ceremony holder. In this village, it is considered impolite if you do not attend such ceremonies because you have no money.*

According to Bu Waginah:

*If I did not do any non-farm work, such as collecting lamtoro moi leaves or snails, my family would hardly be able to cope with the "kitchen problems". Experience has taught me that I cannot simply depend on my husband to cope with family problems. After all, if he became sick or did not have a job and I was doing nothing in the meantime, who would care for my children? Besides, with such activities, I feel rather free from my husband's control in the sense that I can decide for myself how to spend the money I earn.*

*My research here has shown that non-farm activities have been necessary for the household from its very beginning and, therefore, have been implemented regularly. Yet even with these activities, the family still faced deficits in its household needs during the off-season periods.*

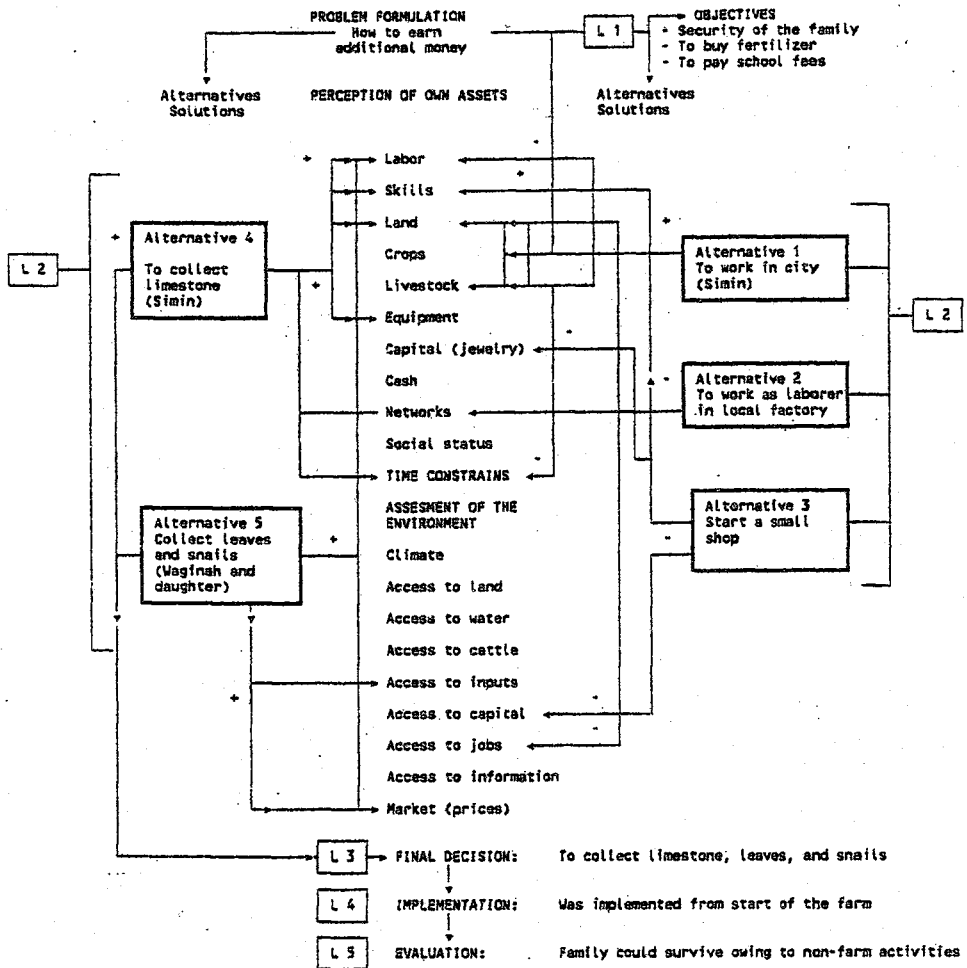
### Concluding remarks

In Schedule 5.2.4(3), the decision-making process regarding non-farm activities is systemized. The problem (L2) was clear: there was not enough income from the farm to provide the basic needs of the family. At first sight, it may seem as if Simin and Waginah performed their non-farm activities in a pre-attentive way; however, from the decision-making process described above, it is obvious that various options have been considered carefully (L2), especially in the beginning. The couple compared their alternatives with the assets it had under its control, such as labor, in relation to their environment. As was mentioned by Gladwin, the family eliminated alternatives which did not fit in with the conditions around them before it elaborated and implemented a viable alternative. The preparation and implementation of the activities (L3 and L4) took place in a daily routine. As mentioned in section 5.2.3, however, there are indications that the importance of these activities diminished as the farm developed. It has to be realized that the



decision-making processes regarding non-farm activities took place a long time ago and that they were reconstructed during my interviews.

**Schedule 5.2.4 (3): Decision-making process regarding non-farm activities**



### 5.3 A case study of the household and the farm of Pak Bani

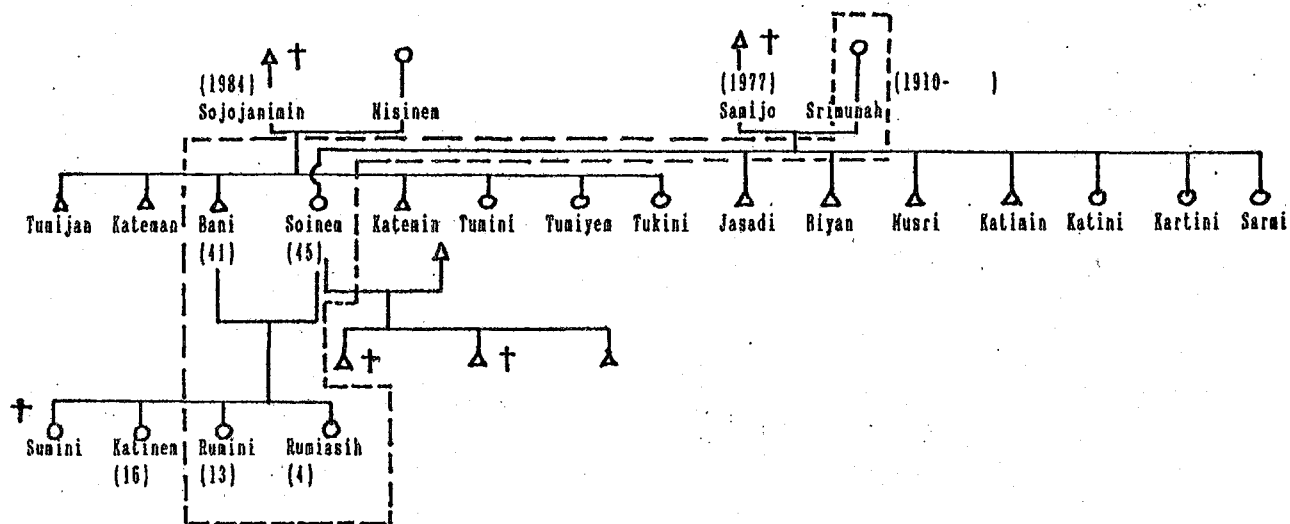
#### 5.3.1 The family background of the farmer and his wife

Pak Bani was a Javanese farmer in the *dusun* Ngliyep, Kedung Salam. He was relatively well educated and spoke Bahasa Indonesian rather fluently, though he used Javanese for daily communication with relatives and neighbors. His parents were Pak Sojojanimin and Mbok Misinem, Javanese farmers who lived in the *dusun* Ngliyep, Kedung Salam. Pak was born in Ngliyep in 1949 and turned 41 years old in 1990. He had three brothers and three sisters all of whom lived in the same *desa*: Tumijan (male, the eldest), Kateman (male), Katemin (male, the youngest), Tumini (female), Tumiyem (female), and Tukini (female). (See the family tree of Pak Bani and Bu Soinem in Figure 5.3.1(1).) Except for his youngest brother, all were married and had children (not indicated in Figure 5.3.1(1) below). In 1955 Bani attended a primary school (*Sekolah Rakyat*) in Donomulyo because there was no school in his village at that time. He finished primary school in 1961 and went on to junior high school; however, he had to quit after three months because his father became sick and no one else in the household could afford to pay Bani's school fee. Bani was not disappointed because according to him it was God's will (*kersanig Gusti Allah*) and nobody could escape God's will.

When Bani was 13 years old in 1962, his father began to teach him how to farm. Two years later, Bani had acquired the knowledge and skills he needed in order to start farming himself. His father died in 1984, but his mother was still alive and lived with Bani's brother, also his next door neighbor. According to the Javanese calendar, Bani's father died on *Jum pahing*, which Bani considered as "misfortune day". According to custom, he was temporarily prohibited from carrying out any activities related to agriculture: e.g. planting seeds, harvesting crops, or selling production. With such a death, decisions dealing with such activities are customarily postponed until the following day.

His wife, Soinem, was born in Blitar in 1945. She was illiterate and could not speak Bahasa Indonesia. Her parents, Pak Samijo and Mbok Srimunah, migrated from Blitar to Kedung Salam in 1957. Soinem was their fifth daughter. All together, Soinem had four brothers and three sisters: Jasadi (male), Katimin (male), Bijan (male), Musri (male), Kartini (female), Katini (female), and Sarimi (female). Soinem claimed that she had never learned to farm before she married and that she had devoted most of her time to helping her mother in the kitchen as a young girl and to looking after her younger brothers and sisters at home. Her life, however, was not completely devoid of farm work, as she used to help her parents in the field during the harvest. Soinem's father died in 1977, but her mother is still alive.

Figure 5.3.1 (1): The family tree of Pak Bani and Bu Soinem



Legend:

△:Male

○:Female

|:Descent

⋈:Divorce

⋈:Marriage

⋈:Brother/sister relations

†:Death

---:The actual members of household

### 5.3.2 Development of the farm and farm household

#### How the farm was started

When Pak Bani and Bu Soinem married in 1969, they had neither land nor cattle of their own. This meant that they had to do almost everything they could in order to earn a living. Bani shared his mother's land and planted cassava and maize. The sharecropping arrangement was based on the *maro* system, i.e. the harvest was split fifty-fifty. At the same time Bani and his wife worked as hoeing laborers in one of their neighbors' field. Sometimes they went to the forest to collect firewood and teakwood leaves so they could sell them to a local trader or at the market nearby. During that time, they lived at Bani's parents' house. An overview of the farm's and the household's development is illustrated in Schedule 5.3.2(1).

Needless to say, the couple's earnings were far from sufficient. Their agricultural production, for example, was not good because many crops died during a long drought period; consequently, Bani's family often faced a shortage of food. The income they received from collecting and burning limestone was also insufficient to provide them with the items they needed each day. The situation became worse in 1971 when their first daughter, Sumini, died from a serious illness. She was six months old. In 1972 Bani decided to migrate to the *desa* Ngrawan in the *kabupaten* Lumajang, some 55 kilometers away from Kedung Salam, though not without discussing the matter first with his wife and not without receiving his mother's blessing.

He and Soinem lived in Lumajang for five years and built a hut on Bani's uncle's land. During the first two years, they shared a property 0.25 hectares large and planted rice on it. Their sharecropping arrangement was based on the *ngedok* system: i.e. five portions of the total harvest went to Bani's uncle, and two went to Bani's family. Before the rainy season, Bani also used to work as a hoeing laborer; during the off-season he would fish in the river nearby the hut. Likewise, Soinem worked as a weeding laborer and coffee picker. But, according to both, their earnings were just enough to survive.

The economic situation of the family improved a bit when it signed a contract with Perhutani at Lumajang (Perusahaan Hutan Negara Indonesia or Indonesian Forest Enterprise) in 1974 with the help of Bani's uncle. Based on this contract, Bani and Soinem were allowed to operate 0.25 hectares of Perhutani land for approximately three years provided they planted and cared for teak trees and other kinds of trees. Coincidentally, the couple's contract with Perhutani coincided with the birth of their second daughter, Katemi.

The family cultivated the land with maize, cassava, and tobacco. (Soinem suggested they plant tobacco.) Tobacco was planted because its price at the local market was good and because the land was considered suitable enough for planting it. The couple bought some equipment for the occasion: a hooked stick, a hoe, and

Schedule 5.3.2 (1): Stages in the development of the farm and of the household of Pak Bani and Bu Soinem

Year	Pak Sojojanimin + Mbok Hlainem (Bani's father) (Bani's mother)	
	Both are farmers	
1945		
1949	Bani is born	
1955	Bani goes to primary school	
1957		
1961	Bani finishes primary school	
1962	Bani begins to learn how to farm	
1964	Bani finishes learning how to farm	
1965		
1969	Bani and Soinem marry	

Pak Sanija + Mbok Srimamah  
(Soinem's father) (Soinem's Mother)

Both are farmers

- Soinem is born

Soinem's parents migrate to Kedung Salem  
Soinem marries first husband

Soinem's first husband dies

		F A R M					
The family		Land	Crops	Livestock	Stable	Equipment	House
No children		Share Bani's mother's land	Maize, Cassava	-	-	-	Stay with Bani's parents
1970	Sumini was born						
1971	Sumini died						A bamboo house is built
1972	The family migrates to Luamajang Bani fishes and works as hoeing labor Soinem works as weeding labor and coffee picker	They share land	Rice	-	-	Hoe/Ani-ani	Temporary shelter is built
1974	Katemi is born	They share Perhutani land	Maize, Cassava Tobacco	-	-	Hooked stick Cacak	
1976/ 1977	They send money (as much as 160,000 rupiahs) to Bani's brother to buy cattle. Rumini is born Soinem's father dies						
		F A R M					
		Land	Crops	Livestock	Stable	Equipment	House
1978	The family returns to Kedung Salem Bani starts to dig up and burn limestone Soinem starts to collect fire wood and teak leaves	They share Bani's mother's land Parcel 1 is bought	Maize, Cassava, Rice Banana, Gliricidia, Local variety of coconut	- 2 heads of cattle - 1 head of cattle is sold - 2 heads of cattle (1 owned, 1 shared), - Local chickens	A stable is built		

**Schedule 5.3.2 (1): continued**

		F A R M				
		Land	Crops	Livestock	Stable	Equipment
						House
1979	Solimen's mother stays with them Bani is appointed head of the RT					Kenengan house is built
1980	Bani takes a course in raising and selling poultry					
1982			Acacia			
1984	Bani's father dies		Teak			
1985			Coffee			
1986	Rumiasih is born Katimen finishes primary school					
1987		Parcel 2 is bought	Maize, Cassava Rice, Soybean Cowpeas Sesame seed Groundnut, Gnetum-gnemon	1 head of cattle is sold  2 heads of shared cattle		
1989				5 heads of cattle (4 shared, 1 owned)		
1990	Katimen attends third grade of Junior high school					
Nov. 1990	Katimen takes final exam They receive 275,000 rupiah as susuk Exam fee is paid Some construction materials are bought			Bani's aunt pays them half the value of a head of cattle subject to sharing		The kitchen is renovated
Dec. 1990	Katimen finishes Junior high school					
Early 1991	Katimen leaves the household for work in the city.					

a *cacak* (a big knife for cutting dried tobacco leaves into slices). The family's critical period ended in 1975 when its production of food crops and its cash crop (tobacco) proved to be more than necessary for its personal consumption. For the first time in its life, Bani's family was able to effectuate a surplus. In 1976 and 1977 the family could even send, respectively, 100,000 and 60,000 rupiahs to Bani's brother in Kedung Salam in order to buy cattle. During this period, Rumini was born, the family's third daughter. When the family thought that it had enough money, it decided to return to the Kedung Salam to start a new life and to farm on their own.

### Stages of the household's development

Before Soinem married Pak Bani, she was a widow. Her former husband, she said, was killed during the communist party's attempted coup d'état in 1965. Soinem had three children during her first marriage, but only one is still alive and lives with the late father's relatives. She and Pak Bani now have three daughters of their own. Their second daughter, Katinem, was 16 years old in 1990. She was born in 1974 when the family was in Ngrawan, Lumajang. Katinem finished primary school in 1986 and was in the third grade of junior high school at the time. In all probability, she did not go on to senior high school because her parents would have used their money to educate her other two sisters.

The couple's third daughter, Rumini, is 12 years old and, like Katinem, was also born in Ngrawan. She is in the sixth grade of primary school. If she finishes her education there, she would like to go on to junior high school. Bani's fourth daughter, Rumiasih, is four years old. She was born in the *desa* Kedung Salam in 1986 when the financial status of her parents was improving. Before her birth, however, the number of family members increased when Soinem's mother came to live with her daughter's family two years after her husband had died. This happened in 1979. She was 80 years old in 1990 and no longer able to work in the fields.

Commenting on the future of his daughters, Pak Bani has said that he hopes they would like to be farmers in the village. If they did not want to farm, however, he would give them capital to run a *pracangan* (a small shop which sells various items for everyday needs). Initially, he prohibited his daughters from working as a *babu* (house servant) in the city like many girls in Kedung Salam do, though he knew that they stood a good chance of earning decent wages from this kind of work. According to him, however, such work is contemptible and low in status. Bu Soinem, on the other hand, does not object to any profession as long it does not go beyond the bounds of Islamic norms. Pak Bani eventually had to change his mind about this issue when his eldest daughter, Katemi, wanted to seek work in the city in 1991. (See section 5.3.1.) He came to realize that she would become frustrated if she stayed in a village which did not provide any job opportunities for her.

## History of the land

As mentioned earlier, the family did not have any farm land of its own from 1969 to 1978. In order to survive it had to share land. From 1969 to 1971, for instance, it shared Bani's mother's land. It again shared 0.25 hectares of land between 1972 and 1977 when it resided in Lumajan. Later, Bani and Soinem shared 0.25 hectares of PERHUTANI land. When the couple returned to Kedung Salam with their family in 1978, they had to share Bani's mother's land once again.

In 1979, Pak Bani bought a piece of land some 0.335 hectares from his mother (parcel 1). Before deciding to actually buy the land, however, he discussed the matter with his wife. Soinem went along with the idea provided that the *tanah bongkor* (stony, uncultivable part of land) was used to build a house on. After obtaining her consent, Bani went to get the opinion of his brothers and sisters. When none of them objected, Bani and his wife decided to buy the land. Neither he nor Soinem could remember the price of the land when they bought it; however, they could remember that the money used to purchase the land partly came from selling a cow and partly from money they had been able to save. This land was the first piece they owned. According to Bani, the largest part of it was of the soil category type *tanah lempung* (clay soil), and the small part was of the type *tanah lempung* (gravelly or stony soil).

The family's land grew in size in 1987 when they bought 0.513 hectares of land (parcel 2) from Bani's aunt, Kamirah. The total value of the land, including the cost for registering it and certifying it was approximately 1,500,000 rupiahs. The family was able to buy this land as a result of selling some limestone and a cow. They bought the land so they could increase their agricultural production and improve their livelihood; however, this land was always under water during the rainy season and looked more like a swamp than a piece of farmland. Only a small part of the land situated at the upper side could be cultivated with annual crops. The family spent two years trying to solve the problem of flooding before it could actually cultivate annual crops on it. If we are to believe Pak Bani's estimation, the value of his land had increased twofold since then. Still, he and his wife will never be able to sell any of their land because it is destined for their heirs when he and Soinem are no longer able to cultivate it themselves. For these two parcels, Pak Bani and Soinem paid 5,200 rupiahs per annum in land tax to the *desa*.

## History of the crops

The history of the crops cultivated by the family will be divided into three periods in accordance with the family's history: The first period, 1969-1971, was when Pak Bani and Bu Soinem had just married and did not have farmland of their own. During this period they shared Bani's mother's land using the *maro* system and grew maize and cassava (the *pendu* variety) for home consumption. In addition to



these crops, the couple also grew some perennial crops: e.g. a local variety of coconuts, bananas, and teak trees which had been planted long before Bani's family shared the land. The second period extended between 1972 and 1977 when Bani's family lived in the *desa* Ngrawan in Lumajang. There they grew rice on shared land using the *ngedok* system. On the land they contracted from PERHUTANI between 1974 and 1977, they cultivated maize, cassava (*faroka* variety), and tobacco. The couple kept a large portion of the maize and cassava for themselves, but sold most of the tobacco. The third period encompasses the time when Bani's family went back to Kedung Salam in early 1978 to operate parcel 1 of Bani's mother's land again. Similar to the last time he and Soinem shared his mother's land, they once again used the *maro* system. In accordance to Bani's mother's wishes, furthermore, the land was cultivated with maize and cassava (*penadu* and *telo jowo* varieties) and, when water was available, the couple planted *gogo* rice.

When this parcel finally came into their possession, they both realized that its soil was becoming increasingly infertile (*gerat*) in certain sections and yielding less and less as a result. At the time, they did not cultivate any annual crops except for maize and cassava. When the family bought parcel 2, it concentrated on growing annual crops. In regard to parcel 1, the couple maintained that, if they were lucky, they could produce 100 kilograms of maize and approximately 200 kilograms of dried cassava - hardly enough to support the family. To combat the problem, Bani and Soinem started to grow some perennial crops: e.g. banana (1979), gliricidia (1979), coffee (1986), and Gnetum-gnemon (1989). As part of a *program penghijauan* (re-greening program) that took place in the area between 1970 and 1980, the government provided them with some of the seedlings for the perennials: e.g. for the gliricidia and acacia. Gliricidia was planted because it as a whole can be used for protecting the land from erosion, its leaves can be used for feeding animals, and its wood for burning limestone. The family has been able to sell their bananas and coconuts quite regularly to Bu Tukimah, a local trader who comes to the gate of their homestead. It had also cultivated coffee according to the local knowledge system called *ubeng kandang* (growing around the stable). This made fertilizing and transporting manure easy. The family used the coffee it grew mainly for their own consumption and for serving their guests. It would be able to sell the production from its coffee trees when all of the trees yielded something at harvest time.

In 1990 on parcel 1, sub-parcel 1 of LU2 Bani and Soinem cultivated the *arjuna* variety of maize and several local varieties of cassava such as *kastal*, *menthik urang*, and *karet*, as well as other root crops such as *uwi*. Usually they grew cassava a week after maize is planted. On parcel 2 (LU 1) they cultivated various species of annual crops such as the *kepundung* variety of flooded rice, the *arjuna* variety of maize, groundnuts, soybean, cowpeas, and sesame. The combination of these crops, however, depended on the seasons, the needs of the household, and the soil types available to them. The reasoning behind their actions is as follows: If the

rain during the *rendengan* (rain season) was relatively heavy and water was somewhat abundant, they grow flooded rice instead of maize. During the *lemarengan* season, they then grew maize and groundnut. If, however, the rain during the *rendengan* was heavy they grew maize and soybean. During the *lemarengan* season, they then grew maize, soybean, groundnut, and sesame seed.

To produce rice, maize, soybean, groundnut, and sesame seed, they used urea and TSP and cow manure mostly mixed with ash. Experience has taught them that 50 kilograms of urea is needed for rice during the *rendengan*, whereas only 30 kilograms of urea and TSP is needed for maize and other crops during the *lemarengan*.

Bu Soinem executed the following consumption strategy for her household throughout the course of the year: First she provided her family with rice, then rice mixed with maize, and, finally, *tiwul* (processed dried cassava). She based this strategy on her family's needs and on the season. According to her, if she fed the family rice only, then 2.5 kilograms of it would be needed each day. Such was also the case when she served the family maize only, maize mixed with rice, or *tiwul* only.

From its annual crop production, the family yielded approximately 300 kilograms of unhusked riced, 450 kilograms of dried maize, 350 kilograms of *gaplek* (dried cassava), 20 kilograms of cowpease, 25 kilograms of sesame seed, 150 kilograms of soybean, and 75 kilograms of groundnut. It used the production obtained from rice, maize, and cassava mainly for home consumption. The production of other crops such as soybean, cowpease, sesame seed, and groundnut were put on the market at Donomulyo and sold quite regularly, from which the family earned 227,500 rupiahs.

### History of the livestock

When Bani and Soinem first started farming between the years 1969 and 1977, they did not rear cattle. Nonetheless, it was always their intention to do so in the future. They were able to save money when the harvest of the maize, cassava, and tobacco which they grew on the land they contracted at Lumajang was plentiful. After having discussed the matter for some time, Bani and his wife agreed that this money should be used to buy cattle. Naturally they hoped that these animals would bear calves. In 1976 and 1977, Bani sent some money to his brother in Kedung Salam in order to buy two cows: one male, the other female. He also agreed to have his brother look after them. The couple built a bamboo stable on Bani's mother's land in 1978 to keep the animals. Since then, they have made some improvements to the stall.

When they bought parcel 1 in 1979, the couple sold a bull to Bani's aunt. Selling the bull, however, did not change the number of the animals on Bani and Soinem's farm. Being a widow with no children, Bani's aunt was unable to raise

the animal herself and therefore asked Bani to raise it for her. A similar event occurred in 1987 with Bani's sister, Tukini, when Bani and Soinem sold her a cow in order to buy parcel 2. In 1990, the family had five heads of cattle: two it shared with Bani's aunt, two with Bani's sister, and one which it kept entirely under its control. In addition to rearing cattle, the family also reared some local chickens.

### Non-farming activities

In addition to farming and raising cattle, off-farm and on-farm activities have always been important to both Pak Bani and Bu Soinem. During their residence in Lumajang between 1972 and 1977, for instance, not only did the couple sharecrop and cultivate forest land, it also hoed land, picked coffee, collected firewood, and fished. When they returned to Kedung Salam in 1978, they continued with non-farm activities. Bani burned limestone and Soinem collected firewood and teak leaves.

Bani had a year's hands-on experience learning how to burn limestone, and had therefore acquired the knowledge required to burn it properly. He used to dig up the limestone himself either from his own farm or from his mother's land in order to burn it. Recently, however, he has realized that the deposits on these lands were becoming depleted and that the work was becoming too heavy for him. He then began to prefer buying the limestone from limestone diggers. He paid 36,500 rupiahs of which 5,000 was for renting the kiln, 1,500 rupiahs for the *desa* tax, and 30,000 rupiahs for the six cubic meters of limestone. After burning it, he could expect to get 5 tons of limestone and sell it to the limestone *juragan* for 40,000 rupiahs per ton. There are three *juragan besar* with whom he deals: Pak Purwito (a Javanese), Haji Abdul Aziz (a Madurese), and Kho Wang (a Chinese). Pak Bani does this kind of work three to four times a year. One of the challenges he faces with this activity is finding sufficient amounts of firewood. Burning limestone requires a considerable amount wood, though the quantity required varies with the capacity of the limestone kiln used. A kiln with a five ton capacity, for example, requires 4,000 kilograms of wood, while one with a seven ton capacity requires 5,000 kilograms. According to Bani, he needed two months to collect such amounts.

Bu Soinem collected firewood from the forest and teak leaves from her farm. On a given day, she could collect a *pikul* of firewood and a *pikul* of teak leaves. (A *pikul* equal 25 kilograms.) A *pikul* of teak leaves fetched 500 rupiahs, and a *pikul* of firewood could bring in 350 rupiahs to 400 rupiahs. These were sold to a local trader who came to her farm. Bu was also able to combine her firewood collecting with her household chores. After drinking a cup of coffee in the morning, she headed for a forest located 1.5 kilometers away. Between 8:00 am and 11:30 am she could collect one *pikul* of wood. Once at home, she rested for a little while, prepared food for her family, and then gathered teak leaves at a place close by. In

addition to herself, there were 25 women of her age in the hamlet who collected firewood and teak leaves from the forest.

### Equipment

For farm and non-farm activities, the family had several tools at its disposal: a hooked stick, two hoes, three sickles, two axes, a hammer, a crowbar, and three small knives for cutting rice grain (*ani-ani*). All of these tools were bought when the family lived in Lumajang. Although it reared cattle since 1978, it did not have a plough of its own; however, this was never a problem because Bani could borrow a plough from this brother, Kateman.

### History of the house

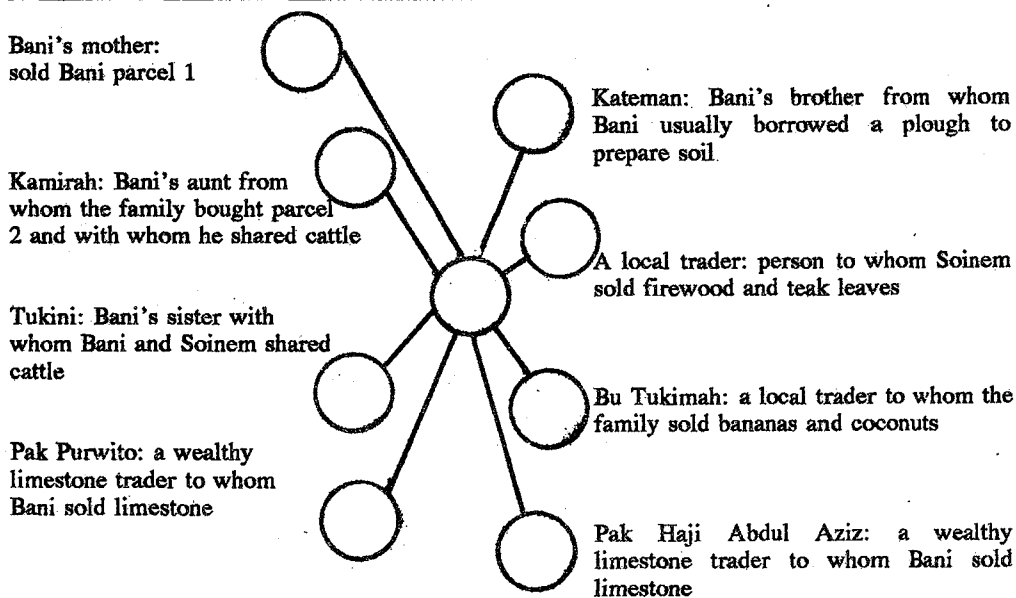
During the first period of their marriage, Bani and Soinem did not have a house of their own and stayed in Bani's mother house. In early 1970, they built a bamboo house, but the land on which it was built belonged to Bani's mother. A year later it was sold and the money used to pay for their trip to Ngrawan, Lumajang. In Lumajang, the couple built temporary shelter.

In mid 1979, Bani and Soinem built a *klenengan* house: a structure whose walls are half bamboo and half brick, and whose floor is cemented. They were able to build the house after having saved some money during their stay in Lumajang. Having returned to Kedung Salem, Bani's wife insisted on a comfortable house to raise their children. As mentioned earlier, a house was built on a piece of land which his mother sold him in early 1979. In keeping with custom, some of his relatives participated in the construction of the house, and in six weeks time the house was finished. Bani's mother provided some timber, and his brother and aunt gave him some of the other materials that were required. His neighbors played a role in finishing the structure.

The house was furnished with four plastic chairs, a small table, two wooden benches, two bamboo platforms for sleeping, and a cupboard. There was no electricity; they used a hanging kerosene lamp for light. The kitchen where Bu Soinem prepares the family's food was located at the back of the house. She did not buy the wood she used to cook with but collected it from the areas around the house or from the forest belonging to Perhutani.

The family lived in a hamlet where many people, apart from farming, have been active in limestone burning. Many lime kilns (*jobong*) could be found along the road to its hamlet as a result. Five meters away from Bani's homestead is a small mosque where he, his family, and his neighbors usually prayed and held *slamatan*<sup>2</sup>. Bani and his wife were planning to renovate their house into a full, brick-wall unit. They will have to work hard to do this because materials such as brick and metals are expensive for them.

Figure 5.3.2 (1): The social network of Pak Bani used for generating income



### Social relationships and social status

Figure 5.3.2(1) shows the social network Pak Bani used in his activities. Clearly family relations, neighbors, and traders played an important role. His family had good relations with its neighbors and everyone helped each other when it was needed: e.g. when houses needed to be built. Bani's aunt and his sister helped him and Soinem obtain access to cattle for sharing. Pak was the head of a neighborhood association: *rukun tetangga* or RT. He was appointed head of this association in 1979 and still maintained this position during my research. He was also an active member of the Golongan Karya (GOLKAR), a government political party. Both Pak Bani and Bu Soinem participate in a group that read the Koran. Bu Soinem was a member of the PKK a women's club and a member of an *arisan*.

### 5.3.3 Summary of the position of the farm and the household in 1990

Before analyzing in more detail the processes of decision making concerning some important activities of Bani's family, a summary is given of the situation of the household and the farm.

### The household's composition and labor force

When the research took place in 1990, the family consisted of Pak Bani, 41 years old, Bu Soinem, 45 years old, Bani's mother-in-law, Srimunah, 80 years old, and the couple's three daughters of 16 years, 12 years, and 4 years of age. In early 1991, however, the structure of the family changed slightly when the eldest daughter, Katemi, finished her primary school and left home to seek work in the city. Since then, Katemi has moved from place to place and has changed employers several times. Initially she worked as a house servant for a Chinese family in Surabaya, but she could not accustom herself to the situation there and quit. She then did manual labor at a factory in the same city, but quit after three months because she could not pray regularly. She now works as a house servant for a wealthy moslem family in Malang where she is paid 30,000 rupiahs net per month. This means that there were only 3.5 labor units available in the household in 1991.

### Land units and the locations of the parcels

In 1990, Pak Bani and Bu Soinem had two parcels of land of their own. The total area of these parcels was 0.847 hectares. The largest part of it, 0.635 hectares, belonged to land unit 1 and 2, meaning that it had good to very good soil. (See table 5.3.3(1) and Map 5.3.3(1).) Land units 3 and 4 contained soil of poor to very poor quality and amounted to only 0.212 hectares. Parcel 1, which consisted of sub-parcel 1 and sub-parcel 2, was separated by a road. Pak Bani's family lived in a house on sub-parcel 1. Parcel 2 was situated in a valley 20 meters away from a bad path.

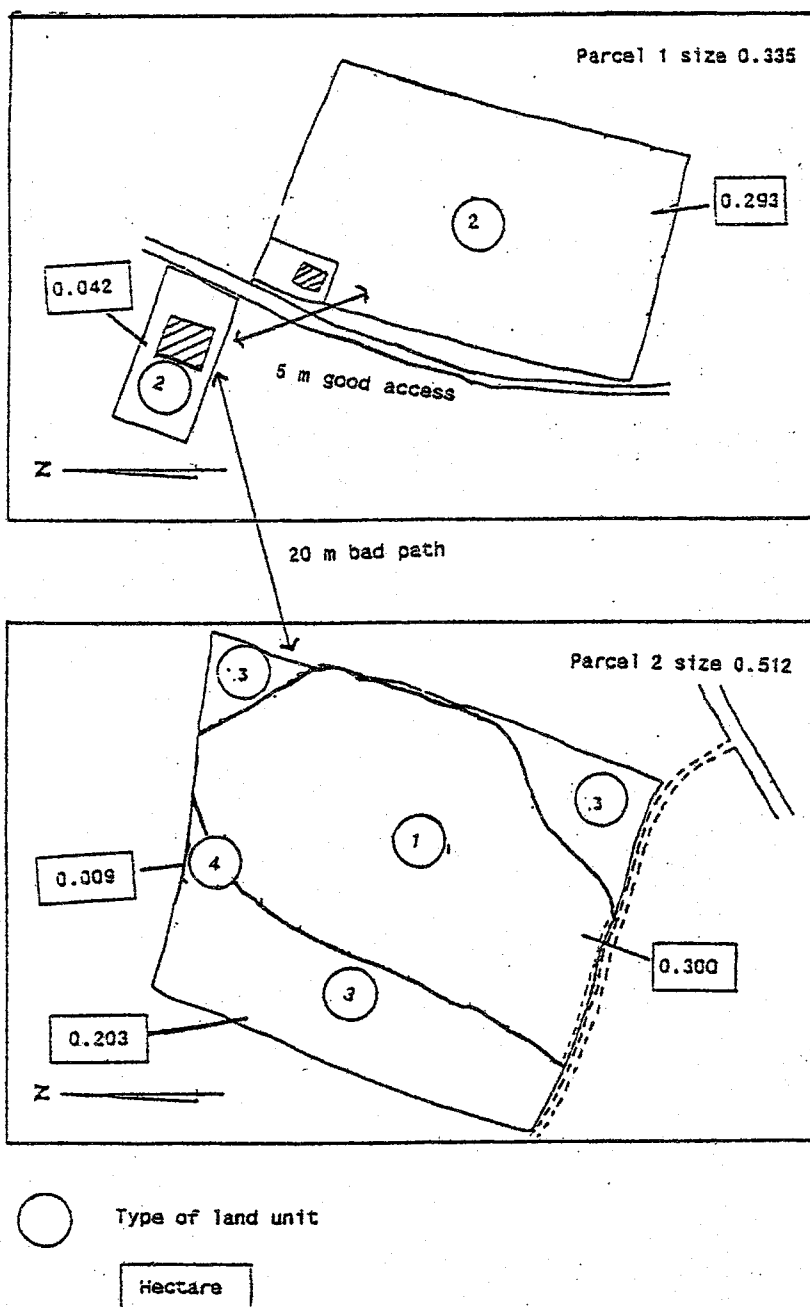
Table 5.3.3 (1): Land units and land tenure in 1990

Land tenure	Parcel	Land unit (LU)	Area in ha	Sub total
Owned	1	2	0.042	0.335
		2	0.293	
	2	1	0.300	0.512
		4	0.009	
		3	0.203	
Total				0.847

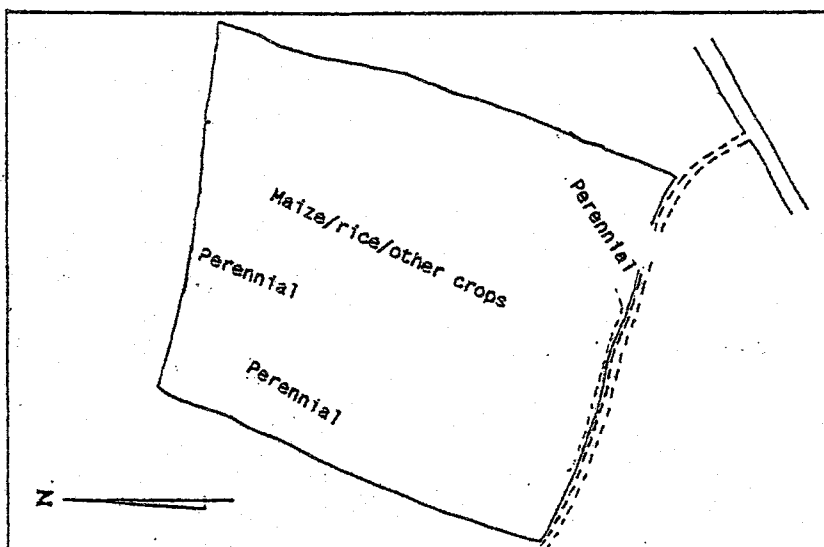
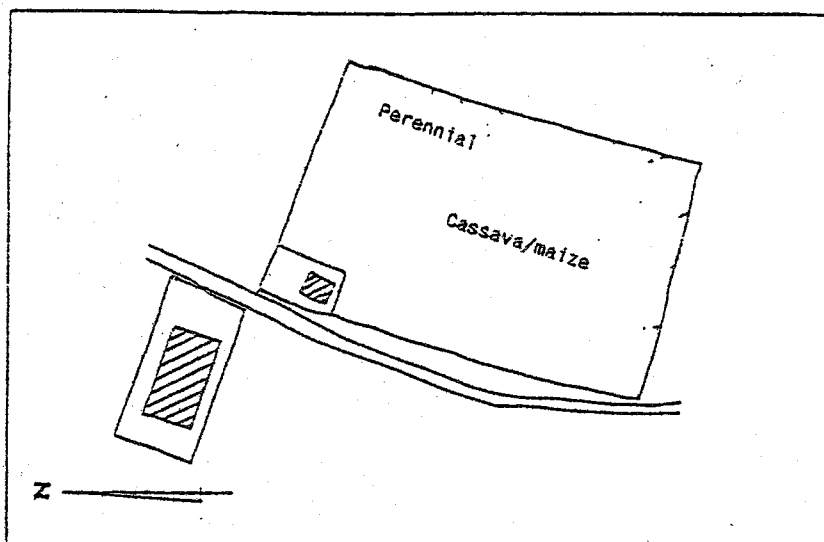
### The land use

Map 5.3.3(2) shows how Bani and Soinem's land was used in 1990. Around the house on parcel 1, sub-parcel 1 there were only few trees. Sub-parcel 2 was planted with various perennials and annual crops (cassava and maize). The stable for keeping the animals was located at sub-parcel 2. The land with the best quality of

Map 5.3.3 (1): Location of parcels and land units



Map 5.3.3 (2): Land use 1990/1991





soil on parcel 2 (LU1) was cultivated with various annual crops such as rice, maize, groundnut, soybean, cowpeas, and sesame; however, this land was subjected to flooding. LU3 and LU4 of parcel 2 were planted with various perennial crops such as coconut, acacia, gliricidia, and Gnetum gnemon.

### The livestock

After having shared several cows with their relatives in early 1990, the family had five cows of which it shared two with Bani's aunt and two with Bani's sister. One of these cows was entirely under the control of Bani and Soinem. In November of 1990 the family received cash for a cow they shared with Bani's aunt.

### Off-farm and non-farm activities

The income from the farm and its livestock was insufficient to provide for the needs of the household. Pak Bani collected firewood either from his farm or from the forest, and burned limestone in the off-season periods. Bu Soinem contributed to the household by collecting firewood and teak leaves which she sold to a local trader.

Table 5.3.3 (2): Pak Bani's sources of income in 1990/1991

Month	Income					Total income
	Food Crops	Other seasonal Crops	Perennial Crops	Non Farm	Livestock	
Oct '90	0	0	0	0	0	0
Nov '90	0	0	9,400	-22,500	275,000	261,900
Dec '90	0	-600	2,200	182,400	0	184,000
Jan '91	-10500	0	0	5,800	0	-4,700
Feb '91	0	-675	9,800	0	0	9,125
Mar '91	0	22,900	-500	7,600	0	30,000
Apr '91	0	0	13,700	10,800	0	24,500
May '91	0	0	9,750	43,200	0	52,950
Jun '91	0	0	3,750	156,900	0	160,650
Jul '91	0	22,900	20,000	160,800	0	203,700
Aug '91	0	0	7,500	58,750	0	66,250
Sep '91	0	0	3,200	133,000	0	136,200
Oct '91	0	0	18,700	0	0	18,700
	-10,500	44,525	97,500	736,750	275,000	1,143,275

Source: INRES IFHS, 1990/1991

## The income

Table 5.3.3(2) indicates the household's sources of income between October of 1990 and October of 1991. The total incomes reported at the right hand side of this table are denoted in amounts after initial expenditures have been deducted (value added). This information must be used with care because it has been obtained via a survey. Nonetheless, it does give an impression of the economic position of the household.

Obviously the family's largest source of income was derived from non-farm activities and therefore indicates the importance of these activities to its members. Income derived from cattle was the second source of income. Moreover, the family's efforts to grow cash crops such as soybean, groundnut, cowpease, and sesame was paying off, as it had become their third source of income.

### 5.3.4 Some decision-making processes

#### Introduction

As in the first case study, three types of decisions are analyzed below. The first decision pertains to the cropping strategies that the family chose. The second concerns the activities embarked on in order to acquire income from sharing cattle. The third centers around non-farm activities. My purpose in analyzing these matters was to discover the main arguments and motives behind the decisions that were taken and to see how these arguments were used in the decision-making process.

#### Decision-making regarding the cropping strategy

Below are listed the alternatives that Bani and Soinem considered in regard to their cropping strategy. These decisions were made in the period of October of 1990 and implemented between November of 1990 and October of 1991. They were determined by the household's needs through the course of the year (the objective), the view that farmers in this area have about the seasons, and the types of soil available to them. You can consult Map 5.3.3(1) in order to see how the land units have been broken down.

##### Alternative 1: To cultivate rice, maize and groundnut.

Bu Soinem proposed this option. Rice, however, could not be planted in LU2 of parcel 1 (sub-parcel 2) because the soil was not considered suitable for planting this crop; therefore, it had to be cultivated in LU1 of parcel 2. Bani and Soinem would first cultivate rice instead of maize and groundnut in LU1 of parcel 2 during the *rendengan* (rainy season), particularly if the season was severe with heavy and continuous precipitation. The reason for this was that the largest part of LU1 of

parcel 2 was flooded then. Maize and groundnut seed would have decayed under such circumstances. In choosing the rice variety, the couple decided on the *keprungung* type. Maize and groundnut, therefore, would only be cultivated during the *lemarengan* season when the soil was dry enough for the soil to grow well. Both Bani and Soinem had the knowledge required to cultivate and nurse the rice. Soinem even knew how to select adequate seeds for the crops. Even though they could harvest 600 kilograms of unhusked rice and sell it easily for approximately 160,000 rupiahs, Bani and Soinem were still reluctant to cultivate only rice (monoculture) in LU1 of parcel 2 because they would have to wait five months before they could collect any money for it. Moreover, the family ran the risk of not having sufficient food in the event the crop failed.

**Alternative 2.** To cultivate soybean, maize, cowpease, sesame seed, and cassava. If the rain was not too heavy during the *rendengan* season, Bani and Soinem liked to cultivate soybean, maize, and cassava. They foresaw no serious problem acquiring seed for these crops. If they did not have their own stock of seed, they could buy it any time at the market in Donomulyo. Moreover, marketing such crops did not present a problem because there were traders at the Donomulyo market who would be happy to buy them. Both of them knew how to deal with these crops as well. According to them, for instance, soybean should not be intercropped with cassava because the shade and the root of the cassava negatively affected the soybean. Soybean, therefore, had to be cultivated in LU1 of parcel 2 and intercropped with maize as much as possible. Cassava could be cultivated along the edge of the parcel. More cassava and maize could be planted in parcel 1, sub-parcel 2 in LU2. When water was less abundant during the *lemarengan* season the family could cultivate their second maize crop in LU1 of parcel 2, together with cowpease and sesame seed.

**Alternative 3:** To cultivate tobacco, rice, and maize. Although Bani and his wife considered tobacco more complicated than rice or maize, they nonetheless considered it within their capability because they had gained experience with the plant. The seed could be bought at a reasonable price from farmers in a neighboring *desa*, Sumber Rejo. Moreover, they could sell the tobacco easily at the Donomulyo market and expect a return of 700,000 rupiahs per annum. The crop could be cultivated in parcel 2, LU1. A problem they encountered, however, was that the largest part of the parcel was always flooded when rain was especially heavy during the *rendengan*. Planting the crop in LU2 of parcel 1 (sub-parcel 2) was not an option because of the shade thrown by the trees; therefore, it had to be cultivated in LU1 of parcel 2 either after the maize or after the rice. But there was still another problem: Planting tobacco after the maize nonetheless meant that the ground was too wet and that the tobacco seeds would probably decay once they were in the ground; yet the crop would receive insufficient water if it was planted after the rice.

Watering the tobacco was not a solution: it would have taken too much time because there were no springs or wells near the parcel.

**Alternative 4:** To cultivate mungbean, maize, and cassava. The family also wanted to cultivate mungbean in LU 1 of parcel 2. There would be no problems with obtaining the necessary seed or with marketing its production. The mungbean could be planted during the *rendengan* season, particularly when the rain was not so heavy. Cultivating and nursing the crop would not be problem because both had the required knowledge to ensure its success. As far as the maize is concerned, it could be planted either in LU2 of parcel 1 or LU1 of parcel 2, whereas the cassava could be partly cultivated along the edges of parcel 2 and partly in LU2 of parcel 1. Bani and Soinem realized, however, that the price of mungbean at the local market has been always lower than the price of sesame, cowpease, or groundnut. Moreover, unlike maize, cassava, or groundnut the leaves of mungbean could not be used for fodder.

### Making the decision and implementing it

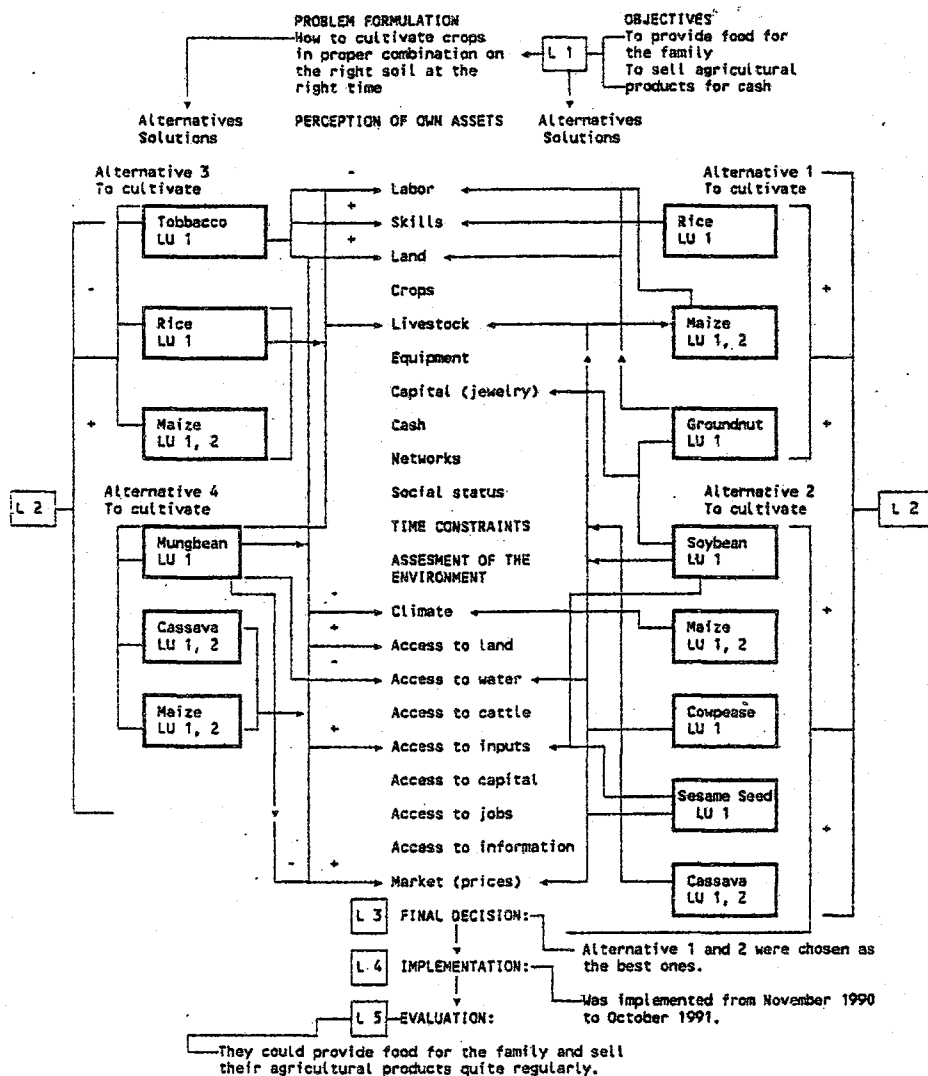
After comparing alternatives 1 and 2 with 3 and 4, Bani and his wife found the former two to be the most feasible cropping strategy. The question is, what was the rationale underlying that decision?

During the *rendengan*, the couple could grow the *arjuna* variety of maize and some local varieties of cassava such as *kastal*, *menthik urang*, and *karet* in LU2. In LU1, the most fertile land according to Bani and Soinem (but also the area most subjected to flooding), they could plant wet rice of the *kepundung* variety or maize. Their choice would depend on whether the rain was relatively heavy and continuous. If so, they could grow maize and groundnuts in LU1 of parcel 2 during the *lemarengan*, but only maize in LU1 of parcel 2. If the rain during the rainy season was not so heavy, however, then during the *lemarengan* they would grow maize, cowpease, and sesame seed in LU1 and maize in LU2. During the *ketigo* (the dry season), the farm household waits for the harvest of their cassava, which is usually done in the second week of August. Adopting this cropping strategy provided them with enough food for the family and with the opportunity to sell certain crops for cash quite regularly.

### Concluding remarks

The decision-making process regarding cropping has been systemized in Schedule 5.3.4(1) according to the decision-making model described in Chapter 2. The main objective of Bani and his wife during their decision-making process was to provide enough food for their family and to produce agricultural products that could be sold. They realized, however, that they had a problem after they had compared

## Schedule 5.3.4 (1): Decision-making process regarding cropping strategy



their objective with the resources (assets) they had at their disposal (L1). In an attempt to solve their problem, they considered four alternatives or options. They then compared the conditions required to effectuate each alternative with the resources available to them such as labor, skill, experience, and land (soil type). In comparing and assessing their options, they took opportunities into account which their environment provided: e.g. water, inputs, and the market (L2). Bani and Soinem's line of reasoning finally lead them to adopt alternatives 1 and 2 as the most viable cropping strategy (L3). The decision was then implemented (L4). Their evaluation was that they could provide enough food for the family and could even sell some of their agricultural products quite regularly by adopting these particular cropping strategies.

### Decision-making processes regarding the sale of livestock

In November of 1990 Pak Bani and Bu Soinem received 275,000 rupiahs as a *susuk* for sharing a cow with Bani's aunt. The question is, what was the rationale behind their request for payment?

In the middle of November the family needed 250,000 rupiahs to pay for the examination fees of their eldest daughter Katemi and to buy some construction materials such as timber and bricks in order to renovate the kitchen in their house. The kitchen, Bu Soinem said, was often wet because the roof leaked. Not wanting to disappoint Katemi, Pak Bani and Bu Soinem considered the following alternatives as a means to find the money that was needed:

**Alternative 1:** To sell their agricultural products. Pak Bani made this proposal. Bani thought he could sell the family's maize, rice, and cassava. His wife, however, reminded him that these crops were needed to maintain the entire family and that the family would be put at risk if these crops were sold. Moreover, the money they would acquire from this alternative was still not sufficient to solve the problem. Selling bananas or coconuts was not a viable option either because they had already sold some of these to a local trader and the money was needed to buy some of items they need everyday.

**Alternative 2:** To borrow money from a limestone *juragan*.

Bu Soinem suggested that Bani go to Pak Purwito or Pak Haji Abdul Aziz and ask for a loan. Pak Bani initially considered this a viable option because it is common practice in the limestone business for a *juragan* to pay out money in advance (*utang*) provided that the person asking for the loan has enough firewood to burn the limestone he needs in order to pay back the loan; however, the problem had become so critical that Pak Bani could not acquire the needed firewood in time; consequently, this was not a viable option.

**Alternative 3:** Ask for half the value of a shared cow. Bani thought he could raise the money he needed if he could obtain cash for an eight month old cow produced by mature cow he was currently sharing. Bani asked his aunt to pay him half the value of the animal in cash because there was no other way for him to obtain the money he needed on such short notice.

### **Making the decision and implementing it**

After considering and comparing alternatives 1, 2, and 3 Pak Bani and his wife decided the last alternative was the most feasible. After a local cattle trader assessed the shared cow at 550,000 rupiahs, Bani received 275,000 rupiahs. Soinem then paid 87,000 rupiahs for their daughter's examination fee and 168,000 for some construction materials in order to renovate the kitchen. The rest of the money she saved.

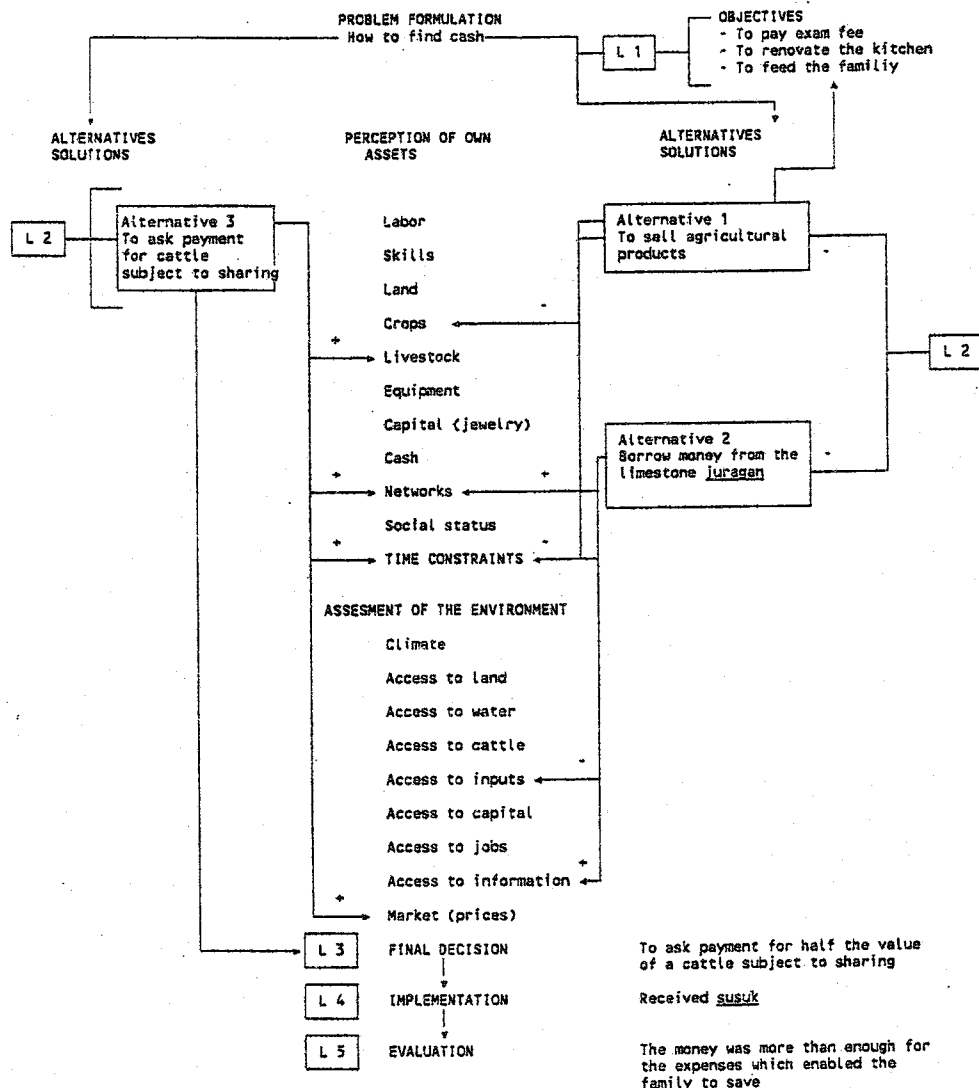
### **Concluding remarks**

The several steps in the decision-making process concerning livestock have been systemized in Schedule 5.3.4(2). The difference between this decision and the other two types of decisions discussed in this section, however, is that here there was an emergency: money for an examination fee was needed on short notice and, consequently, a decision had to be made within a short period of time. All the options had to be evaluated on the basis of whether they would generate income immediately. When Bani and Soinem compared the costs inherent to the options with the resources they had available to them, they knew they had a problem (L1). They then considered three alternatives to solve the problem. The consequences inherent to each alternative were then compared with the resources they thought were available to them and the opportunities their environment afforded them at the time (L2): e.g. access to inputs. This eventually led Bani and Soinem to try and obtain half the value of a shared cow (L3). The decision was then implemented and, in turn, they collected 275,000 rupiahs (L4). Their evaluation of the situation was that it solved the problem.

### **Decision-making processes with regard to off-farm non-farm activities**

From the very beginning of their efforts at farming, Pak Bani and Bu Soinem had been involved in activities not related to their farm. The main reason for this was that the income of the farm was not sufficient to cover the costs of their daily needs. As mentioned in section 5.3.2, several activities were undertaken: Pak Bani worked as a limestone burner and collected firewood from his farm (an on-farm and non-farm activity) and from the forest (a non-farm activity). Bu Soinem collected firewood and teak leaves. These activities were neither chosen at random nor in a

## Schedule 5.3.4 (2): Decision-making process regarding the payment of half the value of a shared cow





pre-attentive way, but rather selected after husband and wife had discussed several alternatives which, through their eyes, were relatively open to them. I list and discuss these alternatives below. Apparently these decisions were made at the very start of their efforts in farming, but were explained to me in 1990.

**Alternative 1:** To be an agricultural laborer. Bani considered working as a laborer hoeing or ploughing like he did when he and his family lived in the *desa* Ngrawan because he already had the skills he needed. He thought he could earn 1,200 rupiahs in cash each day. This alternative was attractive to him because it would not interfere with the activities on his farm; he would only work for others after he completed his own work first. The problem, however, was that opportunities for this type of work were few and far between in his hamlet because only a few people had more than two hectares of farmland. The majority of people in the hamlet had 0.25 hectares: small enough for each household to cope with its own chores unless, of course, someone fell ill. Additionally, there were few plots which could be ploughed easily using animals as draft power because the type of soil Bani would confront.

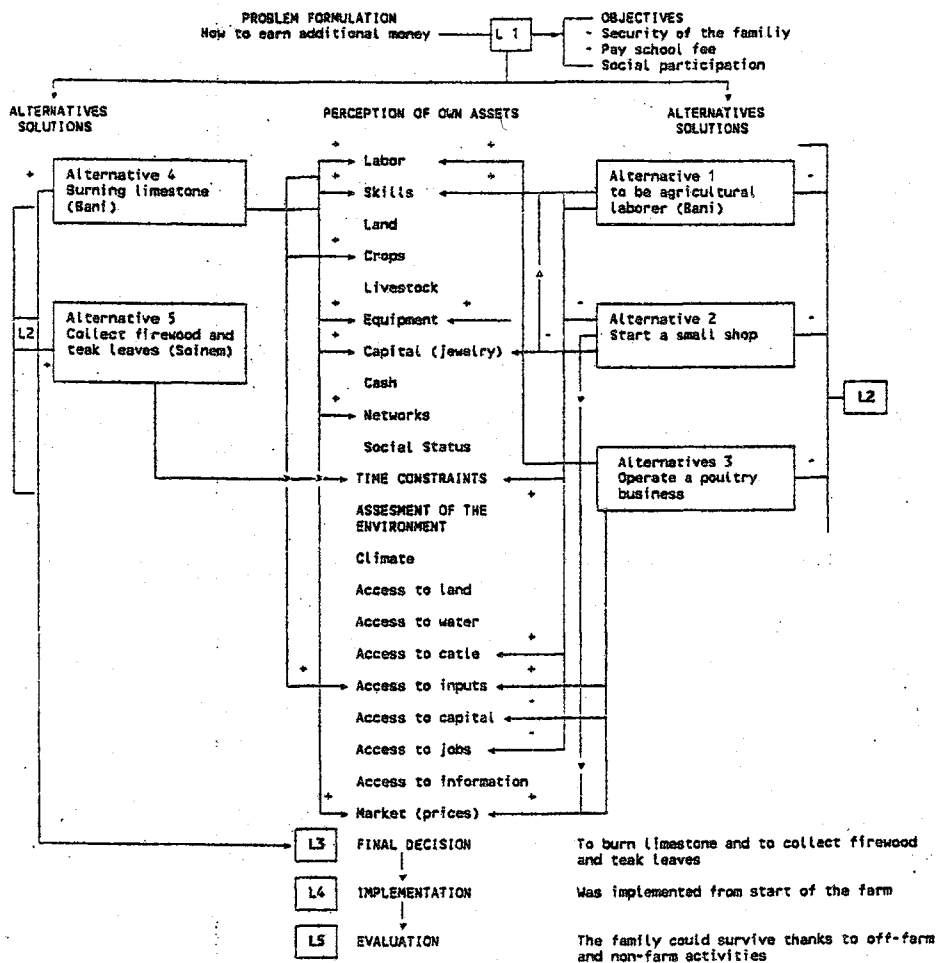
**Alternative 2:** To start a small-shop. Pak Bani and Bu Soinem considered setting up a small shop (*pracangan*) at home in which they could sell various items for people's daily needs: e.g. sugar, salt, salted fish, kerosene, and cigarettes. Their house was located near the main road and was therefore strategically located for doing business. Selling their products would not be a problem because their neighbors would be willing to come to the shop to buy their products. According to Bani and Soinem, this option could also provide them with an income when they were old and had retired from farming. Soinem went along with the idea provided she their eldest daughter helped manage the shop.

This idea was also appealing to them because such a shop afford their all of their daughters an opportunity to learn about managing a small trading business. As a result, their daughters would not have to go to the city in search of work. According to the calculations they made, they needed between 250,000 to 500,000 rupiahs in capital to implement their plan; however, they ultimately eliminated this option because they realized that they did not have the skill or the money they needed.

**Alternative 3:** To operate a poultry business. Pak Bani considered starting up a poultry business. He thought he could probably manage this business because he had knowledge about it and some skill as well. In mid 1980, Bani and some of his friends had taken a course on the poultry business which was conducted by the official of the sub-district. He had seen that one of his friends has since been able to manage such an enterprise successfully in a neighboring *desa*. One reason why he considered it a feasible idea was because his family could raise the feed for the

should be mentioned here that the decision-making processes with regard to non-farm activities took place some years ago and were reconstructed during my interviews.

Schedule 5.3.4 (3): Decision-making process regarding non-farm activities



## 5.4 A case study of the household and farm of Pak Bagong

### 5.4.1 Family background of the farmer and his wife

Pak Bagong was a Javanese farmer who lived in the *dusun* Krajan in the *desa* Kedung Salam. He was 63 years old in 1990 and spent most of his life in this *dusun*. The furthest place he had ever visited was the *kabupaten* Tulungagung. Bagong never went to primary school or to a boarding school for Muslims. Not surprisingly, he was illiterate and could hardly speak Bahasa Indonesian. Although old, he was still energetic enough to work on his farm.

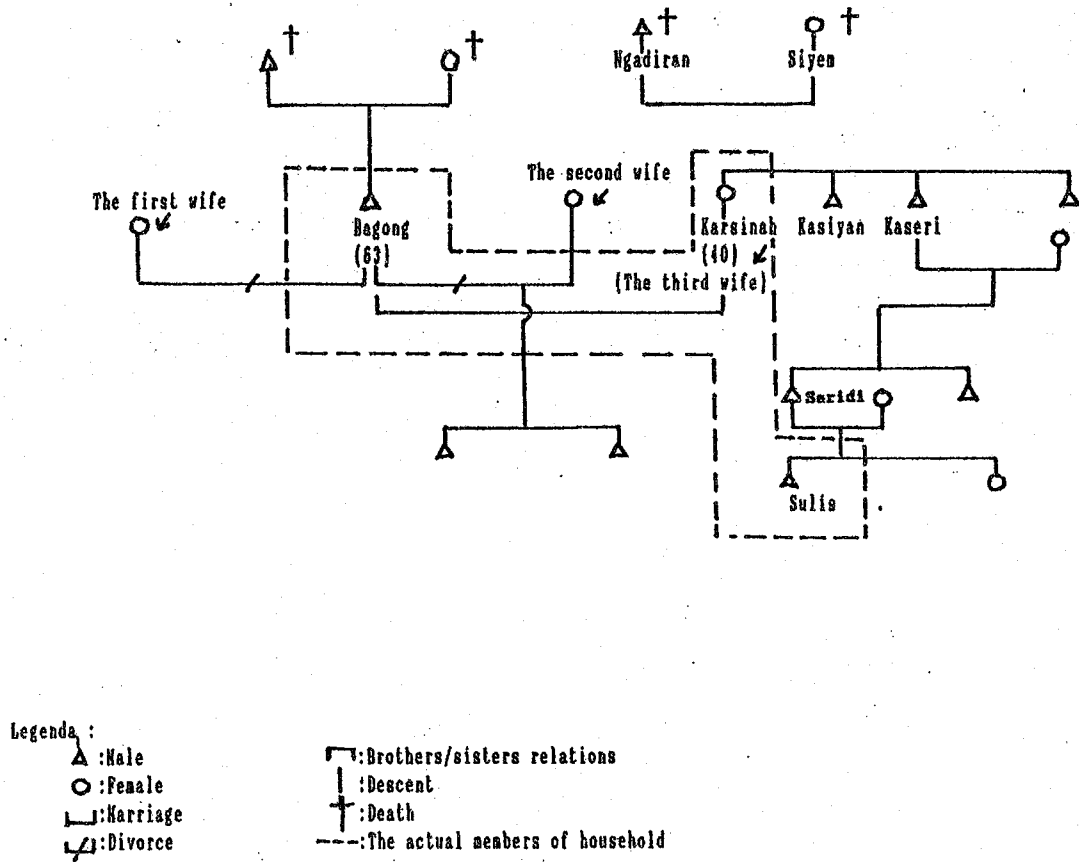
It was not clear who his parents were because he would not mention their names. Nevertheless, we can be sure that he is the only son of farmers in the *dusun* Krajan in the *desa* Kedung Salam and that he acquired his knowledge of farming from his parents. (See the family tree of Pak Bagong and Bu Karsinah in Figure 5.4.1(1).) We know that his parents were rich farmers because Bagong inherited approximately two hectares of land when his parents died. He was 17 at the time. This land was apparently of good quality, because he was able to grow cassava, maize, rice, and many other food crops on it.

Bagong married soon after he acquired the land. According to him, he has been married three times, including his present wife, Karsinah. His first marriage ended in divorce and did not bear him any children. His second marriage, which also ended in divorce, gave him two sons. It ended in early 1975 because he refused to migrate to South Sumatra with his wife: Pak did not want to live on the outer island. He had decided to stay in Kedung Salam for the rest of his life because it is where his ancestors are buried. Long before this marriage ended, his sons inherited his land; however, the two men sold this property, but it is not clear why.

After Pak Bagong divorced his second wife, he sold his house for 28,000 rupiahs to pay for his living costs. Since then, he has had no house or land. According to Bagong, his life was chaos during that time. To earn a living, he claimed he had to work hard as casual labor either hoeing or digging limestone. He lived this way for five years, but stopped when he married his present wife, Karsinah.

Karsinah was 40 years old in 1990. Her parents, Pak Ngadiran and Mbok Siyem, were farmers in the *dusun* Krajan in Kedung Salam. Like Pak Bagong, she was illiterate. Unlike Pak, she had three brothers: Kasiyan, Kaseri, and Katemin. All of her brothers were married and lived in Kedung Salam as farmers. (See the family tree of Pak Bagong and Bu Karsinah figure 5.4.1(1).) When Karsinah was 5 years old she contracted a fever which impaired her ability to speak; consequently, she is nearly dumb now. Because of disability, she was never able to attend school. She was 30 when she married Bagong.

Figure 5.4.1 (1): Family tree of Pak Bagong and Bu Karsinah



### 5.4.2 Development of the farm and farm household

#### How the farm was started

Bagong was 53 and had no land when he married Karsinah in 1980. Karsinah, however, had been given 0.463 hectares of land from her parents shortly after she married. (An overview of the couple's farm and the development of its household is illustrated in Schedule 5.4.2(1).) Together with Karsinah, Bagong cultivated the land with cassava and maize for their own consumption. Karsinah's eldest brother, Pak Kaseri, provided the couple with cassava seedlings and with maize seed the first time they needed it. After Bagong had finished hoeing the land in order to prepare it for planting, Karsinah inserted the cassava seedlings and the maize seeds.

During the first and the second harvest the production they obtained from their cassava and maize (*goter* variety) was so low so that it was used solely for home consumption. Nothing was left to sell on the market. At that time his wife's brother often gave them food. Bagong and Karsinah always harvested all of their maize at the same time. The cassava, however, was harvested little by little in accordance with their consumption needs. They cultivated several local varieties of cassava on parcel 1: *cecek*, *karet*, *penadu arab*, *montro*, and *sembung*. Among these varieties, however, *cecek* was considered to be the most resistant to plant disease by Bagong and his wife. This is the reason why they always grew more of this variety than of others.

The couple had also started to grow some root crops on parcel 1 such as *uwi* or *mbote*. In addition to his farming activities, Bagong worked as a hoeing laborer and Karsinah as a weeding laborer in their neighbors' fields.

#### Stages of the household's development

Although they were married for ten years, they had no children. Bagong was convinced that it was not due to him, but to his wife. Bu Karsinah described herself as *tiyang gabug* which literally means, "a woman who cannot bear a child because of her infertility". After five years of marriage and no sign of pregnancy, Karsinah persuaded her husband to adopt a child with the hope that it would give them someone who was willing to take care of them when they were old. She had chosen Sulis, her brother's grandson. He was three years of age when Karsinah and Bagong adopted him. Bagong had no choice but to go along with his wife's wishes. Since then, the boy has been a member of their household. He was eight years old in 1990 and was in the second grade of primary school during my research.

### Schedule 5.4.2 (1): Stages in the development of the farm and of the household of Pak Bagong and Bu Karsinah

YEAR	Bagong's Parent	Karsinah's parents
		Pak Ngadiran      Mbok Siyem
		Both are farmers
1927	Both are farmers	
1944	Bagong is born	
	He inherits 2 hectares of land from his parents	
1947	Bagong marries his first wife	
1950		Karsinah is born
1952	He gets divorced from the first wife	
1952	He marries for a second time	
1970	His sons from second marriage inherit his land	
1975	He gets divorced from his second wife	
1975	Bagong has no house and no land	
1979	He has to work as casual labor in the village	
1980	Bagong marries Karsinah (wife during time of research)	

FARM						
Family	Land	Crop	Livestock	Stable	Equipment	House
No Children	0.463 ha	<ul style="list-style-type: none"> <li>- Coconut</li> <li>- Kapok</li> <li>- Teak wood</li> <li>- Jack fruits (some of the crops are cultivated before Karsinah obtains the land)</li> <li>- Maize</li> <li>- Cassava</li> </ul>			<ul style="list-style-type: none"> <li>- Hoe</li> <li>- Hooked stick</li> <li>- Sickle</li> </ul>	A bamboo house is built
1981	Bagong acquires his skill in bamboo weaving					
1982		Gnetum-gnetum				
1983		<ul style="list-style-type: none"> <li>- Jack fruit</li> <li>- Star fruits</li> <li>- Gliricidia</li> <li>- Kapok</li> </ul>				
1985	Sulis is adopted					
1986		- Mahogany				
1988			They have 4 goats	The stable for keeping the goat is built		
1989		- Acacia				
Early 1990			They have 6 goats			
November 1990			One goat is sold			

## History of the land

As I mentioned in sub-section 5.4.1, Bu Karsinah's parents had given her 0.463 hectares of land when she married. This property was legally hers from then on. The land itself was situated next to her brother's and was not well maintained then. Flooding and soil erosion had frequently assaulted some parts of it, particularly on the sloping side where Bagong and she cultivated maize and cassava. It was Bagong who realized the problem. He calculated that it was too expensive to make permanent terraces and that he had become too old to do this all by himself. He tried to make some garden beds to solve the problem, but the soil continued to erode during the rainy season.

Karsinah stated that her son has already inherited the property rights to her land. She had come to this decision a few years ago with the help of her brother, Kaseri. Bagong could not prevent her from implementing her decision because he had no rights to her property. Karsinah took the measure in order to prevent any conflicts that might occur in the event that she and Bagong died. She was worried that Pak Bagong's relatives might try and claim the property by asserting that Sulis was not a legal heir to the her property because he was adopted from one of her brother's children. In Indonesia, relatives of a spouse with no immediate heirs might receive rights to such land.

In hopes of being able to provide more food for their family, Bagong and Karsinah have been operating a parcel of land 0.148 hectares large since 1989 using the *mertelu* sharing system. This land, situated next to their own, belongs to their neighbor, Pak Riono. The owner asked them if they would be willing to cultivate cassava and maize during the *rendengan* and *lemarengan* seasons. Two-thirds of the yield goes to the land owner and one-third to Bagong's family.

## History of the crops

In 1950, long before Bu Karsinah married Pak Bagong, Karsinah's parents planted maize, cassava, various perennial crops such as banana, *kapok* coconut), teak, and jackfruits on the land they passed on to Karsinah. Not long after they married, and prior to the rainy season of the same year, Bagong and Karsinah planted even more perennial crops on the land.

Bagong considered the red and yellow soil which covers the largest part of the plot where the family cultivates annual and perennial crops as *gembrung lempung*: good soil. Only small parts of the family's land was *grasak*: gravelly or stony soil.

In what it perceived as the less fertile parts of the land, the family started to grow perennial fruit such as banana (1980), coffee (1980), *Gnetum gnemon* (1982), jack-fruits (1983), star-fruits (*averrhoa bilimbi* 1983), and a local variety of coconut (1988). It also started to cultivate kaliandra (1982), *gliricidia* (1983), *kapok* (1985), mahogany (1986), and acacia (1989). Bagong and Karsinah received some of their

coffee seedlings from Karsinah's brother; some of them they bought themselves at the Donomulyo market. The government provided them with seedlings for some timber perennials such as *kaliandra*, *gliricidia*, and with *acacia* via the *desa* apparatus as part of the government's *program penghijauan* (re-greening program) which had been launched in the area.

They always cultivated their land during the *rendeng* (the rainy season), intercropping it with cassava and maize on the part they thought had good soil. During the *lemarengan*, they usually planted maize. Bagong and Karsinah both knew about chemical fertilizers such as urea and TSP ZA and knew that it was available at the market in Donomulyo and a shop nearby, but the price of it was too expensive for them. At the Donomulyo market, for example, 100 kilograms of Urea or TSP costed 23,000 rupiahs. To fertilize their land they used goat manure and homeyard manure, sometimes in combination with limestone ash.

Because Bagong and Karsinah's agricultural production was used for home consumption (when it was enough), they were forced to use their skills in basket weaving in order to survive.

### History of the livestock

Exactly when Pak Bagong and Bu Karsinah reared goats for the first time is not clear. Both claimed that the goats on their farm had been there since 1988. They gained access to their animals through sharing and shared a total of four goats: three belonging to his wife's nephew, Pak Saridi, and one to his neighbor, Mbok Giyem. Soon after the couple began to share the animals, it built a bamboo stable. Up until my research, they had still not raised cattle. In 1990, however, they reared six goats, two of which were their own. By sharing goats, Bagong and his wife hoped that they could cash them in when they needed money quickly. Moreover, the manure from the animals was used to fertilize the soil.

### Non-farming activities

In addition to farming and raising goats, non-farming activities were always important as a source of income to both Pak Bagong and Bu Waginah. Their basket weaving activities clearly illustrate this. To weave their baskets, Pak and Bu used knives of different types and sizes. They usually make their baskets after they have completed their farm work. In the off-season, however, the couple worked almost the entire day, except for the time they take for lunch. Bagong and Karsinah always did the work themselves. Each of them could complete 10 bamboo baskets a day and fetch 300 to 350 rupiahs for every basket made. The money they earned here was used to buy everyday items. Bagong's family was not the only one who engaged in this activity; there were at least nine poor farm households who also did it.



## Equipment

The family had several tools for both farming and non-farming activities: two hoes, two hooked sticks, a sickle, and some other tools for weaving bamboo baskets. It bought these tools shortly after it started farming on its own.

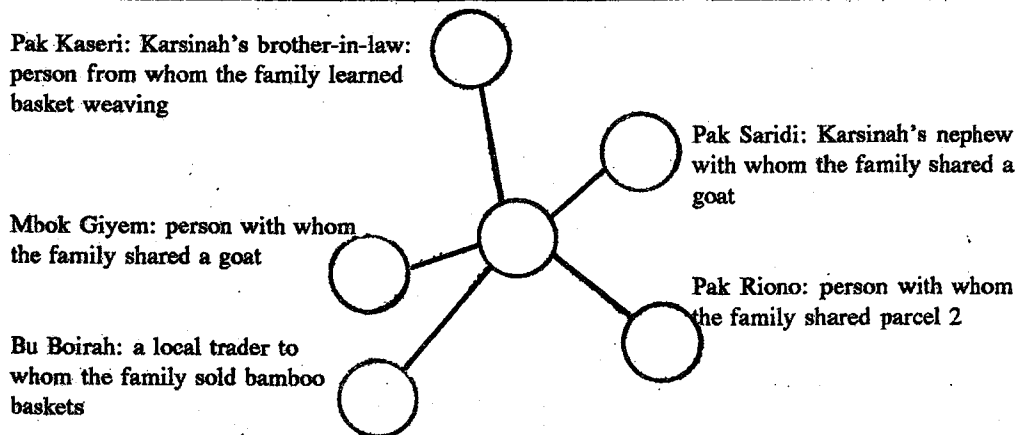
## History of the house

When Bagong married Karsinah in 1980, they lived on Karsinah's land in a small bamboo house with an uncemented floor. When it was time to renovate this house, friends and relatives came to their aid. The house's direction, which initially faced towards the east, was changed so that it faced south. This was done on the suggestion of the *dukun* (medicine man) who the couple visited regularly. According to him, the direction of the house had to be changed otherwise Karsinah would never recover from her illness. The house was furnished with two bamboo beds, an old small cupboard, and a bench.

## Social relationships and social status

Figure 5.4.2(1) shows the social network Pak Bagong used in his activities. Clearly family relations, neighbors, and local traders played an important role. His family had good relations with its neighbors, and everyone helped each other when it was needed: e.g. when houses needed to be built, during the harvest, and when *slamatan*<sup>2</sup> needed to be held. Relatives helped them several times by giving them food. His wife's nephew helped them acquire the goat for sharing. Bagong and his wife were active members of an *arisan* (savings club) in the *rukun* Tetangga.

Figure 5.4.2 (1): The social network of Pak Bagong used for generating income



### 5.4.3 Summary of the position of farm and household in 1990

Before analyzing the decision-making processes in Bagong's family, I will first summarize the situation the household and the farm was in at the time.

#### The household composition and labor force

When the research took place in 1990, the family consisted of Pak Bagong, 63 years old, Bu Karsinah, 40 years old, and an adopted son, Sulis, 8 years old. This means that there were 1.5 labor units in total.

#### Land units and the locations of the parcels

In 1990, Pak Bagong had two parcels of land: one owned and the other shared with their neighbor. The total size of the land was 0.611 hectares. All of the land belonged to land unit 2 (LU2), meaning that it was of a reasonably good quality of soil. (See Table 5.4.3 (1) and Map 5.4.3 (1).) Pak Bagong's family lived in a house on parcel 1. The location of parcel 2 was next to parcel 1.

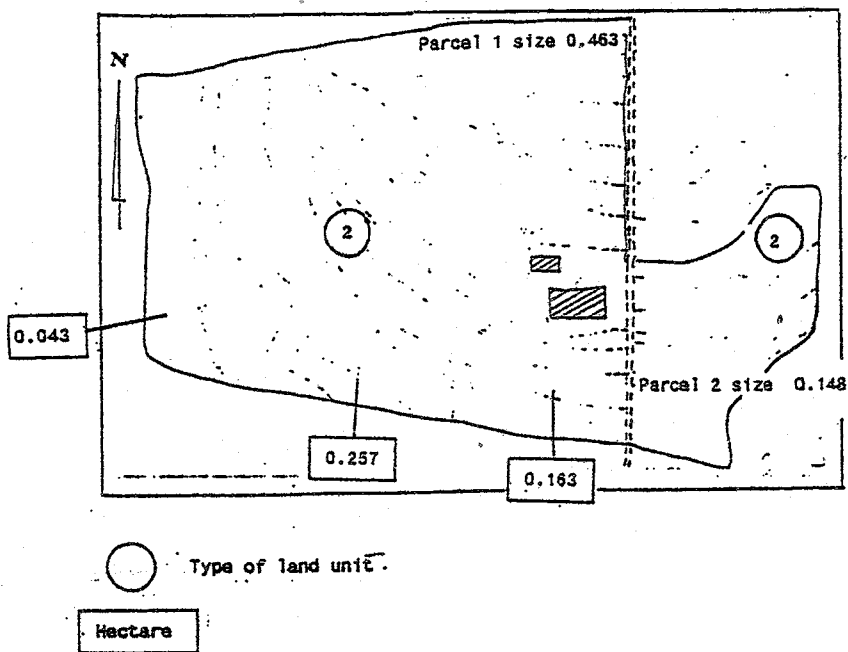
Table 5.4.3 (1): Land units and land tenure in 1990

Land Tenure	Parcel	Land Unit (LU)	Area in Ha	Sub Total
Inherited	1	2	0.163	
1980		2	0.257	0.463
Shared	2	2	0.043	
1989		2	0.148	0.148
Total				0.611

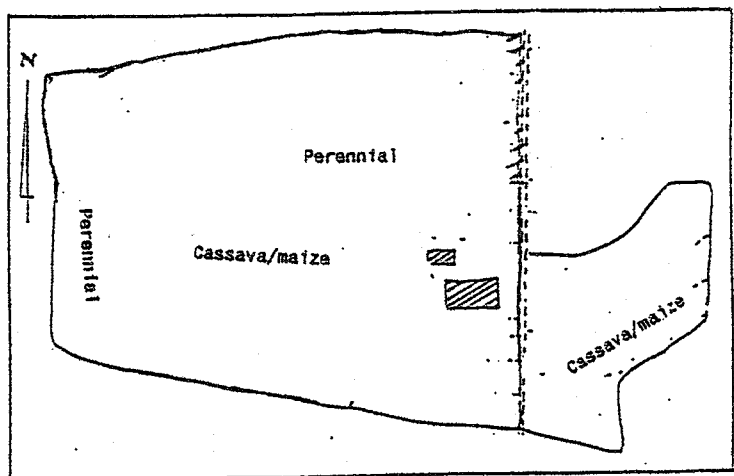
#### The land use

Map 5.4.3 (2) shows how the land was used in 1990. Next to the house on parcel 1 there was a stable for keeping goats and home garden with mixed croppings and trees. The production of the annual crops was mainly used for home consumption. The family did not have any rights regarding the cropping strategy implemented on parcel 2. They simply followed the decisions the land owner made.

Map 5.4.3 (1): Location of parcels and land units



Map 5.4.3 (2): Land use in 1990



## The livestock

After having shared four goats from its relatives and its neighbors, the family had six goats, two of which were their own. Their motive for rearing the goats was to be able to cope with immediate needs for cash and to obtain manure for their land. In November of 1990, the family sold a goat to buy some kitchen utensils: e.g. glasses for drinking and some plates.

## Off-farm and non-farm activities

The income of the farm and livestock was insufficient to provide for the needs of the household; therefore, Pak Bagong and Bu Karsinah wove bamboo baskets which they sold to a local trader.

## The income

Table 5.4.3(2) indicates the household's sources of income between October of 1990 and October of 1991. The total incomes reported at the right hand side of this table are denoted in amounts after initial expenditures have been deducted (value added). This information must be used with care because it has been obtained via a survey. Nonetheless, it does give an impression of the economic position of the household.

Table 5.4.3 (2): Pak Bagong's sources of income in 1990/1991

Month	Income					Total income
	Food Crops	Other seasonal Crops	Perennial Crops	Non Farm	Livestock	
Oct '90	-950	0	700	0	0	-250
Nov '90	0	0	-2,300	208,200	30,000	235,900
Dec '90	0	0	1,850	1,000	0	2,850
Jan '91	0	-6,600	5,750	30,500	0	29,650
Feb '91	0	0	5,500	15,000	0	20,500
Mar '91	0	0	3,500	12,250	0	15,750
Apr '91	-500	7,500	3,150	4,600	0	14,750
May '91	0	0	20,500	-27,300	0	-6,800
Jun '91	1,550	0	400	-8,400	0	-6450
Jul '91	0	0	1,600	13,600	0	14,600
Aug '91	0	0	13,600	14,500	0	28,100
Sep '91	0	0	0	16,300	0	16,300
Oct '91	0	0	2,550	40,200	0	42,750
	100	900	56,800	340,950	30,000	428,750

Source: INRES IFHS, 1990/1991

Obviously the family's largest source of income was derived from non-farm activities and therefore indicates the importance of these activities to its members. Income derived from perennial fruit crops (particularly coconuts and bananas) was the family's second major source of income. The family's third source of income was the selling of a goat.

#### **5.4.4 Some decision-making processes**

##### **Introduction**

Three types of decisions are analyzed below. The first pertains to the annual crops that should be planted. The second centers around the family's goat. The last decision regards the type of off-farm or non-farm activities that the couple chose to engage in. My purpose in analyzing these matters was to discover the main arguments and motives behind the decisions that were taken and to see how these arguments were used in the decision-making process.

##### **Decision-making regarding the cropping strategy**

Below are listed the alternatives that Bagong and Karsinah considered in regard to their cropping strategy. These decisions were made in the period of October of 1990 and implemented between November of 1990 and October of 1991. They were determined by the household's needs through the course of the year (the objective), the view that farmers in this area have about the seasons, and the types of soil available to them (see Table 5.4.3(1)).

**Alternative 1:** To cultivate groundnut, cassava and maize. During the rainy season, it was possible to cultivate groundnut intercropped with cassava or maize in parcel 1 but not in parcel 2 because the couple had no rights as to what crop could be planted in parcel 2. They knew how to grow groundnuts and would therefore have no problems in cultivating and nursing it; however, Bagong and his wife did not have enough money to buy the groundnut seed they needed. Groundnut seed was always more expensive at the market than maize seed. Moreover, Bagong maintained that the crop was difficult to harvest because the soil becomes very hard when it is dry.

**Alternative 2:** To cultivate longbean, maize and cassava. The couple considered growing longbean in parcel 1 and selling its production to the market nearby. They would not encounter any problems with the soil or with the seed for the crop. Karsinah, however, did not along with the idea because she knew that longbean was vulnerable to disease which could, in turn, affect their maize. True, they could eradicate the disease by hand, but it was a time consuming process and the price for

longbean has always been low at the local market. Pesticides were possible, but the couple rejected the idea because it was too expensive and, more importantly, it could endanger their health and lives as well as the health and lives of their goats.

**Alternative 3:** To cultivate the land with rice and cassava. Cultivating rice in parcel 1 was possible during the rainy season, and cassava could be planted along the edge. Providing rice seed and cassava seedlings did not pose a problem. Although planting rice is complicated, Bagong and his wife had the skill to do it; however, both thought that preparing the seed bed and weeding the field would take too much time. They were afraid that they would not have the time they needed to weave their bamboo baskets. The couple also considered the cultivation of rice too risky. Some time ago, the seed they had planted failed because there was not enough water; consequently, all the capital they had invested in the crop was lost. Moreover, their neighbors' chickens liked to feed on the crop.

**Alternative 4:** To cultivate soybean, maize, and cassava. Once Bagong and Karsinah thought they could plant soybean on their land and that they could intercrop it with maize. The soil was certainly good enough for this. Moreover, the couple considered it very important to intercrop the soybean mostly with maize. In Bagong's mind, the root of cassava and its shade would hinder the growth of the soybean. Additionally, if they decided to cultivate soybean during the rainy season, then they would not be able to cultivate more cassava and maize. As a result, the family would hardly have enough food during the dry season. True, the price for soybean at the Donomulyo market had always been good, but its seed was more expensive in comparison to maize seed. Soybean seed ranged between 800 to 900 rupiahs per kilogram, while a kilogram of maize costed just 400 rupiahs. The couple simply could not afford this option.

**Alternative 5:** To cultivate maize, cassava, and some root crops. Maize could be planted and intercropped with cassava. Acquiring maize seed, cassava seedlings, and organic fertilizer would be relatively easy because the couple could use the seed and seedlings from their previous harvest. If it did not have these things it could buy them from the next door neighbor or from a shop nearby. Cultivating these crops would not be time consuming in comparison to rice and soybean, and homeyard manure mixed with goat manure and limestone ash could be used to fertilize the land. Additionally, maize could be grown twice a year: during the *rendengan* and the *lemarengan*. This would give the family food throughout the entire year. Karsinah stated that root crops could be planted under any circumstances and, like cassava, they were drought resistant. Moreover, the couple would not have to buy seed because it could be found around their homestead easily. No fertilizer would be needed to grow the crops other than homeyard

manure. In the event that maize and dried cassava were not available to feed the family, root crops could be used as a substitute staple food.

### **Making the decision and implementing it**

After comparing alternative 5 with alternatives 1, 2, 3, and 4, Pak Bagong and his wife found alternative 5 the most feasible cropping strategy. The question is, what was the rationale underlying that decision?

As a result of the decisions made in October of 1990, the following cropping strategy was followed from November of that year to October of 1991: On their own parcel, parcel 1, Bagong and Karsinah grew a local maize variety, *goter*, and some local varieties of cassava such as *cecek*, *karet*, *penadu arab*, *kastal*, *monstro*, and *sembung* during the *rendengan*. In addition to these crops, they also grew some root crops like *mbote* (*taro*) and *uwi* (*dyscoria*). During the *lemareng*, they mainly cultivated maize. During the *ketigo*, the family waited to harvest their cassava, which was usually done during the second week of August. They harvested *mbote* and *uwi* when other food was not available.

### **Concluding remarks**

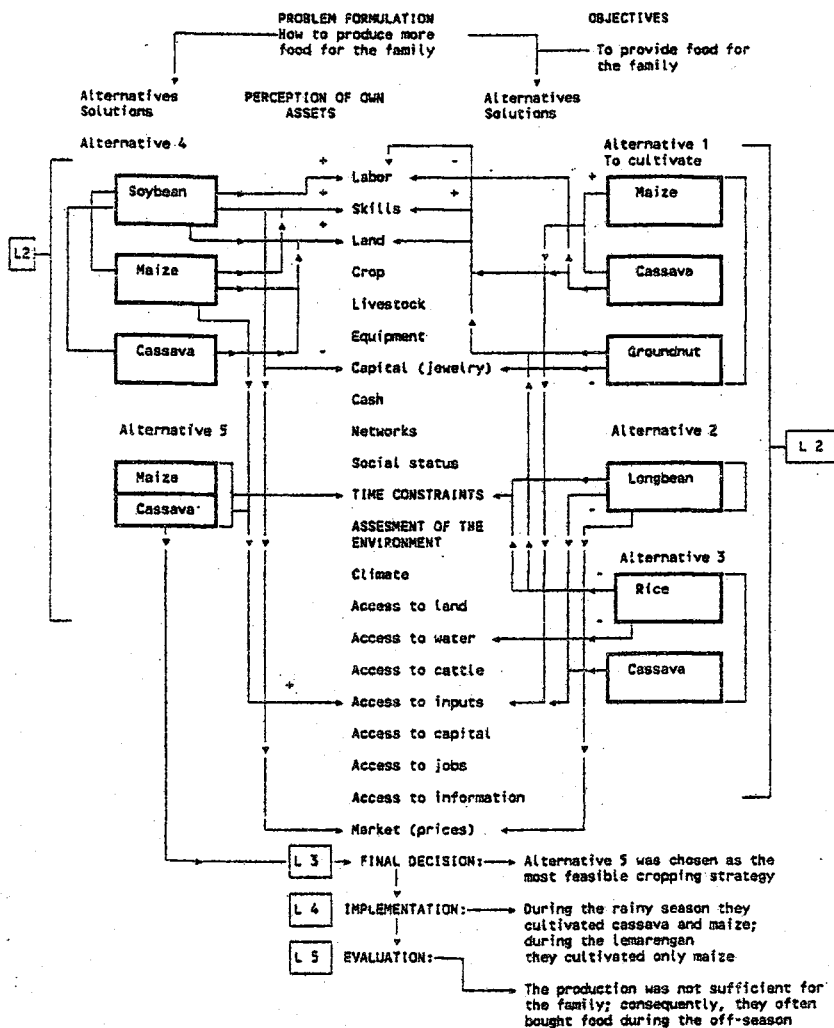
The decision-making process regarding cropping has been systemized in Schedule 5.4.4(1). The main objective of Bagong and his wife was to provide enough food for their family. They realized, however, that they had a problem after they had compared their objective with the resources (labor, land, cash, or inputs) they had at their disposal (L1). In an attempt to solve their problem, they considered five alternatives. They then compared the conditions necessary to realize each alternative with the resources available to them (L2). Their line of reasoning finally led them to adopt alternative 5 as the most viable cropping strategy (L3). The decision was then implemented (L4). Bagong's and Karsinah's evaluation was that the solution did not solve their problem. The production obtained from the cassava and the maize cultivated on their land (parcel 1) was insufficient for their own consumption; consequently, they had to initiate a crop sharing agreement with their neighbor. Even with this agreement, however, the couple still had to buy staple food during the off-season.

### **Decision-making regarding the sale of a goat**

In November 1990 they sold one of their goats for 30,000 rupiahs. The goat was not sold at the Donomulyo market, but to Karsinah's brother instead. The question is, what was the rationale behind their decisions?

In September of 1990, Bu Karsinah bought some kitchen utensils such as glasses and dishes for the house from a nearby shop on credit. The shopkeeper gave her

Schedule 5.4.4 (1): Decision-making process regarding cropping strategy





one month's time to pay for the items she wanted. These items costed 30,000 rupiahs. Although she realized her family was poor, she thought she could afford this. Moreover, she considered them important for the household. Up until then, the number of glasses and plates she owned was limited to just one for each family member. When she and her family received guests it was always difficult to serve the food or drinks that is customary under such circumstances. Because they had a limited number of utensils, they had to use the same glass or plate alternately. More importantly, the family had to borrow glasses and plates from its neighbors when they held *slamatan*<sup>2</sup>. Although the neighbors did not complain, Bu perceived it as an inconvenience. She felt clumsy and ashamed. The situation became intolerable in her eyes and had to end. To pay for these items, she and Bagong considered the following alternatives:

**Alternative 1:** To sell their agricultural products. Pak Bagong proposed this alternative, but his wife did not go along with it because she knew that their stock of dried cassava at home was almost finished at the moment. Selling their agricultural products would cause the family trouble. Selling their bananas was also out of the question because they did not have any that could be harvested. They could have sold coconuts, but it would still not be enough to cover their expenses. Therefore, this option could not be implemented.

**Alternative 2:** To make and sell some bamboo baskets or to borrow money from the trader. Both agreed to this alternative; however, they could not produce the quantity of baskets that would give them the money they needed, and the shopkeeper was pressuring them to pay their debt quickly. They considered asking the local trader to whom they sold their baskets to advance them some money, but this would mean that they would have no money to buy the inputs they needed for weaving bamboo or for buying additional staple foods for the family in the coming weeks.

**Alternative 3:** To sell one of their goats. Bu suggested that she and Bagong sell one of their goats. This would not cost them too much seeing that they had others, one of which was completely their own. To avoid the transportation costs and the animal tax that was required, the couple chose not sell it at the Donomulyo market but to her brother instead. By selling the goat, they would not have to sell their food stock or borrow money from the trader. Bagong felt that he had to agree with his wife because the situation was becoming critical and this was the most viable option at the moment.

## Making the decision and implementing it

After considering and comparing alternatives 1, 2, and 3 Pak Bagong and his wife decided that the last alternative was the most feasible one. The goat was sold for 30,000 rupiahs, enough to pay off their debt.

## Concluding remarks

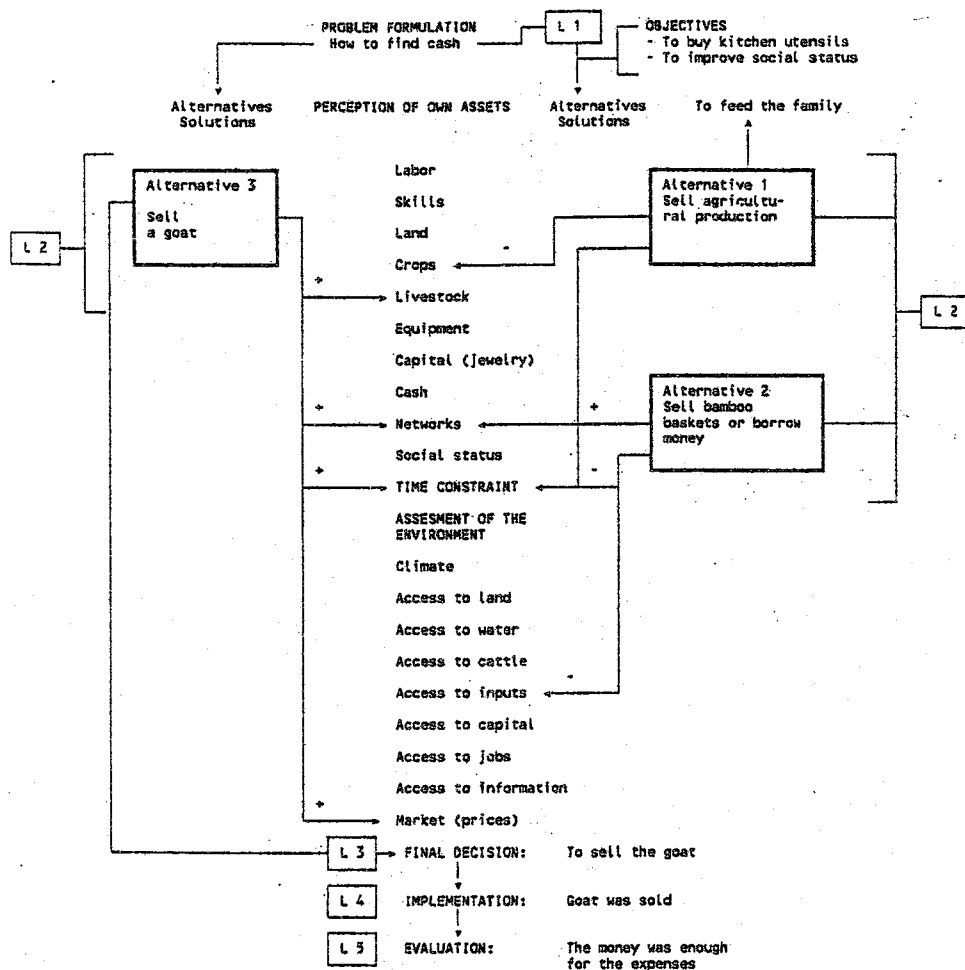
the several steps in the decision-making process are systemized in Schedule 5.4.4(2) according to the simplified decision model elaborated on in Chapter 2. The main objective of Bagong and his wife was the repayment of the money they had borrowed to buy some kitchen accessories. The main reason for buying the glasses and dishes was to improve their social prestige. However, when Bagong and Karsinah compared the costs of the objects with the resources available to them, they knew they had a problem (L1). They then considered three alternatives to solve the problem. The consequences inherent to each alternative were subsequently compared with the resources they thought were available to them (L2). This eventually led Bagong and Karsinah to the decision to sell a goat (L3). The decision was then actually implemented (L4).

## Decision-making with regard to off-farm and non-farm activities

From the very beginning of their efforts at farming, Pak Bagong and Bu Karsinah had been involved in activities not related to their farm. The main reason for this was that the income of the farm was not sufficient to cover the costs of their daily needs. As mentioned in section 2.6, Pak Bagong and his wife wove bamboo baskets on the farm (non-farm activity). This activity was neither chosen at random nor in a pre-attentive way, but rather selected after husband and wife had discussed several alternatives which, in their eyes, were relatively open to them. I list and discuss these alternatives below. Apparently these decisions were made at the very start of their efforts in farming, but were explained to me in 1990.

**Alternative 1:** To collect limestone or rock. Pak Bagong thought he could do this because no special skills were needed. He also knew *juragan* (limestone traders) and limestone burners in the *desa* who would be pleased to buy the limestone he collected. If he followed up on this option, however, he would have to purchase some tools: e.g. a crowbar, a hooked stick, and a hammer. These items were too expensive for him and his family. Moreover, he would have to collect the limestone on land other than his own because he did not have any limestone deposits. This meant that he would have to pay the land owner. From his wife's point of view, digging limestone regularly was not only too heavy for a man of his age, but also risky because there was always the possibility of accidents.

## Schedule 5.4.4 (2): Decision-making process regarding the sale of a goat



**Alternative 2: Collecting fire-wood.** Bagong and Karsinah could collect firewood. No special skills were needed for this, and firewood was easy to sell because many women still use it to cook. Though they had some woody perennials on their property, they were sure to vanish if the couple planned on cutting them down on a regular basis; this meant that they would have to walk to the forest which was a kilometer from their home. Moreover, searching the forest for wood would only yield them two *pikuls* (100 kilograms) of firewood. The price for wood varied, but it was usually good during the rainy season and, prior to *lebaran* day, could fetch up to 1,500 to 2,500 rupiahs per pikul; however, Karsinah reminded Bagong that their farm could not be managed properly if they were to take up this activity and that the family's economic situation would worsen as a result. Moreover, collecting wood in the forest was risky because it was against the law and they could get caught by the police.

**Alternative 3: Weaving bamboo baskets.** Bu Karsinah had skills in bamboo weaving, but not her husband. Still, she proposed it to him anyway. According to her, it was not as complicated as it looked. The skills he needed could be learned and she could teach him. The only tools they would need would be knives of different types and sizes. The bamboo could be bought anytime and *rattan*, used to bind the baskets, could be collected from the forest without any trouble. The forest police would leave them alone as long as they did not cut down any trees. Weaving the baskets could be done at home so that they would not have to leave the farm behind unmanaged. Karsinah also said that this kind of work could be done independently because it was not controlled by others. Moreover, it would not interfere with their work on the farm; it could be done after their normal chores had been finished. Marketing the products was another plus point; local traders would be happy to buy their baskets. If they needed cash immediately, either for conducting *slamatan*<sup>2</sup> or for attending their neighbors' ceremonies, they could get the money in advance from the trader.

Pak Bagong and Bu Karsinah contemplated hiring people so that they could increase the production of their baskets from 10 per day to 20. It would take time, however, to train these people, and the cost of the labor might exceed the expected benefit. Although they ultimately rejected this part of their plan, they still considered basket weaving as the most viable way to generate income for their family, even though the cash they obtained from it was only enough to buy some of the everyday items they needed.

### **Making, implementing, and evaluating the decision**

After considering carefully the advantages and the disadvantages of these alternatives, Pak Bagong and Bu Karsinah decided that alternative 3 was the most

viable option to implement. The main reasons for this decision has already been mentioned but will now be phrased in their own words. According to Bu Karsinah:

*The production from our annual crops was far from sufficient for our home consumption. We could only obtain about 400 kilograms of dried cassava from the cassava we planted. Moreover, we were only able to produce 200 kilograms from the maize even though we cropped it twice a year - during the rendengan and during the lemarengan. Almost nothing was left to sell. We knew that it was hardly possible to increase our crop yields from the small amount of land we had. The only possibility we had was either to purchase farm land or rent it, but we understood that this was beyond our financial capacity. Because our annual crop production was so low, we often had to buy food during the off-season. The money we got from selling our perennial crops such as banana or coconut was mostly used to buy frying oil, kerosene, spices, salted fish, herbal drinks, and so on.*

According to Pak Bagong:

*We must pay the school fee for our adopted son and have money for clothes for ourselves. As members of the rukun tetangga, we are expected to participate actively in it. Our neighbors have often invited our family to attend their ceremonies (marriages and funerals). These social activities always cost money. On such occasions, I should give 3,000 rupiahs to the ceremony holder.*

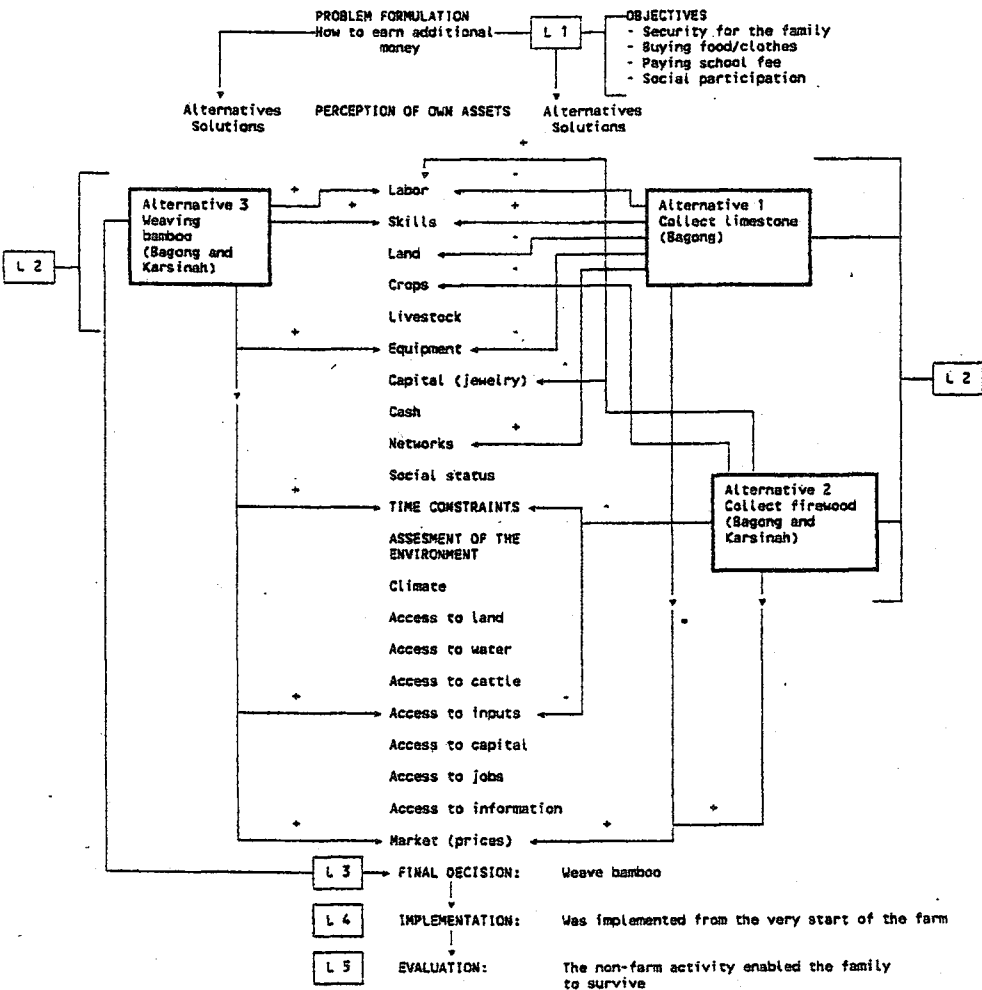
My research here has shown that non-farm activities have been necessary for the household from its very beginning and, therefore, have been implemented regularly. Yet even with these activities, the family still faced deficits in its household needs during the off-season periods.

### Concluding remarks

In Schedule 5.4.4(3) the decision-making process regarding non-farming activities has been systemized. The problem which Bagong and Karsinah identified here is obvious: they did not earn enough income from their farm or from the crop sharing they engaged in with others (L1). At first sight, it may seem as if Bagong and Karsinah performed their non-farm activities in a pre-attentive way; however, from the decision-making process described above, it is obvious that various options have been considered carefully, especially in the beginning (L2). Bagong and Karsinah then compared the alternatives they thought they had available to them (e.g. labor, skill, and equipment), the consequences of using them, and the opportunities which their environment put at their disposal (e.g. access to inputs and access to the market). Given the fact that the decision-making processes concerning non-farm

activities took place some years ago it is not surprising that the preparation and implementation of the activities (L3 and L4) currently took place in a daily routine.

Schedule 5.4.4 (3): Decision-making process regarding non-farm activities



## 5.5 A case study of the household and farm of Pak Karman

### 5.5.1 Family background of the farmer and his wife

Pak Karman was a landless Javanese farmer who lived in the *dusun* Wono Salam in Putkurejo. He was 50 years old in 1990 and was born in the *dusun* Ngliyep in the *kabupaten* Kedung Salam. Illiterate and unable to speak Bahasa Indonesian, he used Javanese to communicate with the people around him. He was the youngest son of Pak Tomin and Bu Jeminem, a farm family in the *dusun* Ngliyep, Kedung Salam. (See the family tree of Pak Karmen and Bu Gini in Figure 5.5.1(1).) Long ago, his parents had 2.5 hectares of land on which they grew maize and cassava; when water was available, they also grew a local variety of rice. Their land was located in the *dusun* Ngliyep and was not far away from their house.

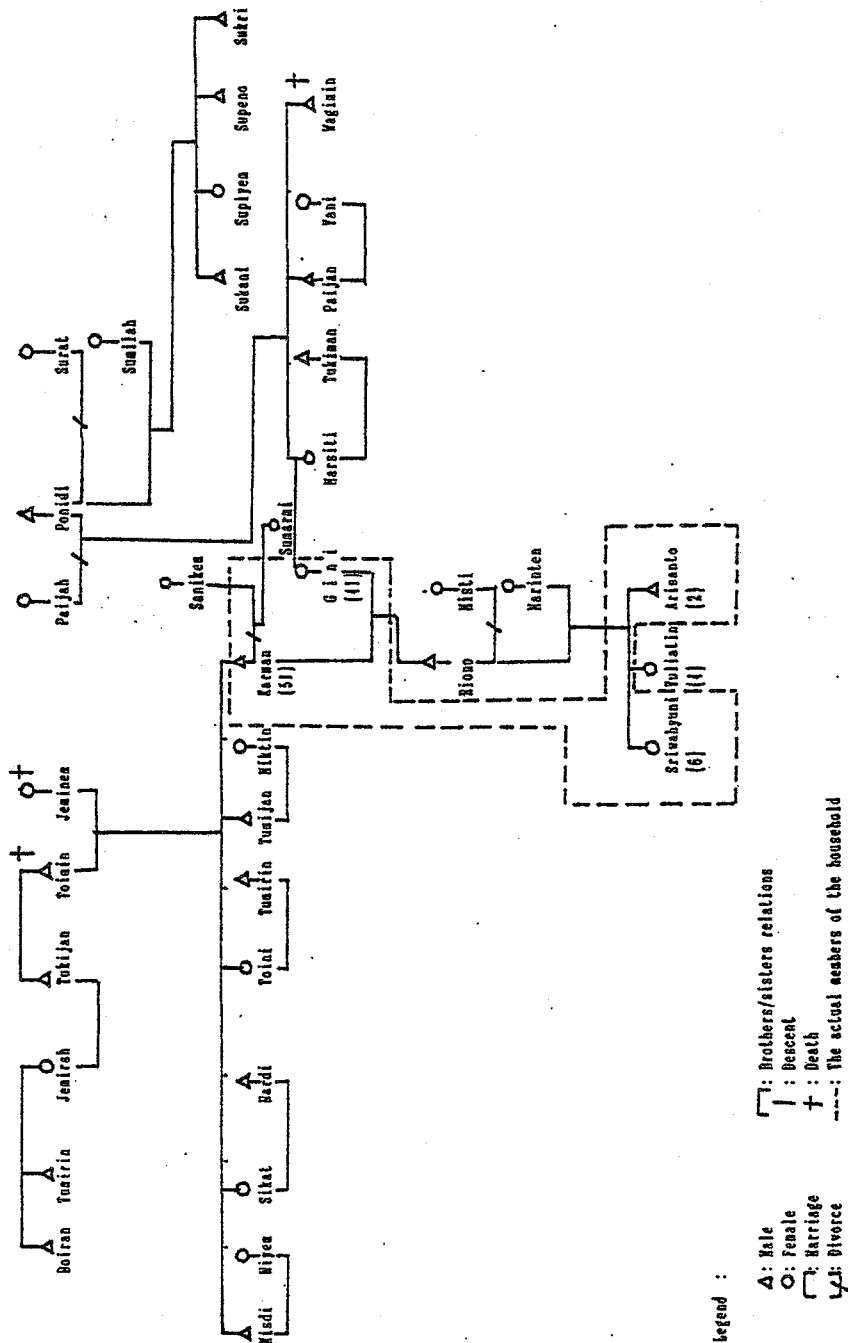
Karman had two brothers and two sisters: Misdi (male, the eldest), Sikat (female), Toini (female), and Tumijan (male). His parents died when he was two years old in 1942 as a result of a serious illness. He and his siblings were subsequently looked after by their neighbor, a close friend of his parents. None of the children inherited their parents' land; instead, the people looking after them sold the land bit by bit in order to pay for the costs of raising the children. They also sold it so that they could pay for the *slamatan*<sup>2</sup> required for honoring the spirits of the children's late parents. Misdi and Sikat currently lived in the *dusun* Ngliyep, and Toini and Tumijan lived in Putukrejo. Everyone still got along with each other and each helped the other when it was needed.

In 1955, Karman turned 15 and was circumcised. From 1956 to 1958, he stayed with his aunt, Bu Jemirah, in the *dusun* Alas Tledak in the *desa* Putukrejo. There he helped her plant, harvest, and trade tobacco. He claimed that tobacco was a dominant cash crop in those days in the Putukrejo and that there were many wealthy farmers who grew it.

In 1959, Karman went to Ngrawan in the *kabupaten* Lumajang in order to gain more experience in life. His aunt fully approved of his actions and gave him her blessings. For one year he worked as a part-time laborer at a construction project. He returned to the *dusun* Ngliyep in 1960 and married Bu Sanikem with whom he had a daughter, Sumarni, in 1964. When the couple divorced that same year, Sanikem took their daughter with her. Karman claimed that it was never his idea to marry so soon, but his sisters'. Sumarmi currently lived in the *dusun* Ngliyep with her husband, a poor, landless farmer, like Pak Karman, who was in the limestone burning business.

Bu Gini was 41 years old in 1990. She is the daughter of Pak Ponidi and Bu Paijah of the *dusun* Mentaraman, Donomulyo, South Malang, a few kilometers from Kedung Salam. Her parents were landless farmers. She has one brother and one sister: Marsiti (female), who is the oldest and lived in the *desa* Putukrejo; and Paijan (male), who was living in Ngrawan in the district of Lumajang since 1967. Gini had a third brother, Wagimin, but he died of an illness when he was 15. As

**Figure 5.5.1 (1): Family tree of Pak Karman and Bu Gini**





her brother and sister, Bu Gini was illiterate and could not speak Bahasa Indonesian.

Gini's parents divorced when she was young; consequently, she, her brothers, and sister were looked after and taken care of by Bu Paijah, the mother of the family. Her father married another woman from the same desa, but this marriage, too, ended in divorce. Her father then re-married once again and had four children. (See Figure 5.5.1(1): the family tree of Pak Karman and Bu Gini.)

## 5.5.2 Development of the farm and farm household

### How the farm was started

When Karman married Bu Sanikem, he did not have any land of his own. This meant that he had to take whatever kind of work he could in order to earn a living. During this time, he and Sanikem used to collect wood in the forest nearby their home; the wood was used to burn limestone. The limestone itself was partially collected from an area surrounding their homestead and partially bought from people willing to sell it. According Karman, five to six cubic meters of the mineral was worth approximately 1,500 rupiahs at the time. In his eyes, collecting the necessary wood from the forest was still very easy because there were still ample trees available; however, their numbers had decreased significantly since the 1970s due to the increasing numbers of people who cut them. He claimed that he went to the forest three times a day to collect wood when he wanted to burn limestone. This enabled him to burn it once a month, though sometimes he could do it twice in three months. An overview of the household's and the farm's stages of development is given in Schedule 5.5.2 (1).

Not long after he and Bu Sanikem divorced, Karman married Bu Gini, his wife during my research. In 1970, he had to stop burning limestone because he was getting older, the business was becoming more and more competitive, and collecting wood was bringing more and more risk with it. In fact, according to him, some of his friends had been sent to jail for a couple of weeks in Malang because the police had caught them cutting wood in the forest. It was then that he decided to become a farmer. Bu Gini agreed with the change in plan. Not having any land of their own, both began to sell their labor; however, this did nothing to change their standard of living because all of their income was used to buy their everyday items. Saving was impossible.

The two then migrated to Putukrejo in 1976 in order to improve their economic position. Some of their relatives were already living there and working as farmers. As a result, they were able to find temporary shelter on Karman's aunt's land (*magersari*) for which they did not have to pay money; instead, they worked in her field, particularly during the planting and harvesting periods. At the same time, Karman's brother, Tumijan, who had no children, allowed Karman and Gini to

share his land on the basis of the *mertelu* system. Karman and his wife were responsible for planting, nursing, and harvesting the crop. His brother paid for preparing the soil, buying the seed, and so forth. The production the couple obtained, however, was far from what they needed to provide for themselves. In order to survive, both Karman and his wife had no choice but to perform various off-farm activities.

### Stages of the household's development

After Karman and Gini married, Gini bore a son (Riono) in 1966 in the *desa* Kedung Salam. Riono finished primary school in 1978 and, a year later, married a woman from the same village. This marriage, however, lasted only two weeks. After his divorce, Riono learned how to drive a car, got his driving license, and went to Surabaya looking for work. There he was hired as a chauffeur for a factory.

Riono had chosen driving as his career because he did not think that farming was a viable way to make a living. To use his words:

*I would not like to be a farmer like my parents because it only means a lot of hard work with almost nothing in return. My parents only have a small piece of farmland; they work hard, but hardly earn a decent income. I decided to become a driver at a factory in Surabaya because I get a good income from it. And on a constant basis. How could I expect something like that if I stayed in the desa?*

Riono finally married the daughter of a trader in 1984. Her name was Marinten and she was a laborer at the same factory where he worked. The couple rented a small house and had three children: two daughters, ages six and four, and one son, two years of age. Because both partners work, neither of them could look after the children. Their kids had been staying with Pak Karman and Bu Gini as a result. Riono usually sent 30,000 to 40,000 rupiahs a month to Karman in order to cover the costs of his children's care. Since he has been working at the factory, he visits his parents only twice a year: once during the *maulud*, the day on which the prophet Mohammed's birth is celebrated, and once during the *lebaran*, the feast which celebrates the end of the fasting period. Custom has it that all family members, including those who live outside the village, usually come together at their parents' house on *lebaran* day in order to receive their parents' blessing.

## Schedule 5.5.2 (1):

## Stages in the development of the farm and of the household of Pak Karman and Bu Gini

YEAR	Karman's Parents		Gini's Parents	
	Pak Tolain (Karman's father)	Mbok Jemirah (Karman's mother)	Pak Panidi (Gini's father)	Mbok Paljah (Gini's mother)
	Both are farmers		Both are landless	
1940	Karman is born			
1941	Karman parents' land is sold bit by bit			
1942	Karman's late parents' neighbor begins to raise him			
1950			Gini is born	
1955	Karman is circumcised			
1956-1958	Karman stays with his aunt in Putukrejo and helps her in the tobacco trade			
1959	Karman goes to Ngrawan, Lumajang for experience in life			
1960	<ul style="list-style-type: none"><li>- Karman returns to Ngliyep</li><li>- Karman marries Sanikem</li><li>- Karman works as a limestone burner</li><li>- Karman collects wood in the forest to burn limestone</li></ul>			
1964	Susarmi is born			
1964	Karman and Sanikem divorce			
1965	Karman marries Gini			

F A R M						
	LAND	CROP	LIVESTOCK	STABLE	EQUIPMENT	HOUSE
1966	Riono is born in Kedung Salam	They have no land				
1970	Karman stops burning limestone					
1972	Riono goes to primary school					
early-1976	Karman's family migrates to Putukrejo					
mid-1976		Karman's family starts to engage in crop sharing with Pak Tumijan (parcel 2)	Rice, maize, cassava		A hoe, two sickles	
1976-1981		The family engages in crop sharing with Pak Warno	Maize, Cassava			A temporary shelter is built
1977		The family stops operating Pak Warno's land				
1978	Riono finishes primary school	The family engages in crop sharing with Pak Samut	Maize and cassava			
mid-1978			The family shares Pak Samut's cattle They rear some local chickens	The stable for keeping the animals was built		
1979	<ul style="list-style-type: none"><li>- Riono marries Misti</li><li>- Riono learns how to drive a car</li></ul>	<ul style="list-style-type: none"><li>- They stop operating Pak Samut's land</li></ul>				
mid-1979		<ul style="list-style-type: none"><li>- they share Pak Suwarjo's land</li></ul>	Maize, groundnut, cassava gogo rice			

## Schedule 5.5.2 (1): continued

F A R M						
	LAND	CROP	LIVESTOCK	STABLE	EQUIPMENT	HOUSE
1980		They stop operating Sumarjo's land				
End of 1980			They obtain a susuk for 100,000 rupiahs			
1981			They obtain a susuk for 100,000 rupiahs			
mid-1981		Kerman's family buys Parcel 1	Banana	They share Pak Muchsin's cattle		A bamboo house is built
1984	Riono marries Marinten			They obtain a susuk for 150,000 rupiahs The money is given to Siswari. The owner retrieves mature female owner Some chickens are sold to buy plough		
1989		Jackfruit				
1990	Riono's children stay with Karman's family	Mahogany, parkia spiciosa teak tree	They share pregnant cow with Pak Cikrak; They share Pak Katumat's cattle			
1991		Coffee				
June 1991			They obtain a susuk for 100,000 rupiahs from Pak Cikrak as Rp 100,000 from Pak Cikrak			Their house is renovated

## History of the land

Karman's family has only 0.55 hectares of land (parcel 1). The land was bought in 1981 after it sold a calf it had obtained as a result of sharing. Knowing that they could hardly support themselves with such a small piece of land, Karman and his wife once thought about buying or renting farmland; however, after examining their financial and social position, they came to the conclusion that they would never be able to buy or rent farmland. Karman had claimed that a parcel of fertile land 1 hectare large would cost 10,000,000 rupiahs and that simply renting 0.25 hectares would have costed between 75,000 to 100,000 rupiahs per year. This was always the reason why since the start of their efforts in farming the couple had been involved in a *mertelu* crop sharing system with one person or another (see Chapter 4).

The family began to share crops with Karman's brother, Pak Tumijan. On Tumijan's land, 0.155 hectares (parcel 2), the family always cultivated *gogo* rice, *goter* maize, and the *sembung* and *kabru* varieties of cassava. At the same time Karman and Gini also engaged in a crop sharing arrangement with Pak Warno. On this land, they grew maize, cowpeas, and cassava; however, their agreement with this man did not last long because he ultimately wanted to cultivate the land with sugarcane instead of food crops; consequently, Karman and Gini had to quit the land prior to the *rendengan* (rainy season) of 1977.

In 1978, their relatives helped the couple acquire access to another piece of land for sharing. The land, 0.5 hectares, was owned by Pak Samut, one of the wealthy farmers in Putukrejo who owns large holdings. Karman and Sanikem worked this land on the basis of the *mertelu* system. On it they grew *goter* maize, cowpease, and *penadu* cassava. The following year, however, they had to leave this land too because its owner also wanted to plant sugarcane. The family then shared yet another piece of land with a close neighbor, Pak Soma, 65 years old. He asked the couple to cultivate maize (*goter* variety), two varieties of cassava (*sembung* and *kabru*) and, when water was available, *gogo* rice.

## History of the crops

Karman's family had only a small parcel of land of their own (parcel 1) on which they cultivated some annual crops. During the *rendegan* (rainy season), they cultivated cassava and maize. During the *lemarengan*, they cultivated maize only. Here, too, they knew that the products they produced would not be enough to provide them with what they needed. According to Gini, if they were lucky they could harvest approximately 100 kilograms of dried cassava and about 50 kilograms of maize. Apart from the annual crops they grew, there were also some perennial ones such as teak, coconut, gliricidia, and *lamtoro*. These perennials, they said, had been planted a long time ago by the former owner before they bought the land. The

family had also recently cultivated more perennials on this parcel: e.g. jackfruit (1989), mahogany, *Parkia speciosa*, (1990), teak (1990), and coffee (1991).

### History of the livestock

After they had settled in Putukrejo for approximately one-and-a-half years, Pak Karman and Bu Gini went to Pak Gito to ask him for advice about sharing cattle. They did this because they wanted land in order to farm and to build a house on. Not having any money, but having heard that people like themselves could afford a piece of land after sharing cattle with wealthy people, they had decided to talk to Gito because he had many years of experience in the cattle sharing business. Pak Gito helped Karman and Gini by introducing them to Pak Samut and by asking Samut if he had any cattle he could share with the couple. Several days later, Karman and Samut agreed to a *maro anak arrangement*: an agreement by which the offspring of mature animals are shared. Karman and Gini then built a bamboo stable with a roof of dried palm leaves for the cow they had obtained.

Two years later this cow gave birth to a calf. The couple received 50% of the value of the offspring as a result. (See Chapter 4 for more details.) Because the couple needed cash badly, it asked the owner to pay *susuk* for the animal. Having been assessed by a local livestock trader (*blantik*), the animal was estimated to be worth 200,000 rupiahs of which the family received 100,000. The owner then took the calf away. The mature cow, however, continued to be shared by both parties. It gave birth again one year later and, as in the previous year, the family received a *susuk* of 190,000 rupiahs. All of this money was used to buy parcel 1 from Karmans' aunt, Bu Jemirah.

Several years later, Karman shared yet another cow. This one was owned by Pak Muchsin: a friend of Pak Samut. Having reared it for approximately three years, the family finally received 150,000 rupiahs when the animal gave birth to a calf. Karman and Sanikem gave this money to Karman's daughter, Sumarmi, so that she could build a house in Kedung Salam. Karman, however, soon had to find another cow to share because Pak Muchsin sold the mature one which he and Gini depended on. Not long after, Karman was able to acquire a cow from Pak Cikrak: a farmer for whom Karman hoes and ploughs. Fortunately for him, the cow was pregnant.

In 1990, the family shared three cows: one with Pak Katuwat, and two with Pak Cikrak, one of which was produced by Cikrak's original, mature cow. Half of the calf which this mature cow gave birth to was owned partially by Karman and Gini because of the sharing agreement they were engaged in. In addition to rearing cattle, the family also had some local chickens, some of which they sold in or around 1984 for 10,000 rupiahs in order to buy a plough.

According to Karman and Gini, the seasons determined the type of animal feed and its availability. During the *rendengan* (rainy season), for example, they fed

their animals grass, sometimes mixing it with gliricidia leaves. They collected this forage either from their own farm or from their neighbors' farms. During the harvest of maize, rice, or sugarcane, they fed their animals with maize leaves, rice straw, sugarcane leaves, or sugarcane tops. Both Karman and Gini collected the grass or fodder. After eating breakfast, Karman started to collect grass at 8:30 am and returned home at 10:00 am with a *bentel* of grass: 25 kilograms. He then started to collect grass again at approximately 10:30 am and returned home at about 12:00 with another *bentel*. Gini took the task over at 2:00 pm and worked until 4:00 pm, collecting two *bentel*<sup>s</sup> of grass. Obtaining feed during the *ketigo* (dry season), however, was always a problem: Karman often had to travel some 22 kilometers to Kepanjen in order to buy rice straw for which he paid 10,000 rupiahs, including transportation costs.

For this family, sharing cattle provided them with more than just access to draft power or to manure. Here is what they said:

*For poor people like us, not rearing cattle might very well mean that we might not be able to renovate our house. Our agricultural production from the one-third crop sharing system was insufficient - even for home consumption. Simultaneously, the return on our labor for other farmers is just enough to purchase some items which we need everyday. Although rearing cattle is time consuming, it has helped us.*

### Non-farming activities

In addition to farming and cattle rearing, off-farm and non-farming activities had always been important to both Karman and his wife. In fact, non-farming activities were even the backbone of their household economy. Karman, for instance, took on various off-farm activities such as cutting sugarcane, ploughing fields, hoeing fields, and picking *kapok*. He has been working as ploughing and hoeing labor since 1976 and has worked in sugarcane fields since 1978. Working as a hoer or sugarcane cutter, he could earn up to 1,500 rupiahs a day, which was equivalent to 2.5 kilograms of rice at the local market. As ploughing labor or as a *kapok* picker he could earn up 2,500 rupiahs a day. Gini, too, worked as weeding labor in the sugarcane fields and as a sugarcane leaf cutter (*roges*) from which she earned 1200 rupiahs a day.

Since 1989, however, Gini had to decrease her involvement in off-farm activities because she had to take care of her three grandchildren; consequently, Karman had to work much harder than he used to. Still, he and Gini saw it as their duty to take care of their grandchildren, though they also saw it as an honor. Additionally, they hoped that their grandchildren would look after them when they retired from farming.

During the sugarcane harvest, which usually starts in early August and lasts into November, there were always sugarcane growers or middlemen (*penebas*) who hire

laborers to harvest the cane. According to Karman and Gini, wages for men and women differed here. In 1989, they said, a man's daily wage for almost 10 hours work (from 7:00 am to 4:00 pm) was 1,000 rupiahs, whereas for a woman it was only 750 rupiahs; however, no official, standard wages were set for labor in the sugarcane business. Within the context of these wage rates, however, it is also true that a laborer can obtain a high return for his efforts and sometimes not. Wages apparently depend on the owner of the sugarcane and how large the field is that has to be cut. Usually the larger the field, the less the return. Pak Karman explained it this way:

*If I work in Pak Buadi's sugarcane field of six hectares or in Pak Giono's field of four hectares, I can expect 1,500 rupiahs a day from each. But if I work the 28 hectares of field in the kepala desa's field (Pak Nawir), I can only expect 1,200 rupiahs per day. When I work for the former two I usually work 10 to 16 days, while for the latter I usually work for about one or two months. I do not complain about this wage difference, however, because it is not easy for poor people like me to do that. If I did complain, the owners of the sugarcane fields would then fire me and find someone else to substitute me. They can do that quite easily.*

## Equipment

The family had several tools for farming, for off-farm activities, and for non-farm activities: a hoe, a plough, and two sickles. With the exception of the plough, most of its tools were bought shortly after it started sharing crops.

## History of the house

Karman's family lived in a small bamboo house. Just a few meters away from it are sugarcane fields which were mostly owned by or under the control of some wealthy farmers in Putukrejo. When Karman and his family came to the *desa* Putukrejo in 1976, they had neither land to cultivate nor a house to stay in. For approximately five years, the family had to stay in a temporary shelter on Karman's aunt's land. Only after having shared cattle and selling calves as a result of sharing could Karman and Gini build their own bamboo house (1981). The house had a single room where family members usually slept and where they received guests or visitors. During the harvest season, this room also served as a storage area. The house was furnished with some simple local furniture, such as an old small cupboard, a bamboo bench, a small table for placing a tea pot and some dishes on, and two old wooden chairs. The couple bought this furniture shortly after they married. There was no electricity in the house and so a hanging kerosene lamp was used for light. The floor of the house was not cemented. The kitchen was simple,

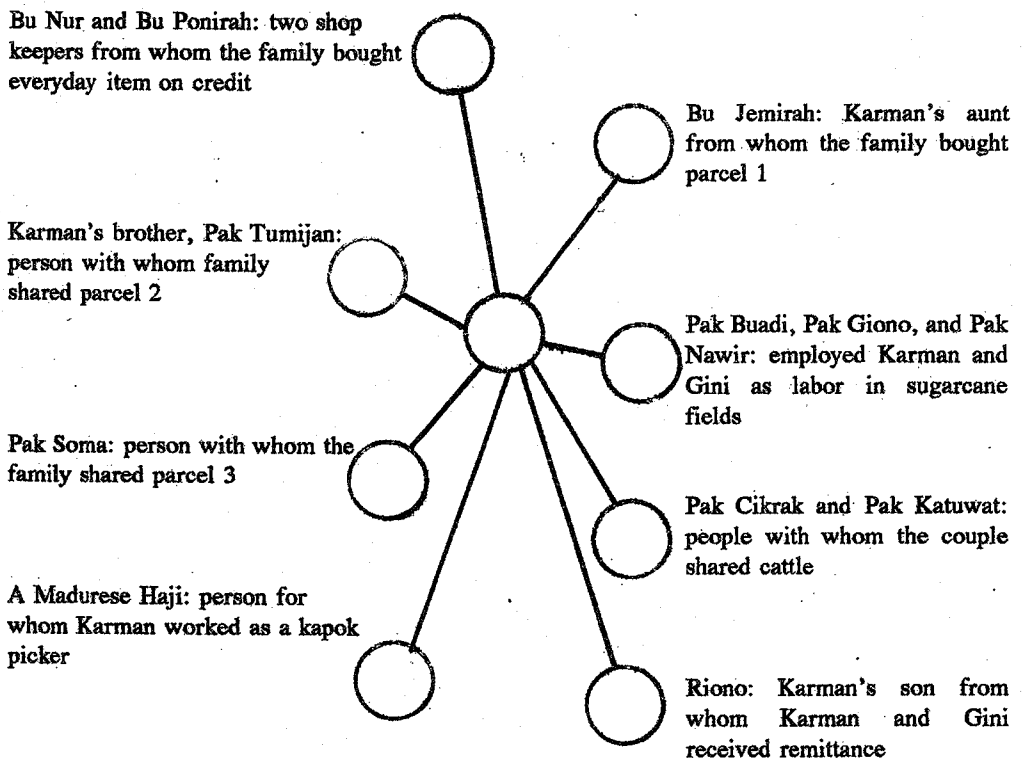


made from bamboo, and situated at the back end of the house near the stable. Like the house, the floor of the kitchen was not cemented.

### **Social relationships and social status**

Figure 5.5.2(1) shows the social network Pak Karman used in his income earning activities. Clearly family relations, neighbors, friends, traders, and money lenders played an important role. His family had good relations with its neighbors, and everyone helped each other when it was needed: e.g. when houses needed to be built. Karman's aunt helped Karman and his family by allowing them to build a temporary shelter on her land free of charge, and his brother helped them obtain access to crop sharing agreements. His friend was also influential in getting them cattle to share. Both Karman and Gini were members of a group that met to read the Koran. Karman was also a leader of a sugarcane cutter group.

**Figure 5.5.2 (1): The social network of Pak Karman used for generating income**



### 5.5.3 Summary of the position of the farm and the household in 1990

Before analyzing the decision-making processes in Karman's family, I will first summarize the situation the household and farm was in at the time.

#### The household's composition and labor force

When the research took place in 1990, the family consisted of Pak Karman, 50 years old, Bu Gini, 41 years old, and their three grandchildren, 6, 4, and 2 years old. This means that there were 2 labor units in total.

#### Land units and the locations of the parcels

In 1990, Pak Karman and Bu Gini had three parcels of land: one was owned, and the other two were shared with their relatives and a neighbor. The total area of the land was 0.364 hectares. All the land belonged to land unit 2 (LU2), meaning that it had a reasonably good quality of soil (see Chapter 4). Pak Karman's family lived in a house on parcel 1. Parcel 2 was approximately 150 meters away from the house and Parcel 3 about 400 meters away. Both parcels were easily accessible. (See Map 5.5.3(1).

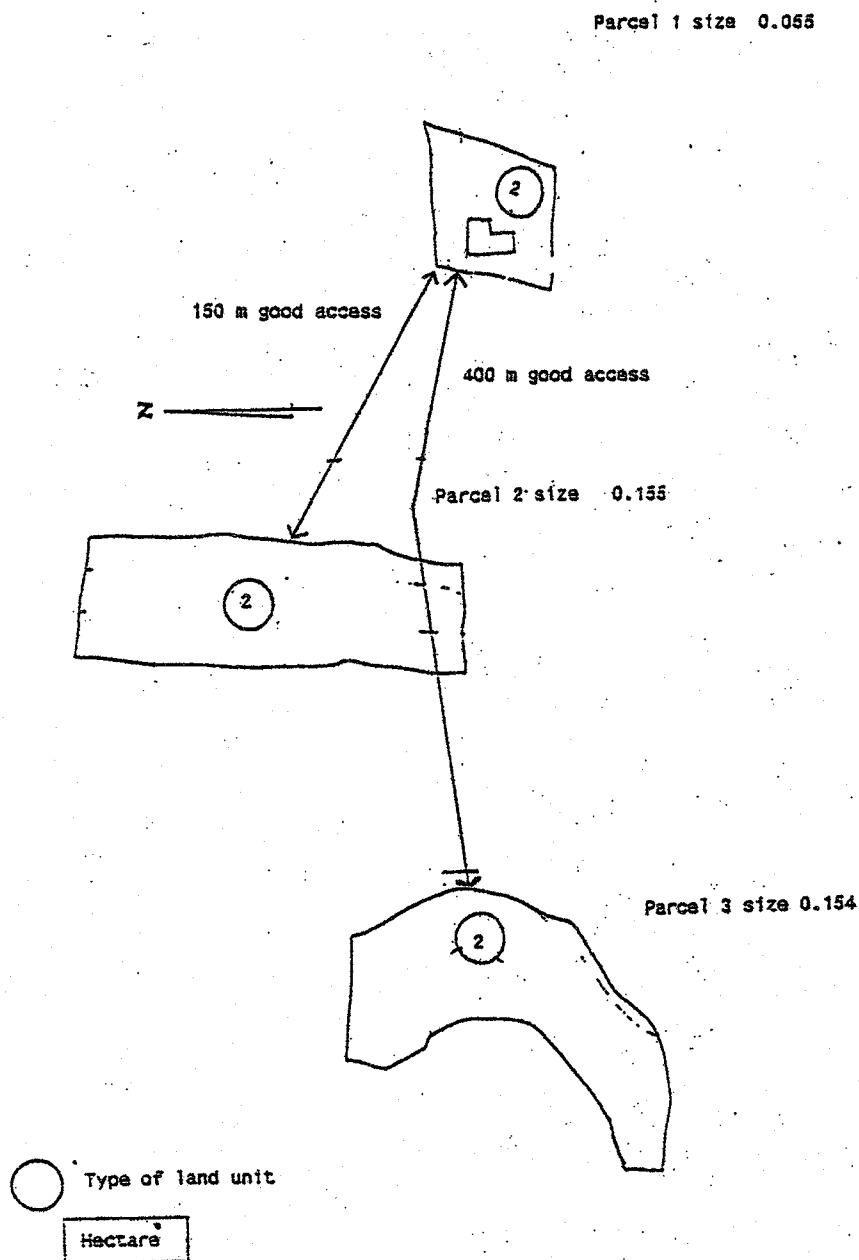
Table 5.5.3 (1) Land units and land tenure in 1990

Land tenure	Parcel	Land unit (LU)	Area in ha	Sub total
Own	1	2	0.055	0.055
	2	2	0.155	0.155
Shared	3	2	0.154	0.154
Total				0.364

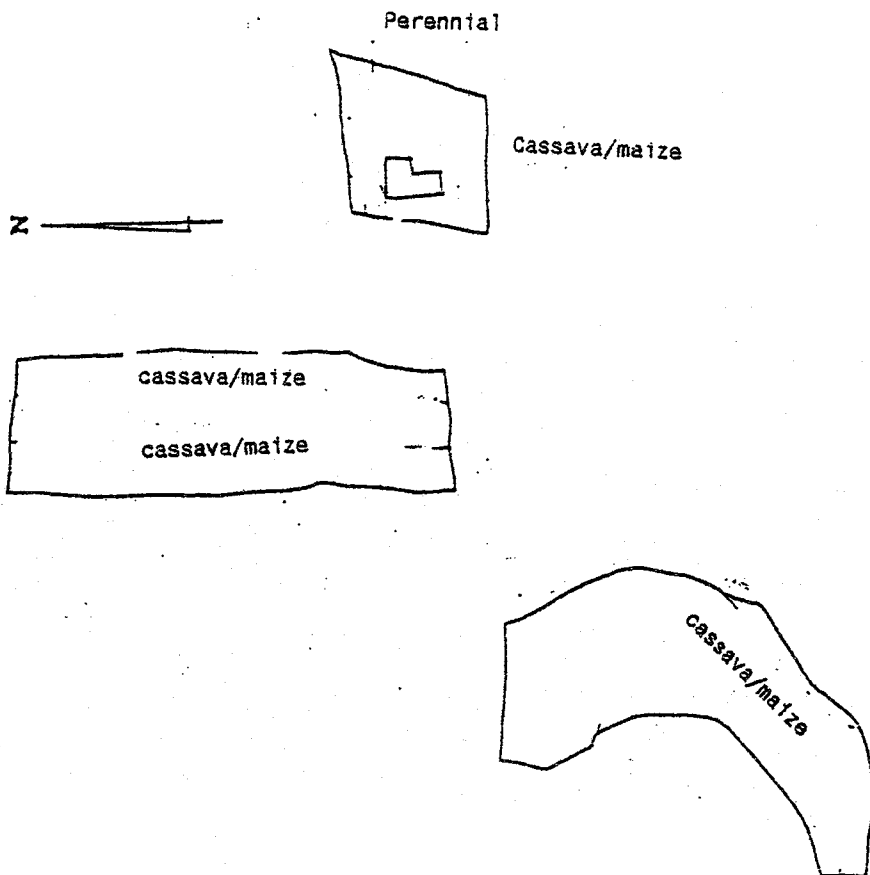
#### The land use

Map 5.5.3(2) shows how the land was used in 1990. The family's home garden was planted around the house on parcel 1 on which mixed cropping was carried out, though some trees were also planted. The production of the annual crops was mainly used for home consumption. The family did not have any rights regarding the cropping strategy implemented on parcel 2. They simply followed the decisions which the land owner made.

Map 5.5.3 (1): Location of parcels and land units



Map 5.5.3 (2): Land use in 1990/1991



### The livestock

After having shared several cattle with its neighbors and a friend, the family had three cows in 1990: one which they shared with Karman's employer, Pak Cikrak; one which they shared with Karman's close friend, Pak Katuwat; and one which had been labored by Pak Cikrak's cow and, therefore, belonged to Karman's family and to Pak Cikrak. In June of 1991, the family insisted that Pak Cikrak pay half the value of the animal, in cash, for which they received 100,000 rupiahs.

### Off-farm and non-farm activities

The income from the farm and the livestock was far from sufficient to provide for the needs of the household; therefore, Pak Karman hoed land, ploughed fields, cut sugarcane, and picked *kapok* while Gini weeded fields and cut sugarcane leaves.

## The income

Table 5.5.3(2) indicates the household's sources of income between October of 1990 and October of 1991. The total incomes reported at the right hand side of this table are denoted in amounts after initial expenditures have been deducted (value added). This information must be used with care because it has been obtained via a survey. Nonetheless, it does give an impression of the economic position of the household.

Obviously the family's largest source of income was derived from non-farm activities and therefore indicates the importance of these activities to its members. The family's second most significant source of income was the money they earn from cattle sharing. Annual and perennial crops were not significant sources of income because the household had only a small parcel of land at its disposal.

Table 5.5.3 (2): Pak Karman's sources of income in 1990/1991

Month	Income					Total income
	Food Crops	Other seasonal Crops	Perennial Crops	Non-farm	Livestock	
Oct '90	0	0	0	0	0	0
Nov '90	-3,350	0	750	13,200	0	10,600
Dec '90	0	0	0	31,500	0	31,500
Jan '91	0	0	550	34,500	0	35,050
Feb '91	0	0	0	42,000	0	42,000
Mar '91	0	0	0	53,150	0	53,150
Apr '91	0	0	0	3,000	0	3,000
May '91	0	0	0	0	0	0
Jun '91	0	0	0	0	100,000	100,000
Jul '91	0	0	0	0	0	0
Aug '91	0	0	1,150	7,500	0	80,200
Sep '91	12,000	0	0	13,000	0	25,000
Oct '91	0	0	1,400	18,500	0	19,900
	8,650	0	3,850	216,350	100,000	328,850

Source: INRES IFHS, 1990/1991

## 5.5.4 Some decision-making processes

### Introduction

Three types of decisions are analyzed below. The first pertains to the annual crops that should be planted. The second centers around the payment obtained from cattle sharing. The last decision regards the type of off-farm or non-farm activities that the couple chose to engage in. My purpose in analyzing these matters was to

discover the main arguments and motives behind the decisions that were taken and to see how these arguments were used in the decision-making process.

### Decision-making regarding the cropping strategy

Below are listed the alternatives that Karman and Gini considered in regard to their cropping strategy. These decisions were made in the period of October of 1990 and implemented between November of 1990 and October of 1991. They were determined by the household's needs through the course of the year (the objective), the view that farmers in this area have about the seasons, and the types of soil available to them (see Table 5.5.3(1). You can consult Map 5.5.3(1) to examine the land units (LU).

**Alternative 1:** To cultivate sweet potato and maize on their own land (parcel 1). The idea here was to cultivate sweet potato during the *rendengan* (rainy season) only and maize during both the rainy season and the *lemarengan*. The soil was good enough to carry out this option and acquiring seed did not pose a problem. Both had knowledge about cultivating and nursing the two crops, but the production of the sweet potato would have to be sold because no one in the family ate it. The price of sweet potato at the local market, however, was always lower in comparison to maize. More importantly, Karman and Gini were aware that they could not produce a lot of sweet potatoes or maize because they did not have a big enough piece of land. This option was consequently rejected.

**Alternative 2:** To cultivate groundnut during the *rendengan* (rainy) season. Here, too, the soil was good enough to bear the crop; moreover, the family could use cow manure for fertilizer. This option was all the more attractive because both knew how to cultivate the crop. Additionally, the price of groundnut at the market had always been good. If they cultivated groundnut on their small plot of land, however, they would not be able to grow more cassava. Moreover, groundnut seed was more expensive than maize seed. Like alternative 1, this option was rejected.

**Alternative 3:** To cultivate land with maize and cassava. Acquiring maize seed and the cassava seedlings would be easy. More specifically, they would not need to buy these items because they could use the seed and seedlings from the previous harvest. Like in other instance, cow manure could be used as fertilizer. Maize could be cultivated twice a year: once during the *rendengan* and once in the *lemarengan*, though cassava could only be planted during the *rendengan*. From the start, both Karman and Gini realized that the production obtained from the maize and cassava would not be enough for the family. Still, given their small parcel of land, this option seemed the most viable to them.

## Making the decision and implementing it

Having compared alternatives 1, 2 and 3 Pak Karman and his wife found number 3 to be the most feasible cropping strategy. The question is, what was the rationale underlying their decision to implement it?

As a result of the decision made in October of 1990 the following cropping strategy was followed from November of that year to October of 1991: On their own land (parcel 1), Karman and Gini grew maize and cassava during the *rendengan*. During the *lemarengan* they grew maize only. In the *ketigo*, they waited to harvest their cassava, which was usually done during the second week of August. The production they obtained from these two annual crops, however, was far from adequate to feed themselves; therefore, they had to engage in crop sharing; yet even then they still had to buy food.

## Concluding remarks

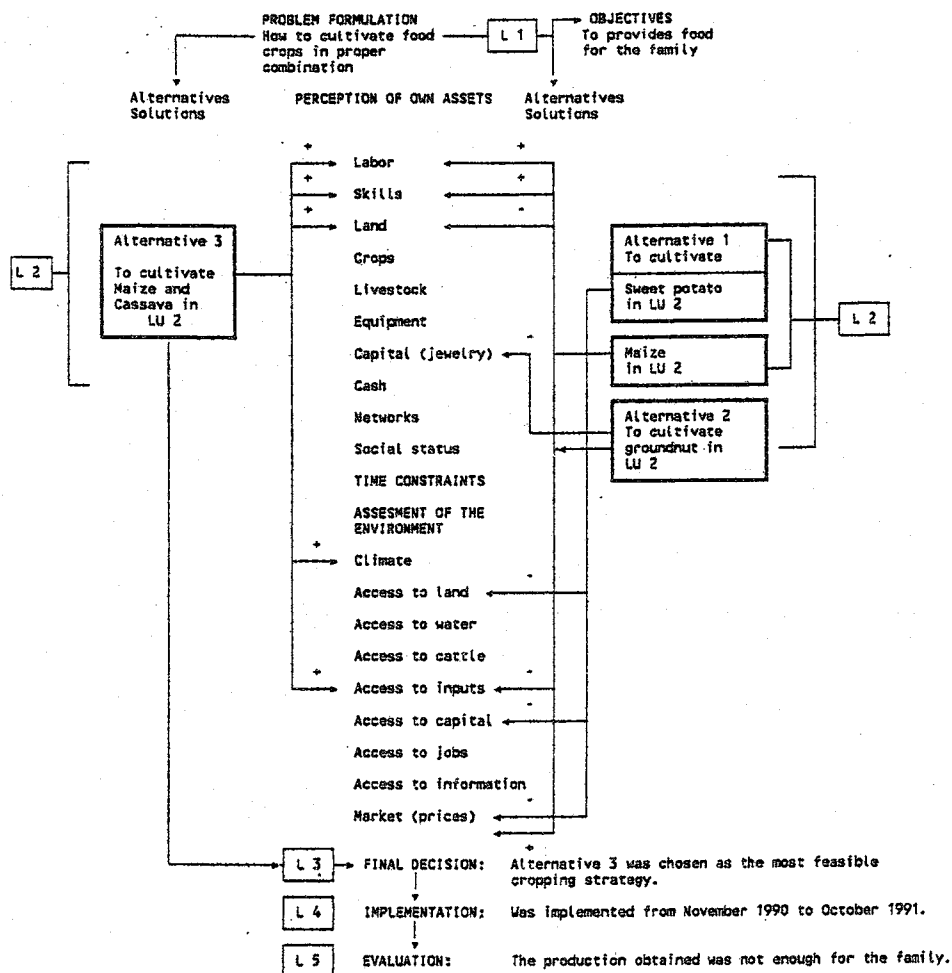
The decision-making process regarding cropping strategies has been systemized in Schedule 5.5.4(1). The main objective of Karman and his wife during their decision-making process was to provide enough food for their family. They realized, however, that they had a problem after they compared their objective with the resources (land and money for buying inputs) they had at their disposal (L1). In an attempt to solve their problem, they considered three alternatives. They then compared the conditions necessary to realize each alternative with the resources they thought were available to them (L2). Their line of reasoning finally led them to adopt alternative 3 as the most viable cropping strategy (L3). The decision was then implemented (L4). Karman's and Gini's evaluation was that the solution did not solve their problem. The annual crop production which their land yielded was insufficient for their own consumption; consequently, they had to initiate crop sharing agreements with others. Even with these agreements, however, the couple still had to buy food either using cash or credit.

## Decision-making regarding the payment of half the value of a shared cow

In June of 1991 Pak Karman and Bu Gini received 100,000 rupiahs from Pak Cikrak after requesting payment for half the value of a shared cow. The question is, what was the rationale behind the decision to ask for the payment?

A couple of months before the family decided to request payment for the cow, it needed 400,000 in cash in order to rennovate its house. Karman and Gini had wanted to rennovate for some time now because they felt that their house was not convenient for living any more. The house leaked during the rainy season, and it was too small for its five household members. More importantly, they felt ashamed in the face of their neighbors and relatives for having to live in an old bamboo

## Schedule 5.5.4 (1): Decision-making process regarding cropping strategy





house. Something had to be done. They had already been able to save 250,000 rupiahs; more specifically, they themselves had saved 200,000 rupiahs, and their son had given them 50,000 rupiahs; yet this money was still not enough, and so considered the following alternatives.

**Alternative 1:** To borrow money either from one of Karman's employers (sugarcane growers) or from their married son. Gini proposed this suggestion. She thought that his employer would be happy to help her husband as long as Karman was willing to work in the employer's field for approximately one-and-a-half months. Karman, however, did not quite agree with her analysis and argued that he would have to work for one person only in order to pay back the money if he made such an agreement. In addition to not being able to do something else for someone else, he would not be able to do important tasks required at home. And what if he were to become sick? The couple also considered lending money from their son but this, too, was a bit awkward because Riono had already provided them with money several months ago. Moreover, Riono would probably not be able to raise the money on such short notice, and his wife would probably resist the idea. It was important to Karman to remain on good terms with his daughter-in-law. These options did not seem viable.

**Alternative 2:** To sell their agricultural products. This was never really a viable option because Karman and his wife realized that they would have no food at home any more. As it was, the agricultural production they obtained from their land or from the crop sharing they did was far from providing them with what they needed; consequently, this option was also dropped.

**Alternative 3:** Karman and Gini shared three cows. One of these cows was a calf produced by Pak Cikrak's mature cow. At the time, the animal was eight months old and so could therefore be assessed and sold. Of the total proceeds, they would receive half. Moreover, they were sure that the Pak Cikrak would grant them a *susuk* for half the animal's value. A local *blantik* (cattle trader) assessed the animal at 200,000 rupiahs.

### **Making the decision and implementing it**

After considering and comparing alternatives 1, 2, and 3 Pak Karman and his wife decided that the last alternative was the most viable one. They were then able to obtain 100,000 rupiahs from the *susuk* of the cow that was being shared. This money would increase their capital to 350,000 rupiahs. The amount, however, was still not enough to cover all the costs of renovating their house; therefore, they had to find more money. Karman and Gini subsequently went to two money lenders: Bu Nur and Bu Ponirah, two shop keepers, from whom they bought their everyday

items. These two women decided to lend the couple 50,000 rupiahs, though the loan would have to be paid back in two months with interest. Karman and his wife were happy when the house was renovated. The floor of the house has been cemented and half of the wall was made of brick.

### **Concluding remarks**

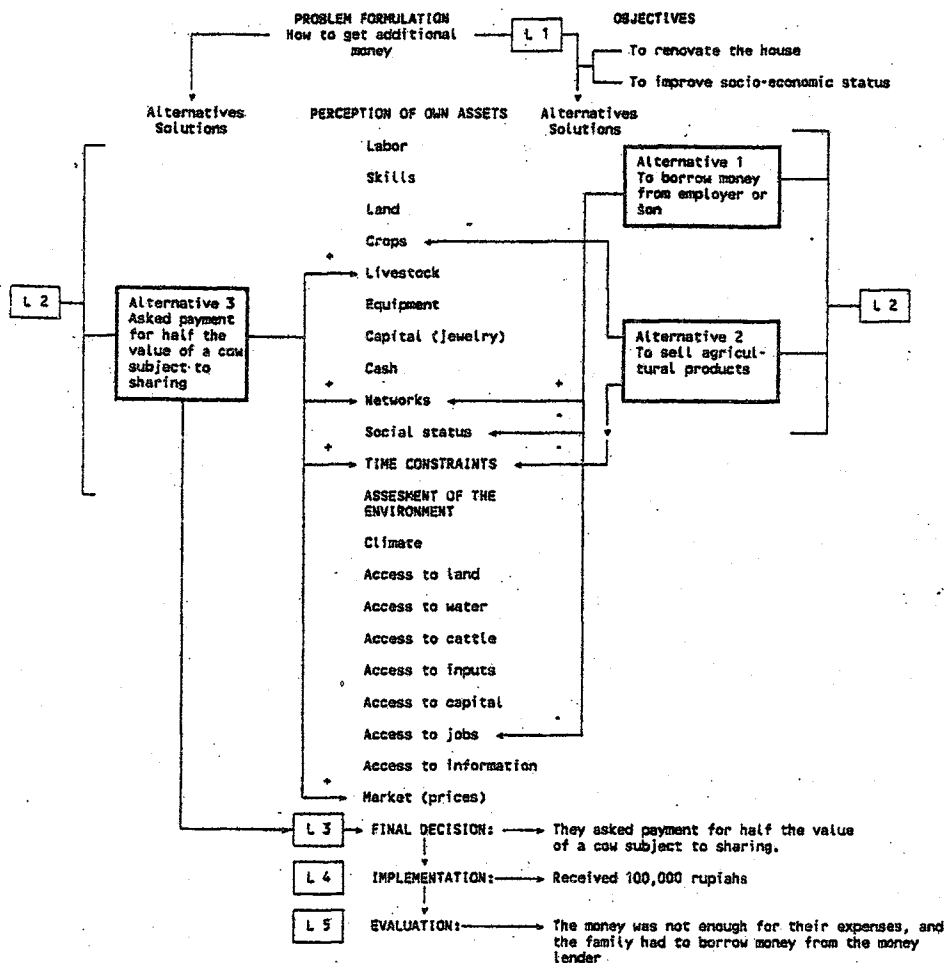
The several steps in the decision-making process with regard to livestock have been systemized in Schedule 5.5.4(2). Quite clearly, the main objective of Karman and his wife was to rennovate their house and to improve their social status in the community. When they compared the costs of the objects with the resources available to them, however, they knew they had a problem (L1). In their efforts to solve the problem, they then considered four alternatives in order to solve the problem. The consequences inherent to each alternative were subsequently compared with the resources (cash) they thought were available to them (L2). This eventually led Karman and Gini to consider requesting payment of one-half the value of the cow subject to a sharing agreement (L3). The decision was then actually implemented (L4). Their evaluation of the situation was that they did not entirely solve their problem; therefore, Karman and Gini were forced to borrow money from money lenders. Only then was the problem solved.

### **Decision-making with regard to off-farm and non-farm activities**

From the very beginning of their efforts at farming, Pak Karman and Bu Bini had been involved in activities not related to their farm. The main reason for this was that the income of the farm was not sufficient to cover the costs of their daily needs. As mentioned in section 5.5.1, Pak Karman hoed and ploughed land, cut sugarcane, and picked *kapok* while his wife weeded sugarcane fields and cut sugarcane leaves. These activities were neither chosen at random nor in a pre-attentive way, but were selected after husband and wife had discussed several alternatives which, in their eyes, were relatively open to them. I list and discuss these alternatives below. Apparently these decisions were made at the very start of their efforts in farming, but were explained to me in 1990.

**Alternative 1:** Karman and Gini had contemplated starting a small trading business at home because they thought that they would be relatively independent from others. They also thought that they could save enough money from this business so that they could start saving. However, they realized that they did not have the initial capital required to start such a business. A rough calculation showed that they would need 250,000 to 300,000 rupiahs. Borrowing this amount from relatives was out of the question. Moreover, neither Karman nor his wife had the skills which,

### Schedule 5.5.4 (2): Decision-making process regarding the payment of half the value of a shared cow



*haji*<sup>2</sup>, and Karman had good relations with them. A grower asked him if he would be willing to help pick *kapok* for cash. Karman thought he could do the job but discussed it with his wife anyway. They decided that this option would not impose a time constraint on them because the harvest time for *kapok* usually starts during the first week of the *ketigo* (dry) season when most of their own agricultural activities were finished. Except for the ability to climb trees, no other skill was needed to do the job and no inputs would be needed. In Karman's and Gini's opinion, this was another viable option.

### **Making, implementing, and evaluating the decision**

After carefully considering the advantages and disadvantages of these alternatives, Pak Karman and Bu Gini decided that alternatives 5, 6, 7, and 8 were the most viable options to implement. The main reasons for this decision has already been mentioned but will now be phrased in the words of Karman and Gini. According to Pak Karman:

*We cannot depend on our farm only. The agricultural production we obtain from it and from our crop sharing does not provide enough food for the family. For our daily consumption we need at least a kilogram of rice mixed with maize, or a kilogram of tiwul (dried cassava flour) a day; therefore, we need to devote our time to various types of off-farm work in order to get money, otherwise, we are not able to buy staple food or other items needed everyday in our household.*

According to Bu Gini:

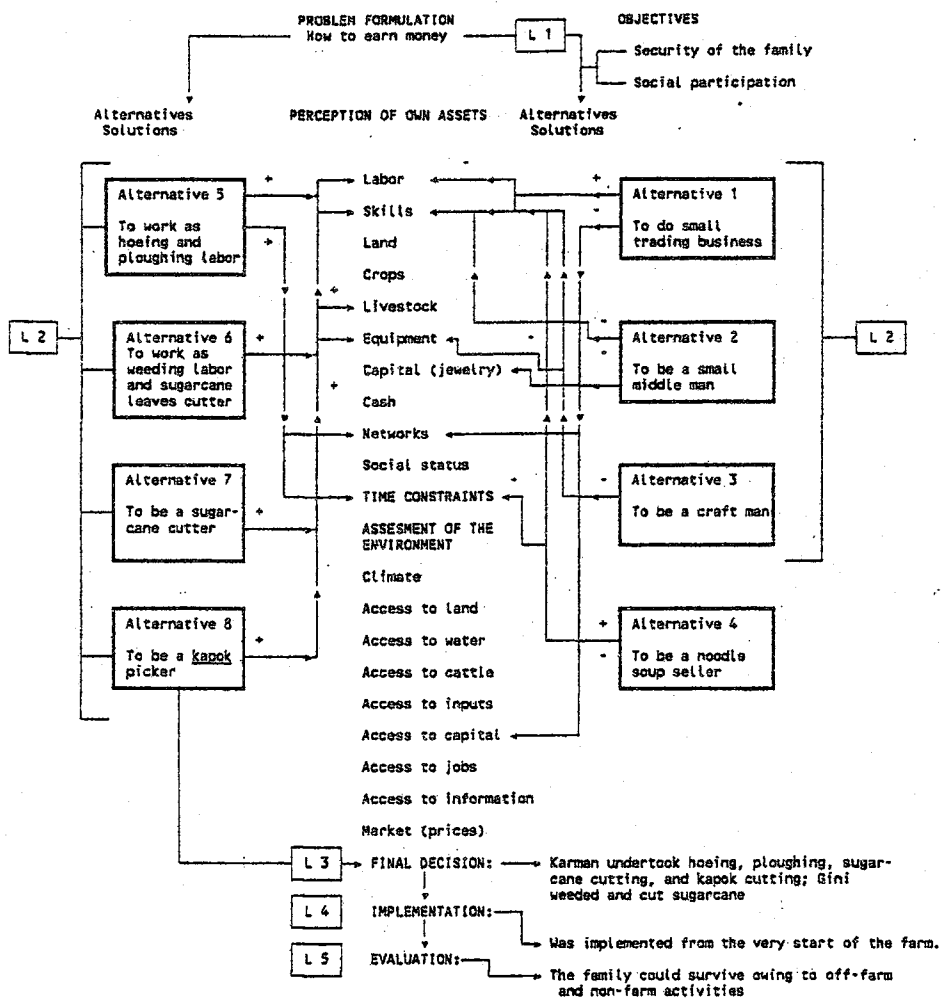
*To be honest, the money we get from off-farm activities is mainly used to buy food and other items which we need every day. We often have to buy food on credit from Bu Ponirah and Bu Nur, two shop keepers nearby the house. We paid it back in cash fifteen days later - after we get money for doing some off-farm activities. Quite often the money comes from off-farm work. The extra income is also needed for such things as attending a neighbor's marriage ceremony. On such an occasion, my husband normally gives 3,000 rupiahs to the ceremony holder, whereas I myself give three kilograms of rice.*

My research here has shown that non-farm activities have been necessary for the household from its very beginning and, therefore, have been implemented regularly.

### **Concluding remarks**

The decision-making process regarding non-farm activities has been presented in Schedule 5.5.4(3). The problem which Karman and Gini identified here is obvious:

## Schedule 5.5.4 (3): Decision-making process regarding non-farm activities



there was not enough income from their farm or from the crop sharing they engaged in with others in order to provide their family with its basic needs (L1). At first sight, it may have seemed as if Karman and his wife performed their off-farm activities in a pre-attentive way; however, from the decision-making process described above, it is obvious that the various options have been considered carefully (L2). Karman and his wife then compared the alternatives they thought they had available to them to the resources they thought they had under their control: e.g. labor and skills. The preparation and implementation of the activities took place in a somewhat daily routine (L3 and L4).

## 5.6 A case study of the household and farm of Pak Sabar

### 5.6.1 Family background of the farmer and his wife

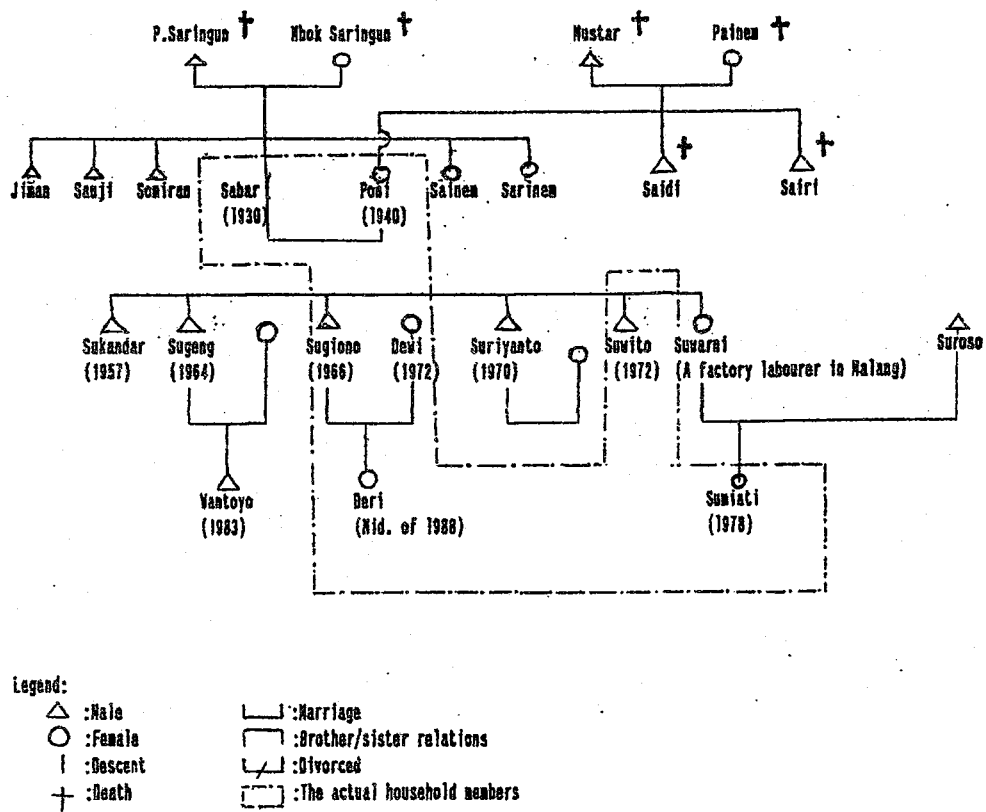
Pak Sabar was a Javanese farmer in the *dusun* Alas Tledak Putukrejo, south Malang. He was the third son of a well-to-do family and was born in early 1930. He was 60 years old in 1990. His parents, Pak Saringun and Bu Saringun, are no longer living. Sabar's grandfather immigrated from Bagelen, central Java around 1880 and worked as a foreman for the Dutch Plantation Company located in their village during colonial rule. Several years later, his father did the same. In keeping with tradition, his father and his grandfather's other heirs inherited Sabar's grandfather's farm not long after his death. Sabar learned how to farm (hoeing, ploughing, and planting) by helping in his father's field. When Sabar's father died, his property was divided between his sons and daughters. Almost all of them inherited a sufficient portion of agricultural land in order to get them started in farming.

According to the Javanese calendar, Sabar's father died on *Rabo Kliwon* (*Kliwon* Wednesday). Sabar considered this "misfortune day" and, according to custom, he was prohibited from doing anything important that was related to farming or from travelling outside the village. Each year, Sabar ordinarily carries out a *slamatan* in order to honor his ancestors' spirits with the hope that they will bless his family. As a Javanese, Sabar very much believed that he and his family would encounter misfortune (e.g. sickness) if he worked on this day and did not acknowledge his ancestors.

Sabar had five brothers and sisters: Jiman (male the eldest); Sauji (male), who died many years ago; Somiran (male), who had been living in Blitar since he got married; Sainem (female), who did not live in Putukrejo; and Sarinem (female), also not living in Putukrejo. (See the family tree of Pak Sabar and Bu Poni figure 5.6.1(1).) Pak Sabar was illiterate. He could not speak Bahasa Indonesian and his everyday language was Javanese. Indonesian words, he said, were strange sounds to his ears.

His wife, Poni, was born in Putukrejo in 1940. She was a daughter of Javanese farmers, the late Pak Mustar and Bu Painem. Like Sabar's parents, her parents also came from central Java. Poni had two brothers, Saidi and Sairi, both of whom were dead already. (See Figure 5.6.1(1) the family tree of Pak Sabar and Bu Poni.) Bu Poni was also illiterate and could not speak Bahasa Indonesian. When she was six years old her parents told her that it was a waste of time for a village girl like her to go to school. Her parents belonged to a world in which the main duty of a woman in a village was to work hard in the fields and to take good care of her family - skills that should be learned as early as possible. In turn, from her 10th year and on, Poni used to help her mother select the seeds of the maize and the soybean which her family was going to cultivate; help prepare food in the kitchen for the other family members; collect firewood, water, and forage for the animals from the area surrounding the homestead; and accompany her mother when she

Figure 5.6.1 (1): Family tree of Pak Sabar and Bu Pon





brought food to her father in the field. Although Poni always prepared herself for the time when she would help run a farm herself, she began to approach her tasks more seriously around the time of her marriage. Sabar's parents' house was close to Poni's parents' house; in fact, the two families' properties were separated only by a fence and so visits to and from both households was a common event. Sabar and Poni were married in 1954.

### 5.6.2 Development of the farm and farm household

#### How the farm was started

When Pak Sabar and Bu Poni married, they did not have any land of their own; consequently, they had no choice but engage in crop sharing with their relatives. The situation changed, however, when Sabar's father died and Sabar inherited 0.710 hectares of farmland (indicated as parcel 4). Although large enough, the land was not strategically located; it was far from the homestead and situated in a hilly area. Moreover, the land was subject to flooding and, due to a stony bottom, only parts of it could be cultivated with annual crops such as rice. Because of this, Sabar's father had cultivated it with some woody perennial trees such as teak and mahogany. Sabar took advantage of the existing trees, cutting some of the teak so that they could be used to renovate his and Poni's house. Because his father had given him this land, Sabar was rather sentimental about it and regarded it as *tanah pusaka*: ancestral land. Sabar also inherited some agricultural equipment such as a hoe and sickle from his father. An overview of the stages of development of Sabar's and Poni's household and farm is illustrated in Schedule 5.6.2 (1).

Shortly after Sabar had gained the rights over the land he inherited, he and his family grew local varieties of maize and cassava for their own consumption. When water was available, they also cultivated it with paddy. As is often the case with families in this research, however, Sabar and his family could not rely on the income of their agricultural activities. During that time, they said, the production they obtained from their maize and cassava was hardly enough for their own consumption, and so nothing was left for sale. Additionally, their efforts to cultivate rice did not always succeed. Apart from farming, then, Sabar and his wife had to work as agricultural laborers in the village. While Sabar did some hoeing for other farmers, Poni weeded rice fields; yet even with these extra activities, their income was just enough to purchase some items for their everyday use. Fortunately, relatives from both sides of the family often helped them by giving them food and seeds for planting.

### Stages of the household's development

From their marriage of 36 years, Sabar and Poni had six children; however, one of their sons, Sukundar, died in the middle of 1957 as a result of a serious fever when he was seven months old. There were five left during my research, all of which finished primary school.

Suwarni was the first born of the Sabar family and was 34 years old in 1990. A year after she finished primary school in 1969 she married Suroso, a truck driver from the same village. Shortly after their marriage, Suwarni and Suroso lived with Suroso's parents for a number of years. Their marriage produced a daughter, Sumiati, in 1978; however, the relationship did not last, and she and Suroso divorced in early 1980. Suwarni had no land of her own and did not inherit any from her father yet. A year after her divorce she left the village to seek a job in Malang. With the help of a friend who lived in the same village and who was already employed at a factory, Suwarni landed a job at the same factory in 1990 and was paid 65,000 rupiahs a month. Her parents have since been looking after daughter. Suwarni visited Sabar and Poni twice a year, particularly on the anniversary of the prophet Muhammed's birthday and on *lebaran* day, a day of celebration for Muslims after the month of Ramadan. During her two week visit to her parents on *lebaran* day in 1990, she gave some 70,000 rupiahs to Sabar and Poni. She also gave some gifts in the way of clothes to both her parents and her daughter. (Her daughter was in the sixth grade of primary school in 1990.) In addition to all of this, Suwarni and her friend sent 20,000 rupiahs to her mother every two months. Pak Sabar sometimes used this money to buy fertilizer.

Sabar's second born was Sugeng who was 26 years old in 1990. Not long after he married a woman from the same *desa* in 1983, he left his parents and formed a new household. Sugeng's family's house was not so far from his parental house. Sabar had given them building material in order to build the house, though his mother and father-in-law gave him and their daughter the land on which they built a house. Like his sister, he, too, had not inherited land from his father. He sometimes engaged in crop sharing with others in the hamlet and used a one-third system. He and his wife also worked as laborers in sugarcane fields. Not long after they had a baby, her parents gave her a piece of land on which they cultivated paddy, maize, and cassava for their own consumption. After they finished their own farm work during the planting and harvesting seasons, they usually helped Sabar.

Sabar's third born was his son Sugiono, 24 years old. In the middle of 1987 he married Dewi, a daughter of a trader from the *desa* Tempursari, located near Kedung Salam south of Malang. Out of this marriage came a son, Deri, who was one-and-a-half years old in 1990. Sugiono and Dewi lived with Sabar and Poni at the time. Like his other brother and sisters already mentioned, Sugiono had not

Schedule 5.6.2 (1):  
Stages in the development of the farm and of the household  
of Pak Sabar and Bu Poni

Year	Pak Sar'ingun (Sabar's father)	Mbok Sar'ingun (Sabar's mother)	Pak Mustar (Poni's father)	Mbok Painem (Poni's mother)			
	Both are farmers		Both are farmers				
1930	Sabar is born		Bu Poni is born				
1940							
1944	Sabar learns how to farm						
1954	Sabar marries Poni						
	F A R M						
		LAND	CROP	LIVESTOCK	STABLE	EQUIPMENT	HOUSE
1954	No children	Landless				Hooked stick, crowbar, sickle, hoe	A small bamboo house
1955	Sabar inherits parcel 4		Teakwood, albizzia, mahogany, maize cassava, rice	Sheep	No stable		
1956	Suwarni is born						
1957	Sukandar is born						
mid 1957	Sukandar dies					Plough, ani-ani	
1959							
1960		They buy parcel 1 and parcel 2	Cassava, maize, rice banana parkia spiciosa				A klenengan house
1964	Sugeng is born						
1966	Sugiono is born						
1969	Suwarni finishes her primary school						
1970	Suwarni marries						
1972	Suroso Suriyanto is born Sulito is born		Gliricidia, acacia, bamboo mahogany are planted in parcel 4				
1973	Sugiono finishes his primary school						
1975			Local variety of coconut				
1978	Sumiati is born She has since been living with Sabar's family						
1979	Sulito finishes primary school			Two heads of cattle are shared with Pak Cikrak; Sheep	Temporary stable is built		
1980	Suwarni divorces		Coffee is planted in parcel 1				
1981	Suwarni leaves the house She has since been working as factory labor in Malang						
1982	Suriyanto finishes primary school		Gnetum-gnemom			Permanent stable is built	
1983	Sugeng marries and forms his own household						

## Schedule 5.6.2 (1): continued

		F A R M					
FAMILY		LAND	CROP	LIVESTOCK	STABLE	EQUIPMENT	HOUSE
1984							
1985			Clove tree tobacco				A full brick wall house
1986						Cacak (tool for cutting tobacco)	
1987	Sugiono marries Dewi						
1989	Surianto marries and forms his own household; Deri is born	Parcel 3 is bought	Sugarcane is cultivated on parcel 2 (U2)	Have 8 heads of cattle and 6 sheep; 2 heads of cattle and 1 sheep are sold 4 heads of cattle and 5 sheep			
1990	Suwito leaves home (works as photographer in Tutungagung)			A sheep is sold			
Nov. 1990				They receive a susuk for 223,500 rupiahs			
Jan. 1991	Suwito came Back to Putukrejo		Gnetun-gnemon Local coconut (parcel 1 and 2)	One head of cattle is sold			
July 1991							
May 1991			Clove tree is cut				
Nov. 1991							

inherited any farmland from his father. Though he and Dewi had been married for three years already, Sabar's family still provided some of their daily needs. In return for this, Sugiono and his wife helped Sabar and Poni either by working in the field or by collecting forage for the animals.

Sabar's fourth son, Surianto, was 20 years old in 1990. A couple of months after Surianto married Sukinem, he began living at his in-laws. Not surprisingly, he had not inherited any land from his father either. His wife was the only daughter of a well-to-do family, Pak Tukiman and Bu Kasih. His mother and father-in-law had several heads of cattle and several parcels of land. Their house was 50 meters away from Sabar's house so that Surianto could visit and help his parents regularly. Fortunately for him, his mother and father-in-law allowed him to operate 0.25 hectares of land cultivated with maize, cassava, and taro. In addition to this, he was also sharing a cow with them so that he could support his family's income.

Sabar's youngest son, Suwito, was 18 years old and unmarried at the time. Between the years 1988 to 1989 he was able to work as a laborer in Malang with the help of a good friend. He left his parents again in mid 1990 with a friend from the same hamlet and worked as a freelance photographer in the *kecamatan* Ngunut in the *kabupaten* Tulungagung. He also worked as a part-time laborer in a motorcycle repair shop from which he earned 30,000 rupiahs a month. His income from his labor, however, was not enough to provide him with what he needed everyday. In early 1991, he returned to Putukrejo. Since then he has always been engaged in off-farm and non-farm activities: e.g. sawyer and sugarcane cutter.

### History of the land

Sabar's land was 1.934 hectares large in 1990 and consisted of four parcels: parcel 1 was 0.532 hectares, parcel 2 was 0.440 hectares, parcel 3 was 0.252 hectares, and parcel 4 was 0.710 hectares. According to Sabar, the fertility of the soil on all of the parcels, except a section on parcel 4, was *lemah gembrung*, meaning "fertile soil". As stated earlier, Sabar inherited parcel 4 from his parents. Years later, when the economic position of Sabar's and Poni's family had improved, the family could afford parcel 1 and 2. These two parcels formerly belonged to the woman who married Poni's brother. Saidi. They were able to acquire the land by bartering several sheep and 200 kilograms of rice. Poni played a significant role during the negotiations; she was able to convince her sister-in-law to sell the property and could negotiate the price.

As the family's economic position improved, the quantity of land they owned increased. In the middle of 1989, for instance, after having sold two heads of cattle and a sheep, they bought parcel 3 for 400,000 rupiahs. When the land was bought, the land was planted with some perennial crops such as coconut, teak, gliricidia, and mahogany.

Even at 60 years of age, Sabar had proven himself to be an energetic man: e.g. he was still economically active in farming and in animal husbandry. This is one reason why he had still not yet divided up his land between his heirs, though both he and Poni have said that they would do so when they were no longer able to be involved actively in the day-to-day operations. They had discussed the children's inheritance with them and had come to the following arrangement: Parcel 1 would be given to Suwito and Sugent; parcel 2 would be given to Surianto; parcel 3 would be passed on to Sugiono; and parcel 4 would be given to the eldest daughter, Suwarni. In the middle of November of 1991, Sabar's family acquired yet another 0.300 hectares of land by renting a piece of property owned by one of their neighbors. (See the section below "Decision-making processes regarding the selling of a cow".)

### History of the crops

Shortly after Sabar acquired the rights to parcel 4, he and his wife grew maize (*goter* variety) and local varieties of cassava (*nyonya* and *ndoro*) for their own consumption. The situation began to change gradually after five years in 1960 when they could afford to buy parcel 1 and parcel 2. Apart from the cassava and maize they grew in these two parcels, Sabar and Poni also began cultivating paddy, particularly when they thought that there was sufficient water. They planted this crop not only because they thought the soil was suitable for growing it, but also because the harvest could be bartered with other staple food when necessary. They also grew some medicinal herbs in their home garden in parcel 1 such as ginger, *kencur* (*Kaempferia galanga*), and *kunyit* (tumeric).

Sabar and Poni had been cultivating various species of bananas on parcel 1 in their home garden since 1960; more specifically, they have been growing *pisang rojo sajen* and *pisang rojo molo* because of their economic value. They were able to sell them regularly. Several years ago, they sold most of their bananas at a marketplace in a neighboring village, but had recently been selling more and more of them to local traders who met at the gate of their homestead. Sometimes these traders were even willing to buy their crop even though it was not mature enough to be harvested. In land unit 2 (LU2) of parcel 1, as well as in LU2 of parcel 2, the family cultivated the land with various species of perennial crops: e.g. *Parkia speciosa* (*petai*) was cultivated in 1964 and 1965. Knowing that many parts of LU3 on parcel 4 were subject to flooding, they began to cultivate various wood trees such as *gliricidia*, *acacia*, bamboo, and mahogany in 1972. They did this in order to prevent soil degradation and soil erosion. The government supplied the seedlings for these crops (except for the bamboo) as part of a re-greening program launched at the time. In 1975, they grew a local coconut variety and, in 1980, some coffee trees - mostly in the homegarden. The coffee trees were planted *ubeng kandang* (around the stable) so that there would be no problems with fertilizing or nursing

it. In 1983, Sabar and Poni grew *Gnetum gnemon* (*melinjo*) and, two years later, they grew clove. In 1991 they grew more *gnetum gnemon* and coconut on parcel 1 and parcel 2.

The clove tree never bore a crop, though its leaves grew well; consequently, the family cut it down in May of 1991 and used it for firewood. The family was more successful with the coconut and *Parkia speciosa* it grew and could sell these things regularly. Bu Poni could also sell 100 unshelled coconuts from the family's coconut production every market day. A kilogram of coconuts would raise 200 rupiahs. She sold these coconuts at the Donomulyo market (1.5 kilometers away) where local middlemen wait for farmers every morning between 7:00 am and 10:00 am in order to buy their produce. Sabar and his family usually sold *parkia spicosa* fruits via the *tebasan* system, meaning that the produce is sold before harvesting. They usually sold them to Pak Pingi, a middleman who was also a relative of Pak Sabar. In September of 1991, Sabar and Poni sold their *Parkia speciosa* fruits for 60,900 rupiahs. Poni herself could harvest 25 to 35 kilograms of dried coffee if she wanted, though coffee production was mainly used for home consumption and for serving guests.

In addition to the food crop they grew in 1985, Sabar and his family also cultivated tobacco, despite the fact that it was difficult and time consuming. He and Poni compared the cultivation of this crop to taking care of a baby because of the inordinate amount of patience it requires. Still, they forced themselves to grow it because the value of its dried leaves at the local market had always been high. Somiran, Sabar's brother, taught Sabar how to grow the plant. In 1990, Sabar and his family could sell 25 kilograms of tobacco at the rate of 8,000 rupiahs per kilogram.

During the *rendengan* (rainy) season in 1989, they tried to cultivate sugarcane for the first time. They began with a small quantity of seedlings and grew them in a small plot on parcel 2, land unit 2 (LU2). (Their neighbor, Pak Sudikin, provided them with the seedlings.) Knowing that sugarcane would grow well on their land, they began to cultivate it in larger quantities on parcels 1 and 2 in 1990. Sabar had said that he learned how to cultivate the sugarcane and how to make some financial calculations from three persons: Pak Sudikin, a former secretary of the village and close friend, taught him how to select the seedlings for the 32 variety of sugarcane; Pak Sumitor, one of his employers, taught him how to use some chemical fertilizers and to treat crop disease; and his brother-in-law taught him about the marketing network which he would be confronted with. According to Sabar and Poni, the price of sugarcane had always been much higher than any other annual crop. Additionally, it was not time consuming in comparison to the cultivation of rice. In October of 1991, the family sold its sugarcane for 550,000 rupiahs to a middleman in the village called Pak Haji Nasuki. Sabar, however, had only decided to cultivate the crop after discussing all the advantages and disadvantages of growing it and after searching for information about the crop. Both he and Poni claimed that there

were sufficient plots available to plant maize and cassava; in fact, there were enough plots to provide them with more than was necessary for their own consumption.

To ensure for a healthy production of all their crops, including the sugarcane, Sabar and his family used ZA, TSP, and manure. Experience taught them that they needed at least 800 kilograms of chemical fertilizer. Their annual crop production in 1989/1990 yielded them 2,700 kilograms of *gaplek* dried cassava, 2,100 kilograms of maize, and 700 kilograms of unhulled rice. From this production they were able to sell 1,300 kilograms of the *gaplek* dried cassava and 1,300 kilograms of the maize. The local price per kilogram for grain maize was 200 rupiahs and 140 rupiahs for dried cassava in 1990. Poni usually sold these products either to Bu Lastri or to Bu Sunar, two shop keepers close to her homestead and from whom she bought various items for her family's everyday use. Sabar and his family did not sell their rice, however, because they mainly used it for their own consumption and for conducting *salamatan*<sup>2</sup>.

In 1990 the family cultivated its land with a hybrid variety of maize and with several local varieties of cassava, such as *malam* and *cecek*, and with chilly, and sugarcane. It usually planted cassava one week after it sowed maize. On parcel 2, tobacco, cowpeas, sugarcane, some local varieties of cassava (*sembung*, *cecek*, and *nyonya*), and maize were planted at the time, while cassava, cowpeas, and tobacco were cultivated on parcel 3. Parcel 4 contained cassava, maize, and cowpeas.

The combination of the crops planted, however, depended on the seasons, the needs of the household, and the soil types available to them. Sabar and Poni explained that they would plant rice first (instead of maize) if the rain was relatively heavy during the *rendengan* (rainy) season. After rice they would grow tobacco and, at the same time, sugarcane and cassava. During the *lemarengan* season, they would grow their second crop of maize, cowpeas, and tobacco. If, however, the rain was not so heavy during the *rendengan* season, they would grow maize, sugarcane, and cassava. During the *lemarengan* season, they would then grow maize, tobacco and cowpeas.

Poni had a particular food strategy that she always followed throughout the year. First, she provided the family with rice, then rice mixed with maize, and, if the food stock dropped, with *tiwul* (processed dried cassava flour). She based this consumption strategy on her family's wishes and on the season. According to her, if she only fed her family rice, she would need three kilograms of rice each day. She also said that she would need three kilograms of maize, or maize mixed with rice, or maize mixed with *tiwul* when rice was not available.



## History of the livestock

When Pak and his family were still landless, they did not have any livestock. Several months after he and Poni started farming on their own, however, they had reared two sheep for the very first time. They began rearing cattle on a sharing basis in early 1979 when most of their sons and daughters were grown up and could help them collect forage or grass for the animals. They started with two heads of cattle. These animals were owned by their neighbor, a man of half Madurese blood by the name of Pak Cikrak - one of the wealthiest farmers in the village. Bu Poni introduced Pak Sabar to Pak Cikrak; she herself was able to do this because she was a good friend of Cikrak's wife. After Poni introduced the two men to each other, she and Sabar asked if he was interested in sharing a head of cattle. After convincing him that they could rear the animal properly, they reached an agreement about how many heads of cattle they would be able to handle. They then went home with two cows, a male and a female, and built a stable for them not long after. Like many stables, this one was constructed from bamboo and had a roof of palm tree leaves. It stood at the back of Sabar's and Poni's house. As time went by, their cattle and sheep grew in number. In early 1989, they had six sheep and eight cattle. Four of the eight heads of cattle were entirely their own. In mid 1989, they sold two cows and a sheep of their own to a local trader for 400,000 rupiahs in order to buy parcel 3.

When I asked them why they preferred land over cattle, both Sabar and his wife gave me the following explanation:

*It would be ideal for us if we had both farmland and cattle of our own. If we had to choose between the two, however, we would choose farmland over cattle because we could cultivate the land with various annual and perennial crops. If the land was managed properly, we could then sell part of the production. Acquiring good farm-land in the village is not as easy as obtaining cattle.*

In 1990 the family reared five sheep of their own and four heads of cattle. Of this cattle, two were shared with Pak Cikrak and the other two were their own. In November 1990 they had to sell a male sheep because they had to buy chemical fertilizer. In January of the following year, they received a *susuk* from the owner of the cattle for 223,500 rupiahs: half the value of the cattle subject to sharing. Two weeks later, the money had been used to purchase a necklace for Bu Poni. In July 1991 they had to sell a head of their own cattle for 500,000 rupiahs. In November of 1991 their sheep were infected with a disease. Pak Bardi, a prominent *dukun* (medicine man) from a neighboring village, Banduharjo, helped them cure all but one their sheep. The one which could not be cured died. The family kept a few local chickens in order to hold small meals in order to give thanks.

## **Non-farming activities**

In addition to farming and cattle rearing, off-farm and non-farm activities were once important to both Sabar and his wife. They no longer had to undertake such activities, though their sons did. Still, many years ago Sabar worked as hoeing and ploughing labor and, during the off-season period in agriculture, he used to make roof tiles at home and sell them. Poni, too, worked as weeding labor and landed jobs cutting sugarcane leaves. In 1980, however, both quit doing this kind of work because they had enough to do with their own farm work. Having enough production for their own consumption, Sabar and Poni could also sell their surpluses on a regular basis.

Out of all their family members, only their married son, Sugiono, and the youngest son, Suwito, were still actively involved in off-farm and non-farm work. Both brothers, for example, worked as sugarcane cutters. They usually worked from 7:30 am to 4:00 pm for which they get paid 2,500 rupiahs. They were particularly engaged in this kind of work when sugarcane had to be harvested. Sugiono, in addition to cutting sugarcane, ploughed fields to earn extra money. Suwito worked as a sawyer from 7:00 am to 4:00 pm and for which he received 3,000 rupiahs.

## **Equipment**

The family had several tools for farming, for off-farm activities, and for non-farm activities: a hooked stick, a crowbar, a plough, five hoes, seven sickles, a knife for cutting dried tobacco leaves, three big knives for cutting sugarcane, and a vertical jigsaw. Sabar and Poni bought some of these tools (the plough and the hoes for example) shortly after they started farming on their own. Others, such as the sickles and the jigsaw, were bought recently at the time.

## **History of the house**

Only after a couple of years after their marriage were Sabar and Poni able to get a house of their own. Until then, they stayed with Sabar's parents. They were in fact able to build their own house shortly after they bought parcel 1 and parcel 2 in 1960. The house they built then was a small, bamboo, single-room structure furnished with an old, small, wooden table, some chairs, and a bamboo bench. The property surrounding the house was almost barren as there were only a few coconut trees growing. As a result, Sabar and Poni began to plant and cultivate some perennial crops such as banana and coconut a couple of weeks after they moved in. In 1960, however, a drought struck the village and caused a food shortage. Many of the villagers' crops failed completely and many died of starvation. Sabar and Poni's attempts to grow things were not spared; consequently, they were forced to

eat *gamblong*, the deposit of dried cassava normally used to feed animals. Fortunately for them, they were rearing sheep at the time and could sell their animals for money.

In early 1963, their agricultural production was so good that they could renovate their bamboo house and expand it into a *klenengan* house: a bamboo house whose walls are half brick and whose floor is uncemented. They were also able to add some extra rooms which could be used either to sleep in or to store their agricultural products. They lived in this structure until 1983. In mid 1984, they renovated their *klenengan* house into a full, brick walled house, figuring that their children were grown up and that their economic position was much better than before. As is customary in this region, their sons and their neighbors helped them with the renovation. The house contained two, wooden long tables, five, old wooden chairs, an old wood coach, a bamboo coach, a cupboard made from local wood, a wall-clock, and a transistor radio. Still, the house was without electricity. For light, Sabar and Poni used carbide lamps or a hanging kerosene lamp. The kitchen was situated at the back end of the house. To cook, Poni used wood and dried coconut tree leaves which she collected from her and Sabar's farm. Her daughter-in-law, Dewi, and her granddaughter, Sumiati, helped her collect the wood. Since the house underwent its last changes, no major changes had been made to it.

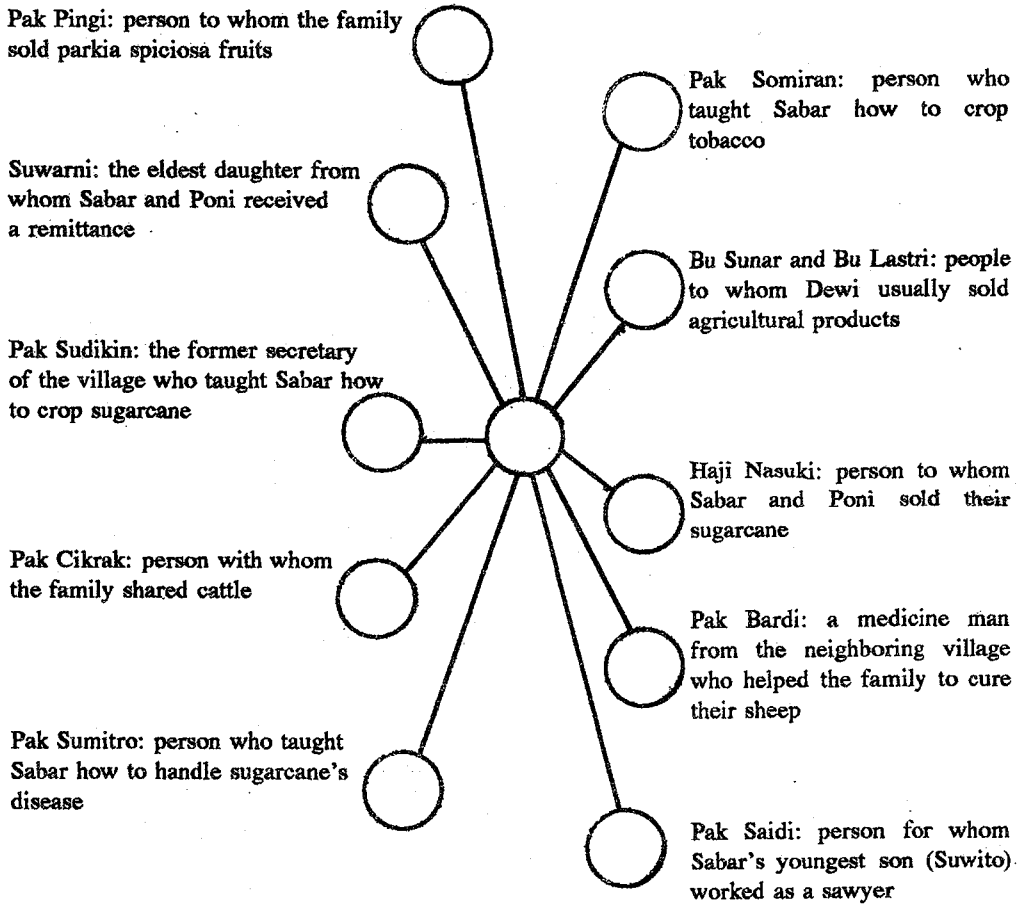
### Social relationships and social status

Figure 5.6.2(1) shows the social network Pak Sabar used in his income earning activities. Clearly family relations, neighbors, and traders played an important role. His family had good relations with its neighbors, and everyone helped each other when it was needed: e.g. when houses needed to be built. The daughter, Suwarni, who worked outside the village, gave them money regularly for the care of her children. During the more difficult days of their life, relatives helped them several times by giving them food to eat and seeds to plant. Bu Poni was an active member of an *arisan* both in the form of money and in the form of rice. She and Sabar perceived themselves as *tiyang cekap*, meaning that they were neither poor nor rich.

### 5.6.3 Summary of the position of the farm and the household in 1990

Before analyzing in more detail the processes of decision making concerning some important activities of Sabar's family, a summary is given of the situation of the household and the farm.

Figure 5.6.2 (1): The Social Network of Pak Sabar used for generating income



### The household's composition and labor force

When the research took place in 1990, the family consisted of Pak Sabar, 60 years old; Bu Poni, 50 years old; their married son, Sugiono, 24 years old; Sugiono's wife, Dewi, 20 years old; their grandson, Deri, 1.5 years old; and their granddaughter, Sumiati, 12 years old. This means that there were 3.5 labor units in total. In early 1991, however, the situation changed when Sabar's youngest son, Suwito, came into the household (he was 19 years old then); therefore, in 1991, the household had 4.5 labor units at its disposal.

### Land units and the locations of the parcels

In 1990, Pak Sabar and Bu Poni had four parcels of their own land whose total area was 1.934 hectares large. The largest portion of the property was 1.573 hectares and belonged to land unit 1 and 2, meaning that it contained soil of a very good quality. (See Table 5.6.3(1).) Only 0.361 hectares of the land was of a poor quality: (LU3). Parcel 1 consisted of two sub-parcels. It is here where Pak Sabar built his house. Parcel 2 consisted of four sub-parcels, was situated at the back end of the house, and was 100 meters away from the house on a bad path. Parcel 3 was 250 meters away from the house on a bad path. Parcel 4 was 900 meters away from the house, 700 of which consisted of good road and 200 meters of poor path.

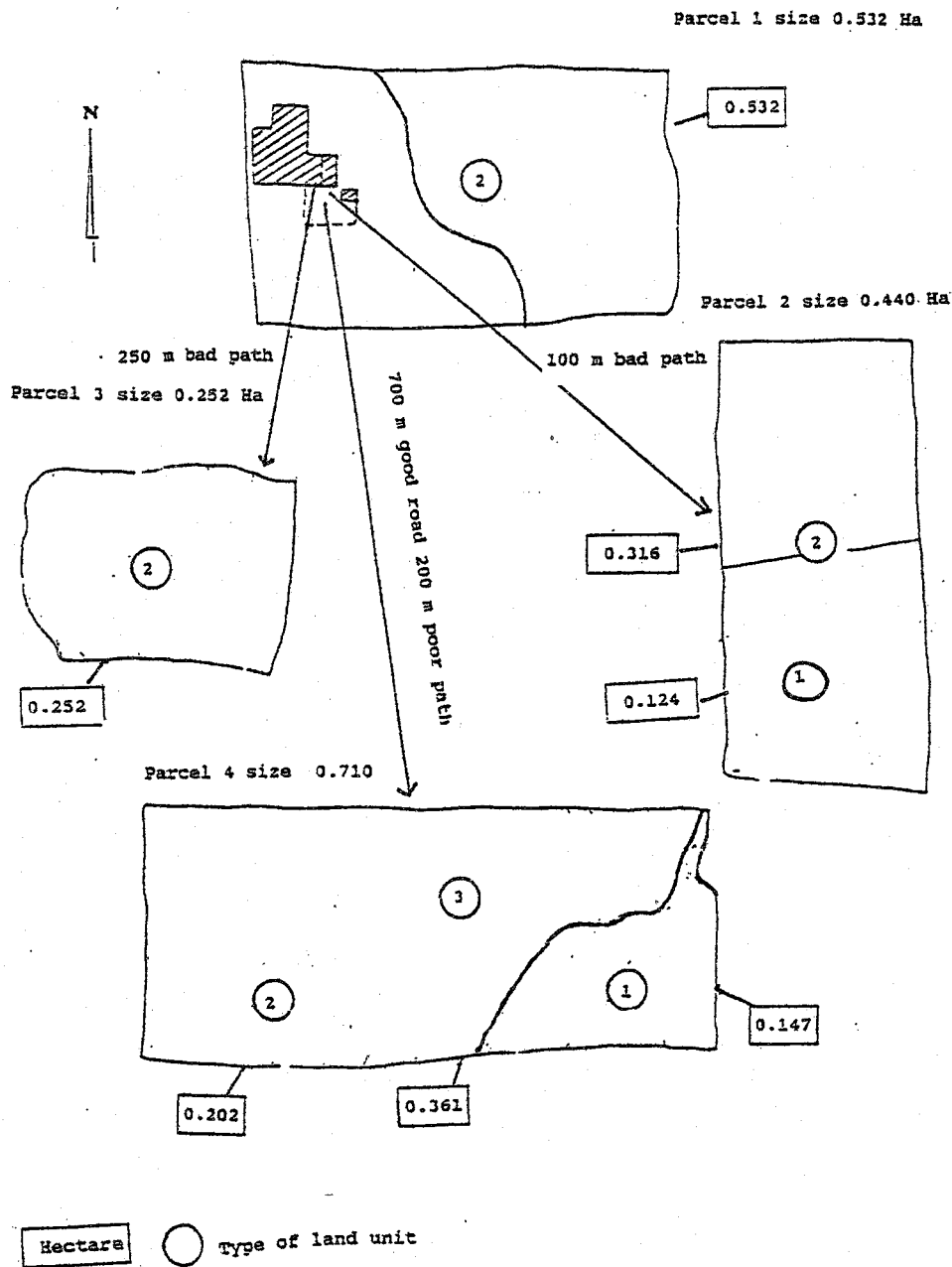
Table 5.6.3 (1): Land units and land tenure in 1990

Land Tenure	Parcel	Land Unit (LU)	Area in ha	Sub Total
Owned	1	2	0.241	0.532
		2	0.291	
	2	1	0.124	0.440
		2	0.208	
		2	0.058	
		2	0.050	
	3	2	0.252	0.252
	4	1	0.147	0.710
		2	0.153	
		2	0.049	
		3	0.361	
Total				1.934

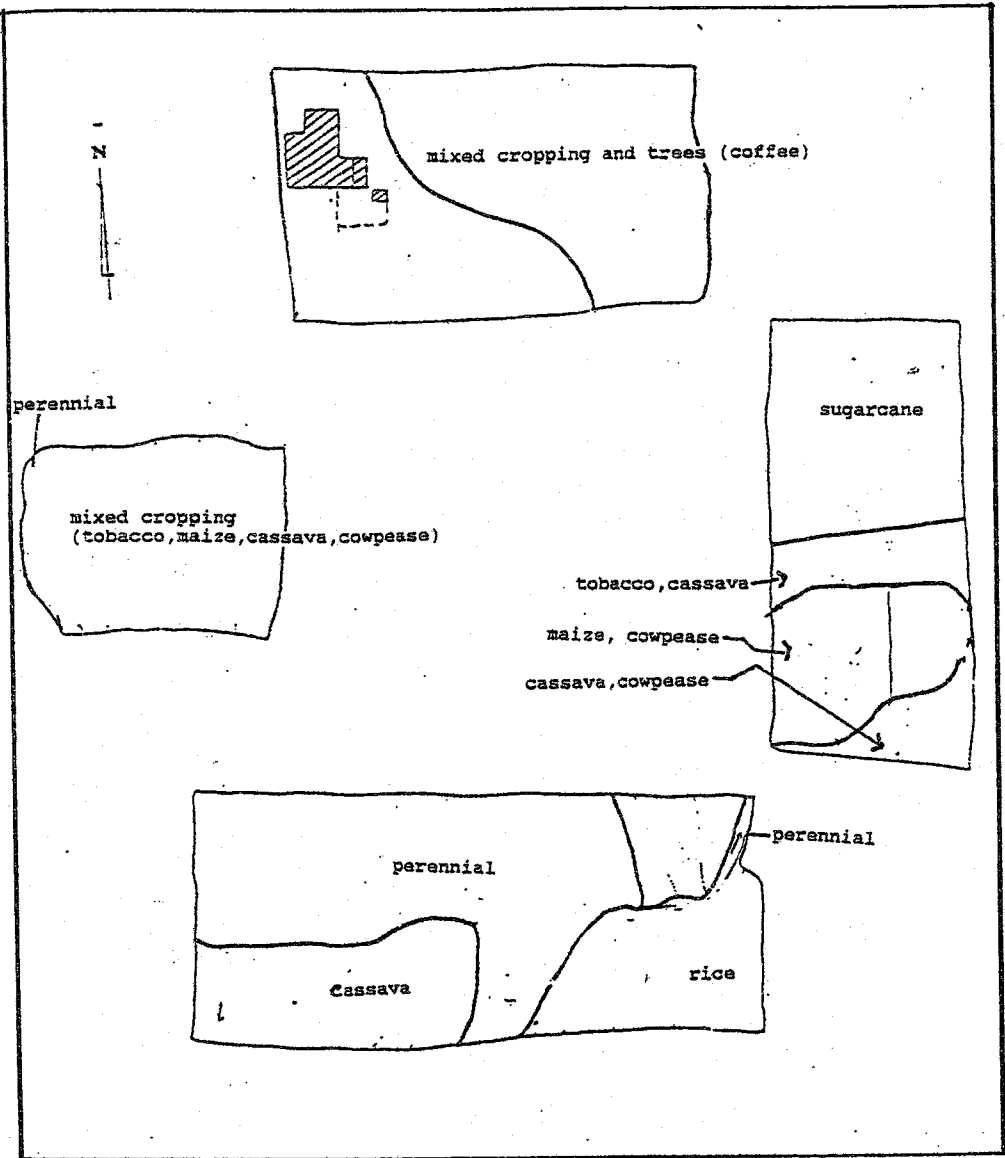
### The land use

Map 5.6.3(2) shows how the land was used in 1990. The family's home garden with its mixed cropping and trees was close to the house on parcel 1. The entire parcel had soil of a good quality (LU2) and was planted with sugarcane, maize, and cassava. The land with the best quality of soil (LU1) on parcel 2 was used for a mixed cropping of tobacco, cassava, maize, and cowpease. Likewise, LU2 of this parcel was planted with tobacco, cassava, and various species of perennial trees such as coconut, parkia spiciosa, jackfruit, and mahogany. The land on parcel 3 belonged to LU2 was planted with some annuals and perennials. Here the family

Map 5.6.3 (1): Location of parcels and land units



Map 5.6.3 (2): Land use 1990/1991



cultivated the land with cassava, cowpease, tobacco, teak, gliricidia, acacia, bamboo, coconut, and mahogany. The land with the best quality of soil (LU1) on parcel 4 was planted with rice. LU2 on this parcel was mainly planted with cassava, whereas wood trees such as acacia, mahogany, and teak were planted on LU3 (land which was subject to flooding). The production of annual crops were partially used for home consumption and partially put on the market. Perennial production was marketed and had become an important source of income.

### **The livestock**

After having shared several heads of cattle with their neighbors, Sabar and Poni reared four more heads of cattle in early 1990, two of which they shared with their neighbor. At the same time, they also had five sheep. In January 1991 they received a *susuk* for half the value of a cow they were sharing with their neighbor. In July of 1991 they sold a cow of their own.

### **Off-farm and non-farm activities**

The income derived from the farm and the livestock was basically sufficient to provide for the needs of the household. In fact, Sabar and Poni could sell agricultural products regularly. This is why they no longer engaged in any off-farm activity or in non-farm activities; however, this is not to say that the family as a whole did not perform off-farm and non-farm activities. Their married son, Sugiono, ploughed other farmers' fields and cut their sugarcane and Suwito, their youngest son, worked as a sawyer and sugarcane cutter.

### **The income**

Table 5.6.3(2) indicates the household's sources of income between October of 1990 and October of 1991. The total incomes reported at the right hand side of this table are denoted in amounts after initial expenditures have been deducted (value added). This information must be used with care because it has been obtained via a survey. Nonetheless, it does give an impression of the economic position of the household.

Obviously the family's income from off-farm and non-farm activities were not very substantial; in fact, it was only a minor part of its total income. Their largest source of income was derived from selling livestock (sheep and cattle). The family's efforts to cultivate various species of perennial crops was paying off as it had become their second source of income.



Table 5.6.3 (2): Pak Sabar's sources of income in 1990/1991

Month	Income					Total income
	Food Crops	Other seasonal crops	Perennial Crops	Off/Non farm	Livestock	
Oct '90	0	0	0	0	0	0
Nov'90	-10,700	0	21,200	0	60,000	70,500
Dec'90	-48,130	0	0	0	0	-48,130
Jan '91	-15,175	-350	6,750	10,500	223,500	225,225
Feb '91	-23,265	0	0	3,000	0	-20,265
Mar'91	37,260	0	0	0	0	37,260
Apr'91	-5,625	0	0	0	0	-5,625
May'91	0	-700	0	0	0	-700
Jun '91	0	0	0	23,500	0	23,500
Jul '91	19,500	0	3,500	0	500,000	523,000
Aug'91	70,310	0	0	134,900	0	205,210
Sep '91	-3,000	0	60,900	116,000	80,000	253,900
Oct '91	13,000	550,000	0	5,000	3,500	571,500
	34,175	548,950	92,350	292,900	867,000	1,835,375

Source: INRES IFHS, 1990/1991

#### 5.6.4 Some decision-making processes

##### Introduction

Three types of decisions are analyzed below. The first pertains to the annual crops that should be planted. The second centers around the sale of a cow. The last decision regards the type of off-farm or non-farm activities that the couple chose to engage in. My purpose in analyzing these matters was to discover the main arguments and motives behind the decisions that were taken and to see how these arguments were used in the decision-making process.

##### Decision-making regarding the cropping strategy

Below are listed the alternatives that Sabar and Poni considered in regard to their cropping strategy. These decisions were made in the period of October of 1990 and implemented between November of 1990 and October of 1991. They were determined by the household's needs through the course of the year (the objective), the view that farmers in this area have about the seasons, and the types of soil

available to them (see Table 5.6.3(1). You can consult Map 5.6.3(1) to examine the land units (LU).

**Alternative 1:** To cultivate the land with rice, maize, soybean, and groundnut. Rice could be planted in LU1 of parcel 4, LU2 of parcel 2, or LU2 of parcel 3. The crops would be cultivated in rotation; however, the execution of this alternative depended on the availability of water. If the rain was heavy and there was enough water, Sabar and Poni could carry their plan through. Cultivating maize would not be a problem. It could be planted twice: during both the *rendengan* and the *lemarengan* in LU2 of parcel 1 and parcel 2. Additionally, soybean could be planted in LU2 of parcel 2 or in LU2 of parcel 3, but not in LU3 of parcel 4 due to stony soil and flooding. Soybean fetched a good price at the market but could only be planted once a year; it also required considerable amounts of fertilizer and its seed was very expensive (800 to 900 rupiahs per kilogram). Groundnut was another potential option. It could be planted either in LU2 of parcel 2 or in LU2 of parcel 3 but would require a lot of fertilizer. Seeds, too, were expensive: 600 to 700 rupiahs per kilogram. Although the price of groundnut at the local market had always been good, growing the crop was time consuming because the soil had to be well prepared and weeded several times in the course of the crop's cycle. Moreover, it would be more difficult to harvest because of the soil type: the soil is sticky when wet and hard when dry. According to Pak Sabar, the crop gradually makes the soil infertile.

**Alternative 2:** To cultivate the land with maize, sweet potato, and cassava. Maize could be cultivated in LU2 of parcel 1 and parcel 2 and could be planted during both the *rendengan* and the *lemarengan* seasons. Sweet potato could be cultivated in LU2 of parcel 2, but not in parcel 3 and parcel 4. Finding seeds for sweet potato did not present a problem. Unlike cassava, however, Sabar's and Poni's family would not be able to consume the entire production; therefore, some of it would have to be sold. The price for sweet potato was low in comparison to maize and cassava. Bu Poni pointed out that they would have serious problems storing sweet potatoes because they tend to rot after one month. According to Sabar, the crop was not drought resistant and, like groundnut, would gradually make the soil infertile.

**Alternative 3:** To cultivate the land with maize, cassava, cowpease, tobacco, and sugarcane. Maize could be cultivated during both the *rendengan* and the *lemarengan* in LU2 of parcel 1 and parcel 2. Meanwhile, cassava could be cultivated in several plots on LU2 of all parcels. Cowpease and tobacco could be planted on plots on LU2 of parcel 2 or LU2 of parcel 3; however, these crops could only be planted during the *lemarengan* season and not during the *rendengan* season, because prolonged, heavy rains would rot the stumps of the cowpease and the young leaves of the tobacco. Sugarcane could be cropped during the *rendengan* season on a

certain plot on LU2 of parcel 1 (intercropped with maize) and in LU2 of parcel 2. Acquiring seedlings for sugarcane or marketing sugarcane would pose no problems. Cultivating the land with this crop, furthermore, would yield higher returns on Sabar's and Poni's efforts in comparison to rice, maize, cowpease, and cassava.

### **Making the decision and implementing it**

Having compared alternatives 1 and 2 with alternative 3 Pak Sabar and his wife found the last alternative to be the most feasible cropping strategy. The question is, what was the rationale underlying the decision to implement alternative 3?

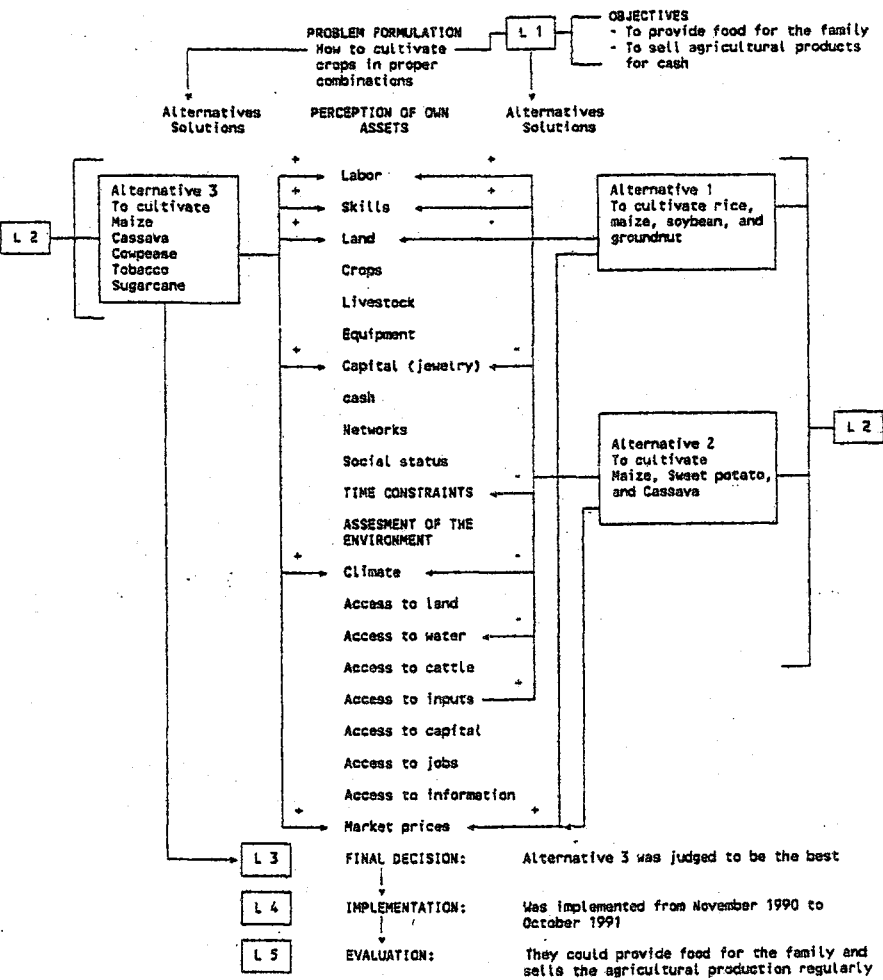
In the beginning, Sabar and Poni had problems providing staple food for their family. Since 1980, however, they had been able to overcome these problems. In 1990, for instance, not only could they grow food crops, but also cash crops such as sugarcane. This played a significant role in increasing their income. To ensure that they did not encounter any problems during the off-season periods, they always planted various food crops so that if a certain crop failed, they could still expect production from other crops. Adopting this strategy enabled them to provide their family with food on the one hand and to sell some of their production for cash on the other.

As a result of the decision made in October of 1990 the following cropping strategy was followed from November of that year to October of 1991: During the *rendengan*, they grew a hybrid variety of maize, two local varieties of cassava (*malam* and *cecek*), and the 32 variety of sugarcane in LU2 of parcel 1. In LU2 of parcel 2, they grew maize, cassava (*sembung*, *nyonya*, and *cecek* varieties), and sugarcane. In LU2 of parcel 3, they cultivated their land with cassava only (the *sembung*, *montro*, and *cecek* varieties). In LU2 of parcel 4, they grew various local varieties of cassava such as *karbu*, *montro*, *sembung*, and *cecek*. During the *lemarengan*, however, they cropped maize in LU2 of parcel 1, maize, tobacco, and cowpease in LU2 of parcel 2, and cowpease and tobacco in LU2 of parcel 3. During the *ketigo*, the family waited for the harvest of their cassava and sugarcane.

### **Concluding remarks**

The decision-making process regarding cropping has been systemized in Schedule 5.6.4(1) according to the decision-making model described in Chapter 2. The main objective of Sabar and his wife during their decision-making process was to provide enough food for their family and to market some of their crop production. They realized, however, that they had a problem after they had compared their objective to the resources (assets) they had at their disposal (L1). In an attempt to solve their problem, they considered three alternatives. They then compared the conditions necessary to realize each alternative (labor, skill, and soil) to the resources available

Schedule 5.6.4(1): Decision-making process regarding cropping strategy



to them and to their environment (e.g. access to water, inputs, and market) (L2). Their line of reasoning finally led them to adopt alternative 3 as the most viable cropping strategy (L3). The decision was then implemented (L4). By adopting this alternative, Sabar and Poni could provide enough food for the family and could sell some of their agricultural products on a regular basis.

### Decision-making processes regarding the sale of a cow

In July of 1991 Pak Sabar and Bu Poni sold one of their heads of cattle for 500,000 rupiahs. The question is, what was the rationale behind the decision to sell the cow?

In the second week of July, Sabar and Poni needed 1,250,000 rupiahs immediately in order to pre-pay the rent on a piece of land they were going to rent. It seems that one of their neighbors, Pak Yadi, approached them on the first of July and asked whether they were interested in renting 0.300 hectares of land from him for six years for 1,500,000 rupiahs. The land was located in the hamlet Sawahan, a neighboring village of Putukrejo. It just so happened that Sabar and Poni were thinking about undertaking such a venture at that moment; however, they did not have such a large amount of cash. The situation was urgent because Pak Yadi's daughter was going to be married in the second week of October and he needed money to pay for her wedding ceremony. When Yadi made Sabar and Poni the offer, the land was still cultivated with sugarcane. This meant that it could not be handed over until November of 1991 after the crop was harvested.

After discussing the matter with his wife (rather intensely), Sabar told Yadi that he would take him up on his offer provided that Yadi accept 1,250,000 rupiahs and that he accept payment in instalments. If he agreed, Yadi would receive the first instalment during the second week of July and the second at the end of October of 1991 after Sabar and Poni had received money from selling their sugarcane. When Yadi agreed to these conditions, Sabar and his wife then considered the following alternatives in order to raise the money for the first instalment.

**Alternative 1:** To sell their agricultural production. Sabar proposed this option. Poni categorically rejected this after making a few calculations. At the time, only some of their coconut trees were producing a crop and it was just enough for home consumption. Moreover, their *parkia spiciosa* trees were not yet producing anything. Selling dried cassava flour and grain maize was one possibility, but the money they got would still not be enough to cover everything they would need. At most, Bu Poni said, they might get 150,000 rupiahs; besides, if they took this course of action there would be no *pedaringan* (food stock) left for the family, which would mean trouble. Selling the sugarcane was also possible, but Poni pointed out that the crop was not mature enough to harvest. True, some middlemen would still be willing to buy it, but the value of the crop would drop. It would be better, therefore, if they waited until the crop was mature enough to harvest so that

they could get the highest price the market was offering at the time. According to Bu Poni, this option was too risky to be regarded as a feasible course of action.

**Alternative 2:** To borrow money from their daughter, Suwarni, who works in Malang. Bu Poni proposed this suggestion, bearing in mind that their daughter had always saved her money in the form of gold earrings or gold rings. If their daughter was willing to sell her gold jewelry, it would solve their problem; however, Sabar rejected this idea because it meant that they would be exhausting their daughter's wealth.

**Alternative 3:** To borrow money from a money lender. This was Sabar's suggestion. Poni rejected this solution because interest rates were high and she did not want to be trapped in a debt they could not get out of like some of their neighbors. According to her, this option was too risky to be taken seriously.

**Alternative 4:** To sell one head of their cattle. Both Pak Sabar and Bu Poni put this suggestion forward. At that time they had two heads of cattle of their own. Both Pak Sabar and Bu Poni thought that they could sell one of their cows to a neighbor, Pak Sudikin, for 500,000 rupiahs. They chose to sell a male. Selling the animal meant that they would neither have to borrow money from their daughter or from a money lender, nor would they have to sell their food stock and sugarcane before the crop was mature enough to be harvest.

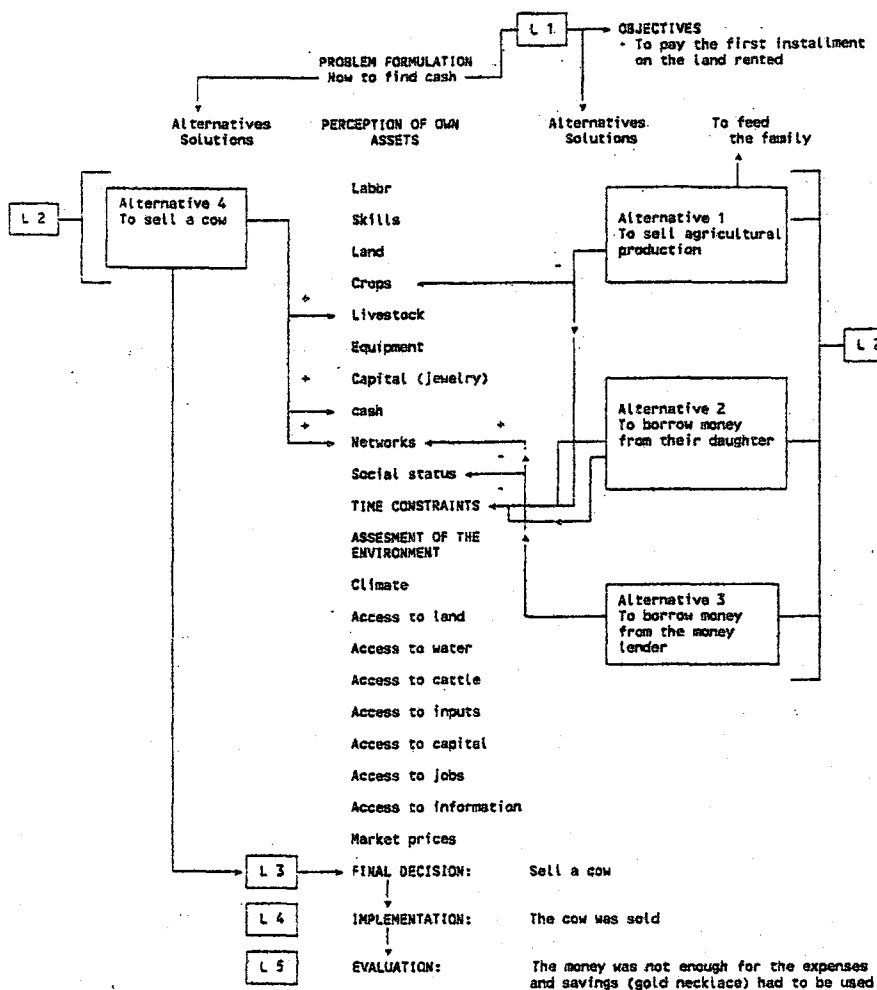
### **Making the decision and implementing it**

After considering and comparing alternatives 1, 2, and 3 Pak Sabar and his wife decided that the last alternative was the most feasible one. During the second week in July of 1991, the cow was subsequently sold for 500,000 rupiahs; however, this did not entirely solve the problem because it did not cover the costs of the first instalment; therefore, Bu Poni sold a gold necklace she acquired in January of 1991 for 200,000 rupiahs. She and Sabar then paid the second instalment of 550,000 rupiahs to the landowner after the sugarcane was harvested in late October of 1991. This final instalment covered the debt of renting the land.

### **Concluding remarks**

The several steps of the decision-making process with regard to the cow have been systemized in Schedule 5.6.4(2). The difference between this decision and the other two types of decisions discussed in this section is that here there was an emergency. The decision had to be made within a short time and, consequently, all the alternatives had to be assessed at once; alternatives in the other decision processes could come forward gradually.

## Schedule 5.6.4 (2): Decision-making process regarding the sale of a cow



Initially, the main objective of Sabar and Poni in this decision process seemed to have been to pay off the rent of the land in advance. On examining more carefully the rationale underlying their decision to rent the land, however, it is obvious that they wanted to use the rented land to accumulate capital. When they compared the costs needed to rent the land with the resources available to them, however, they knew they had a problem (L1). (Striking to this instance is the strong bargaining position they were in when dealing with the land owner.) The couple then considered four alternatives to solve the problem. The consequences inherent to each alternative were then compared with the resources which the couple thought were available to them (L2). This eventually led them to decide to sell one head of cattle (L3). The decision was then implemented (L4), but it did not solve their problem; consequently, Poni sold her gold necklace and, much later, she and Sabar sold one harvest of sugarcane to raise the money they needed.

### Decision-making with regard to off-farm and non-farm activities

Sugiono and his younger brother Suwito were always involved in off-farm and non-farm activities because they needed money to cover the cost of their daily expenses. As mentioned in section 2.6, Sugiono ploughed fields and cut sugarcane (an off-farm activity) and Suwito worked as a sawyer (a non-farm activity) and as a sugarcane cutter (an off-farm activity).

These activities were neither chosen at random nor in a pre-attentive way, but were selected after they had discussed several alternatives which, in their eyes, were relatively open to each of them. I list and discuss these alternatives below. Apparently these decisions were made several years ago, but were explained to me in 1990.

**Alternative 1:** Working outside the village was an option both of them took into consideration. Sugiono could work somewhere in Malang as a noodle soup seller, while Suwito could work as an ice seller. Some of their friends from the village had also done this kind of non-farm activity. Both Sugiono and Suwito had discussed such topics with their friends and they would have been pleased to introduce them to a *juragan* (a wholesale trader). No special skills were needed here, because they could learn the job simply by doing it. Important was the labor they would be providing. The capital and equipment required (e.g. handcart) would be provided by the *juragan*. When they discussed these ideas with their parents, however, they met with resistance because they were needed on the farm to work in the field and to collect forage for the animals. Their father simply could not do these things along any more. Sabar did not mind that they took on other work, as long as it was in the village. Poni reminded Suwito that his efforts in the district of Tulung Agung one year ago yielded him very little. She tried to convince him still further by



saying that work outside the village was not always so good and not as easy it looked. This option, therefore, was not viable.

**Alternative 2:** To work as a sawyer. Pak Sabar suggested this option. Pak had said that he would help them get such work if his sons were really interested. He told them that he would ask their uncle, Saidi, if there was room for them in his sawmill business. This, Sabar said, would give them a high return for their labor. As a sawyer in a village, they would still be able to help their parents in the field. Suwito thought he could handle the job because he had the skills and the knowledge. He could also use the vertical jigsaw his parents recently bought. For him, working at the sawmill was a viable option. Sugiono, however, did not want to take such a step because he knew nothing about the business. For him, his uncle's sawmill was not a viable option.

**Alternative 3:** Working in the village as a sugarcane cutter was also another option. Both sons thought that they could land such a job because no special skills were needed. Moreover, as sugarcane cutters, they would be able to collect as much sugarcane leaves as they needed in order to feed their animals. This would solve the problem of forage for the animals during the off-season. Both men understood that their labor was not enough for this business; it was also important to have personal contacts with the owners or with the *penebas* (the middlemen who buy crops when they are still in the field) and to belong to a *kelompok penebang* (sugarcane cutter group). The last requirement was not so difficult because they could either set one of these organizations up themselves or they could join an existing one. They also thought that they could use their father as a mediator because he was good friends with the owners. With his help, they were sure that some of the owners would be willing to take them both on.

**Alternative 4:** To plough fields for farmers in the village. Sugiono proposed this option. Suwito, however, did not want to take this kind of work because he thought it was a bit complicated and he did not have his brother's skill in ploughing. In his mind, this was not a viable option for him. Sugiono, on the other hand, thought he could do such work because he acquired the skill and experience from helping his father in the field. If he took this option, furthermore, he would not have to leave the farm and could expect 2,000 to 2,500 rupiahs, a meal, and cigarettes for working between 7:00 am to 11:30 am. When he was finished ploughing, he could then help his father collect forage or nurse the crop.

### **Making, implementing, and evaluating the decision**

After carefully comparing the alternatives, Sugiono decided to choose alternatives 3 and 4 as the most viable course of action to take, whereas his younger brother

chose alternatives 2 and 4. The main reasons for these decisions have already been mentioned but will now be phrased in the words of Sugiono and Suwito. Sugiono, accompanied by his wife, stated his reasons as such:

*My wife and I knew that we would not have any problems feeding our family because we knew that my parents would help us; however, we realized that food was not the only necessity, but that there were many other basic requirements such as clothes and furniture which we would have to provide for ourselves. Like others in the village, we also wanted to be able to participate actively in our community: e.g. to attend ceremonies held by good friends or by relatives. The fact is, I could not fulfil all of my social obligations if I did not do off-farm and non-farm work. Moreover, my wife had a one-and-a-half year old baby that was breast feeding. This meant that she could not be an active income earner in the family as she previously did.*

According to Suwito:

*I did not have any problem with food because there was always enough of it at home. I could eat three times a day if I wanted. As a single young man, however, I had several other basic needs and I could not depend on my parents to provide them. If I did not do any non-farm work at the sawmill or as a sugarcane cutter I would hardly realize my personal goals. Let me give you some examples: With the money I earned myself I could buy my own clothes, buy cigarettes, or enjoy the company of my friends. More importantly, I felt rather free from my parent's control because I decided how to spend the money I earned.*

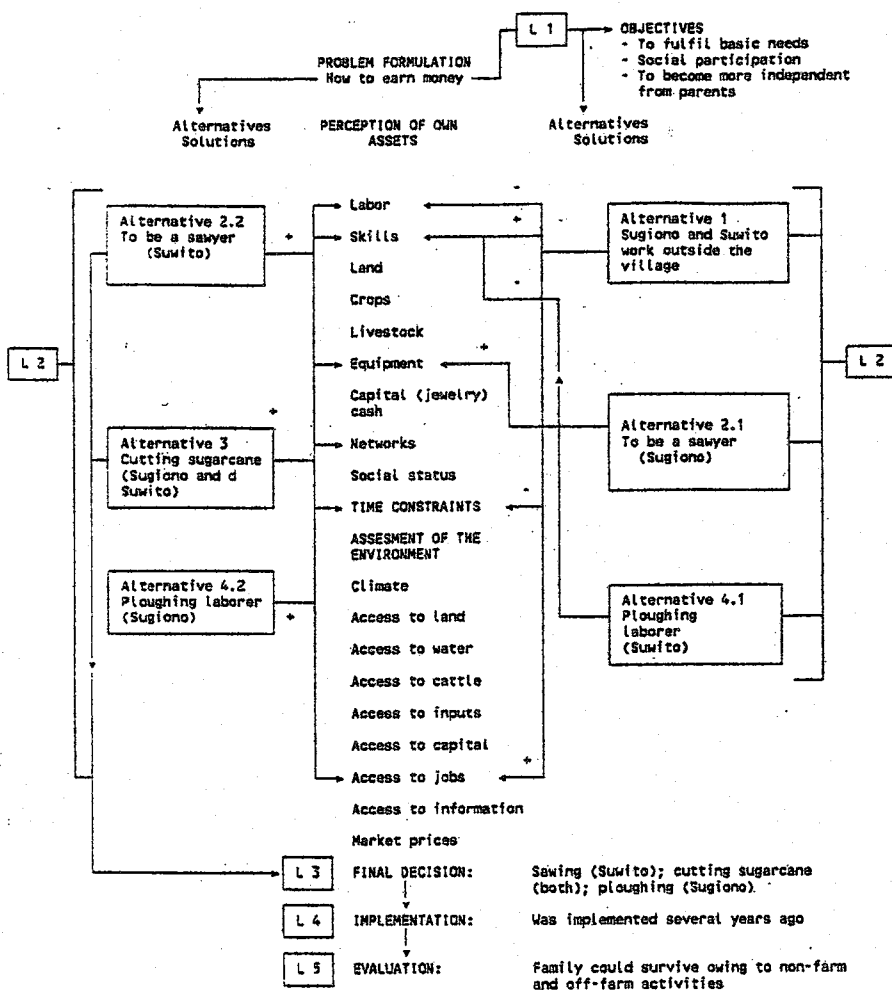
For both Sugiono and Suwito, non-farm activities were necessary for survival and were therefore an important activity implemented regularly. They hoped that they could satisfy what they saw as certain, basic needs by performing non-farm activities.

### Concluding remarks

The decision-making process regarding non-farm activities has been systemized in Schedule 5.6.4(3). The problem here is obvious: there is not enough income from their farm to provide for the basic needs of certain family members (L1). At first sight, it may seem as if the two brothers, Sugiono and Suwito performed their off-farm activities in a pre-attentive way; however, from the decision-making process described above, it is obvious that various options had been considered carefully, particularly in the beginning (L2). It is interesting to see the role that the father, Sabar, played. Quite obviously he helped his sons formulate the problem and get access to the type of non-farm activities that were chosen. The two young men compared the alternatives they thought they had available to them and compared

them with the resources they thought they had under their control: e.g. labor, skills and equipment. The preparation and implementation of the activities eventually took place in a daily routine (L3 and L4). As mentioned in section 5.2.3, the importance of these activities would seem to be diminishing as their parents' farm develops.

Schedule 5.6.4 (3): Decision-making process regarding non-farm activities



## 5.7 A Case study of the household and farm of Pak Matori

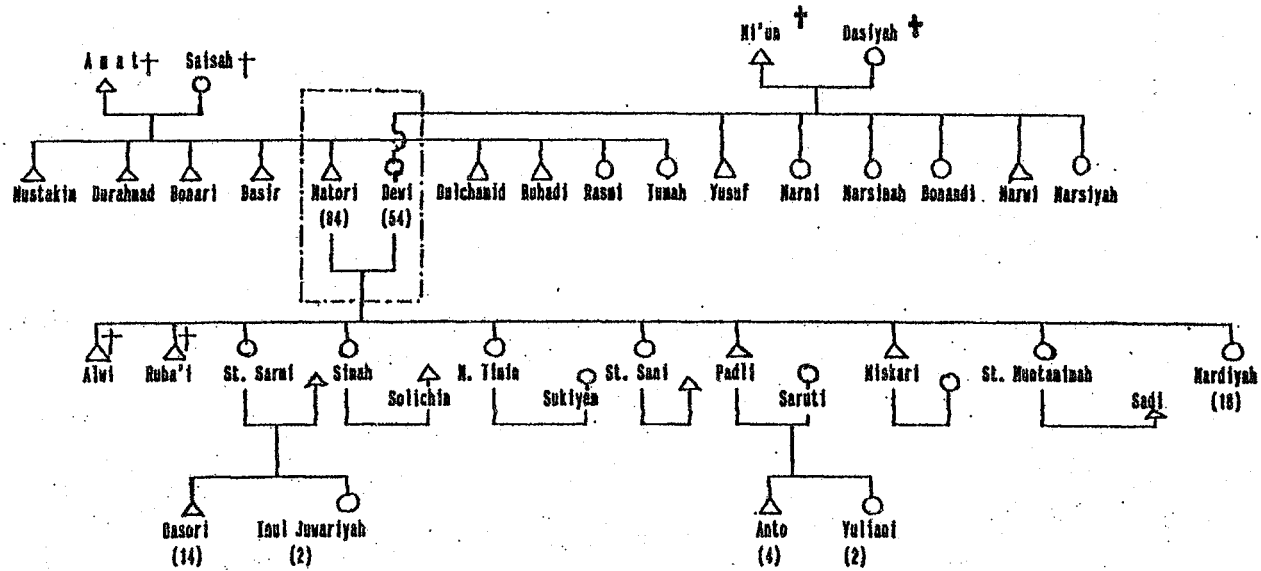
### 5.7.1 Family background of the farmer and his wife

Pak Matori was a Madurese farmer in the *dusun* Krajan in the *desa* Putukrejo south of Malang. He was born in Pitrang in 1916, in Kalipare, a *desa* neighboring Putukrejo, and was 74 years old in 1990. Matori's parents, Pak Amat and Bu Saisah, migrated from Sampang, Madura around 1890 and first worked as part-time laborers at a Dutch plantation, but eventually started farming on their own. They have been dead for some time, but left Matori with six other brothers and two sisters. (See the family tree of Pak Matori and Bu Dewi in Figure 5.7.1(1).) Matori learned how to farm from his father when he was about 16. Although none of his brothers or sisters were living in Putukrejo during my research, they still had regular contact with each other. Matori was illiterate but could speak both Bahasa Indonesian and Javanese fairly fluently. In his daily communication with relatives, however, he always used Madurese. When he was 10, his parents sent him to the Pesantren Boarding School for Muslims located in Kalipare in order to learn about Islam and to learn to read and write some Arabic.

Like many young men his age living in and around Kalipare during the Japanese occupation, Matori joined the Heiho from 1942 until 1943. (The Heiho was an irregular army which the Japanese established in order to defend Java in the event of an attack from allied forces.) During that year he married a woman from the same *desa*. Their marriage, however, lasted only four years and did not produce any children. After the Japanese surrendered to the allies, Matori joined the *Lasykar Mujahiddin*, a Muslim paramilitary group, from 1945 to 1948. Because of his involvement during the revolution of 1945, the Indonesian government honored him as a veteran and registered him as a member of the Indonesian Veteran Organization.

Matori's present wife, Dewi was born in Kalipare in 1936 and was 54 years old in 1990. Her parents, the late Pak Miun and Bu Dasiyah, came from Pitrang, Kalipare and were of Madurese origin. Dewi had two brothers and four sisters, but none of them were living in Putukrejo in 1990. All were landless farmers, each owning a house on a small, uncultivated piece of property. Their father used to make bamboo baskets and bamboo kitchen utensils of various types and sizes. He then sold these items either at the market in Kalipare or to a peddler who occasionally came to his homestead. At home, her mother partitioned her house and ran a *warung* (a tiny shop) where she sold various items for everyday use. Suffice to say that her parents' source of income was mainly derived from such on-farm and non-farm activity. Dewi claimed that she used to help her mother in the kitchen preparing and cooking food for her family members long before she married. Her father taught her how to make baskets from bamboo. On occasion, she, her brothers, and sisters helped her parents by bringing their baskets to customers at the Kalipare market. Dewi could not speak Bahasa Indonesian; however, she could read and write Arabic, because her parents sent her to a boarding school for Muslims

Figure 5.7.1 (1): Family tree of Pak Matori and Bu Dewi



Legend :

- |              |  |
|--------------|--|
| △ : Male     | [ : Brothers/sisters relations         |
| ○ : Female   | : Descent                              |
| ⊕ : Married  | † : Death                              |
| ⊗ : Divorced | □ : The actual member of the household |

in Kalipare when she was about 10 years old where she spent several years studying Islam. It was here that she met Matori. Eventually she and Matori married, though not without the permission of both sets of parents or of the *Kyai*, a Muslim teacher employed by the boarding school.

### 5.7.2 Development of the farm and farm household

#### How the farm was started

When Matori was young, his parents had several of their own parcels of land. This land, however, had been sold little by little either to meet their cost of living during the Japanese occupation and the revolution or to conduct the several wedding ceremonies of their children; consequently, neither Matori nor any of his brothers and sisters inherited sufficient capital or land in order to start their own farm. Several years after they married, Matori and Dewi were still landless. To survive, they decided to engage in crop sharing with other farmers in the village. During this time, they grew maize, soybean, and cassava. When water was available, they also grew rice. They claimed that the production they acquired from sharing was far from sufficient. They certainly did not have anything to sell. Matori and Dewi had no choice but to supplement their income by making bamboo kitchen utensils which they sold at the Kalipare market. In addition to his farming activities during the harvest of cassava and maize, furthermore, Matori also peddled fresh cassava and maize. Dewi bought the items from their neighbor and from their relatives at a low price. He then sold them to customers in other villages or in the capital city of the subdistrict, Kalipare. This enabled him to earn more than what he and family needed in order to survive. An overview of the stages of development of Matori's and Dewi's household and farm is illustrated in Schedule 5.7.2 (1).

Next to this non-farming activity, Matori and Dewi soon began to share cattle. They got their first break from one of Dewi's relatives. Sharing cattle soon enabled them to save some money; in fact, they had saved so much that they began to shop around for a piece of farmland. Initially they wanted land located in the *desa* where they originally came from, Pitrang, Kalipare; however, they could not afford any of the land there. They then walked 17 kilometers to Gondanglegi where relatives helped them find good farmland for a reasonable price. When they consulted with the *kyai*, however, they were told that this land was not their fate and, so, they decided not to buy it. The *kyai* suggested that they buy land in Putukrejo.

#### Stages of the household's development

Pak Matori had six daughters and four sons. Two of these children, however, died when they were less than a month old. (See the family tree of Pak Matori and Bu Dewi in Figure 5.7.1(1).) Except for his youngest child, the rest of his sons and

## Schedule 5.7.2 (1):

## Stages in the development of the farm and the household of Pak Matori and Bu Dewi

YEAR	Matori's Parents		Dewi's Parents			
	Pak Amat (Matori's father)	Mbok Salsah (Matori's mother)	Pak Mi'un (Dewi's Father)	Mbok Dasiyah (Dewi's Mother)		
	Both are farmers		Both are bamboo craftsmen			
1916	Matori is born					
1926	Matori is sent to a boarding school for muslims					
1936						
1942	Matori joins the HEIHO					
1943	Matori marries his first wife					
1946			Dewi attends boarding school for muslims			
1947			Dewi learns how to make bamboo utensils			
1950	Matori gets divorced					
1950s	Matori marries Dewi					
F A R M						
	LAND	CROP	LIVESTOCK	STABLE	EQUIPMENT	HOUSE
1955	- They work as farm labor in Kalipare - Matori works as cassava trader - Dewi makes bamboo baskets	They crop share in Kalipare	Cassava, maize, soybean rice	Share cow	- Hoe - Hooked stick - Axe - Ani-ani - Sickle	They build a bamboo house in Kalipare
1956	They migrate to Putukrejo  They buy parcel 1 and parcel 2	Parcel 1 (0.50 ha) and parcel 2 (0.40 ha) are bought	Coconut Jack fruit	They sell a cow they obtained from sharing		They reside in a bamboo house
1956/1987	They actively make bamboo utensils		Maize, soybean, cassava (empusono), rice (menthik urang) coconut, kapok, taro They stop cropping soybean cassava (empusono) cassava (sebak itam)			
1957						
1959	Siswah is born - she marries and lives in Putukrejo		Share cattle	A temporary stable is built		
1960		"Caker", lokal variety of maize is planted	The cattle is returned to the owner			
1961		"Tongkol", lokal variety of maize is replaced by caker lokal variety	Share cattle			
1961	Yimin is born - he marries and lives in Jakarta					
1962			share in a cattle			Some minor improvements are made
1963	Siti Sani is born - she marries and lives in Surabaya					

## Schedule 5.7.2 (1): continued

	LAND	CROP	LIVESTOCK	STABLE	EQUIPMENT	HOUSE
1964	Padli is born - he marries and lives in Jakarta Surabaya, and Madura selling noodle soup					
1967	Niskari is born - he marries and lives in Surabaya					
1969	Siti Muntanmah is born - she marries and lives in the desa Banduharjo					
1974	Hardiyah is born - she works in Surabaya					
1980		Coffee is planted in parcel 1				
1985/1988			Shared cow			
1987		Gnetum gnemon is planted Planted faroka and seaburg in parcel 1 Local varieties of cassava are planted Parkia spiciosa, avocado mangoes are planted in parcel 1	3 heads of cattle  They sell their cattle  They buy a female sheep			Klenengan house is built
1988	Matori's wife's illness occurs They stop making bamboo utensils					
1989			2 sheep 1 sheep is sold 1 sheep is sold			
April 1990						
December 1990						
October 1991						



daughters had married and formed their own household. When I did my research, the only household members left in the family was Pak Matori and his wife, Bu Dewi.

The couple's third born, Siti Sarmi, was 34 years old at the time. She dropped out of primary school when she was in the third grade. A couple of years later she married a Javanese man from the Madiun district who worked as a contract laborer at a construction project in Surabaya. She and her husband lived in a small, rented house in a crowded slum area somewhere in Surabaya. They had a boy 15 years old and a one-year-old baby. The boy, Basori, dropped out of the second grade of primary school when he was nine. Shortly after, he stayed with Matori's family; however, he left Matori's household in early 1990 and headed for Jakarta where he found work as a noodle soup seller.

Simah is Matori's and Dewi's fourth born. She was 34 years old when I did my research. She was illiterate because she dropped out of the second grade of primary school when she was approximately eight years old. She married a Madurese, landless farmer from Putukrejo when she was about 15. To make ends meet, Simah weeded fields and cut sugarcane leaves. Her husband hoed and ploughed land cultivated with sugarcane during the planting season. Simah and her husband lived a few meters from Matori.

Mohammad Timin was the first surviving male and the fifth born of Matori's children. He was 30 years old in 1990 and, like his sisters and brothers, he did not finish primary school; he quit when he was in the third grade. Eventually he married a Javanese woman from Putukrejo and had three children with her. They were living somewhere in south Jakarta during my research where they worked as noodle soup sellers.

Siti Sani was the sixth child born. In 1990 she was 28 years old. She dropped out of primary school when she was in the fourth grade. She, too, married and was living in Surabaya with her family at the time. Her husband was a laborer at a construction project. She herself ran a *warung* (small shop) from the front of her house. Before she married, she worked as a house keeper in Saudi Arabia for some eight months. She landed this job with the help of a middleman in Kalipare who often sends female workers overseas. Siti returned to Indonesia because her employer treated badly.

Padli, a 27 year old male, was Matori's and Dewi's seventh born. He dropped out of primary school during the third grade of primary school. In 1980, he travelled to Jakarta where he worked as a *bakul bakso* (noodle soup seller) for a year and a half. Realizing that he was not very successful at it, he then went to Surabaya in the middle of 1982 where he worked as a pedicab driver (*tukang becak*). He returned to Putukrejo in 1983 because Matori had arranged for him to marry a Madurese woman from the same village. From this marriage came two children. In May of 1991, Padli went to Madura and worked, again, as a noodle soup seller. His father helped him get this job via a friend of his, a noodle soup

*juragan* (whole sale trader) from the village who ran his business from somewhere in Madura. But nine days after having been hired, Padli returned home again claiming that the profit he earned was not worth the effort he put into selling his product. Still, in October of that year he tried to sell noodle soup in Jakarta still yet another time and, once again, he returned home one month later. After having failed at this several times, he finally decided to devote himself to establishing a farm of his own and to working as farm labor in the village.

Miskari was born next. Miskari was a 24 year old male who dropped out of primary school when he was about nine years old. He had been working for different employers as part-time labor since 1980 at some construction projects in Surabaya. His wife is a school teacher.

The family's ninth child was a girl, Siti Muntamimah, and was 22 years old in 1990. She dropped out of primary school when she was in the fourth grade. Eventually she married and had a daughter who was four years old at the time. Her husband is a farmer who shared a parcel of land which his parents owned. Muntamimah and her husband lived in Banduharjo, a village neighboring Putukrejo. To supplement their earnings from the farm, she and her husband made bamboo baskets for the market.

The youngest child was also a girl, Mardiyah. Maridyah was 17 years old at the time and, unlike her brothers and sisters, she *did* finish primary school. She was also unmarried. In 1990, she went to Jakarta and found part-time work at a garment factory. She quit the job after six months, however, and returned to Putukrejo. Two weeks later, she left her family for Surabaya where she was working as a house servant.

### History of the land

In the middle of 1956, Matori and Dewi sold their bamboo house in Pitrang and the cattle they had been sharing and subsequently migrated to Putukrejo. There they bought 0.90 hectares of land for 45,000 rupiahs. By and large the land was covered with scrub, though it also contained some perennials such as coconut, jack fruit, and teak trees which the former owner planted. Not long after they bought it, Matori and Dewi cleared most of the scrub and stones. After completing this, they cultivated the land with *caker* (a local variety of maize), soybean, and *empu sono* (a local variety of cassava) for their own consumption. When water was available, they also grew rice. With the extra room they still had, the couple cultivated local varieties of coconut and *kapok*. Dewi selected the seed for the maize and rice, helped with the planting, and weeded the fields. Matori prepared the land with his hoe alone.

Their land initially consisted of two parcels: parcel 1 was 0.50 hectares and parcel 2 was 0.40 hectares. Parcel 2, furthermore, was subdivided some years ago into four parcels for their heirs based on co-ownership. The legal status (*surat girik*) or

the property rights of the parcel, however, was still registered in Matori's name. Nonetheless, all the agricultural production obtained from this parcel (cassava and maize) went to those who cultivated it; therefore, the only land Matori and Dewi actually had under their control in 1990 was parcel 1. According to Matori, parcel 1 will also eventually be subdivided among the other heirs who had not yet inherited land from him.

### History of the crops

As mentioned earlier, Matori and Dewi started farming on their own in 1956 by growing maize, soybean, cassava, and, when water was available, rice (*urang* variety). In addition to these crops, they also cultivated *mbote* (taro) for their food stock. They planted the *mbote* in their home garden for the most part, because it was the kind of crop that could be grown easily anywhere on their land and would produce without fertilizer. Like cassava, they claimed, it was also drought resistant.

Between early 1956 and late 1959 Matori and Dewi cultivated a local variety of cassava called *empu sono*. During the rainy season of 1960, however, they grew another local variety of cassava called *sebik item*. A neighbor of theirs had provided them with the seedlings they needed. The couple used this variety because it kept much of its weight after it dried. It also tasted good when it was cooked. During the rainy season of the following year, Matori and Dewi changed the variety of maize they had been using. Instead of the *caker* variety, they grew the *tongkol* variety. Pak Mardi, a good friend of Matori's in Pitrang, gave the couple the seed for this crop. Matori was impressed with the production that could be obtained from the new variety. According to him, the corn was a little bigger than his usual maize; however, it was not as sweet as the *caker* variety and, therefore, his wife did not want to use it. As a result, they went back to the *caker* variety in 1961.

Matori and Dewi planted coffee trees for the first time in 1980 in their home garden. Among those they planted that year, however, only some grew well and bore beans. In fact, their coffee production was always so low that they used it only for themselves and for their guests. Sometime in 1987, they planted some *Gnetum gnemon* (*melinjo*) and, during the rainy season of 1988, they planted some local varieties of cassava such as *faroka*, *sembung*, *sebik item*, and *empu sono*. In early 1989, they planted some perennials such as *Parkia speciosa*, avocado, and mangoes, but these were not successful. In February of 1991, Matori bought some coffee seedlings at the Sumbermanjing market and planted yet more coffee on this same parcel; however, much of this died a couple of weeks later because it did not get enough water. Then, in May of 1991, with the help of their married son, Padli, Matori and Dewi sowed 50 kilograms of chili seeds and began cultivating *Capsicum frutescences* behind their house. Matori said that he was willing to grow chilly because it was easy to nurse and because of the good price it fetched. He and Dewi cultivated chilly in the same parcel once again during the rainy season of 1991.

The planting time of the crops was determined by the seasons and by the family's needs. According to Matori, there were three seasons: the *rendengan* (rainy) season, the *lemarengan* season, and the *ketigo* (dry) season. During the *rendengan* season, they always planted maize and cassava. During the *lemarengan* season, they cultivated maize and cowpeas. At the time of my research, their agricultural production was too low to use for anything else but their own consumption. They claimed that they could obtain as much as 150 to 200 kilograms of dried *tepung gaplek* cassava flour and 300 kilograms of grain maize only if they were lucky. Still, they very often had to sell off their food stock little by little because they needed money for other things. This often led to situations in which they then had to buy food for their own consumption. When planting food crops, Matori and Dewi never took market prices into consideration. There was no need: all the production had to be used for their own consumption.

### History of the livestock

When the research was taking place, Pak Matori and his family were only rearing sheep. Several years ago, however, they reared cattle through sharing. After having settled in Putukrejo for about three years, they reared a cow under the stipulation that the any calf born would be shared fifty-fifty. They acquired the cow from a neighbor of theirs, a Madurese man called Haji Misnatin. Because the animal was still not pregnant after having been served approximately seven times, it was returned to Misnatin in early 1960, though not without him having to pay 5000 Rupiahs of *uang kerugian* (compensation money). Matori and Dewi then agreed to rear another cow for Haji on the basis of sharing. They received the cow in 1961; it finally gave birth to a calf in 1964. When the calf was seven months old, Dewi requested a *susuk* of one-half the value of the calf from Haji. She and Matori used the money to buy some goats. Several months later, Dewi advised Matori to sell all the goats and to use the money to buy a young cow. They then bought a cow from Haji Misnatin. A few months later, however, they had to sell it because they needed money to pay for their daughter's wedding party.

In 1985, the family acquired yet another cow, though this time with the help of Pak Sabar. Pak Samut, a friend of Haji's, owned the animal. In 1987, this animal gave birth to two calves, one of which belonged entirely to Matori and Dewi because of the sharing arrangement. The mature cow and one calf was then returned to the owner. In 1988, however, Matori and Dewi sold their head of cattle to Pak Samut for 290,000 rupiahs so that they could pay Dewi's medical expenses.

After having saved some money as a result of working in the sugarcane fields and from working as a spiritual advisor, Matori bought a female sheep from one of his neighbors for 40,000 rupiahs in 1989. As time went on, the quantity of his and Dewi's sheep increased. Unfortunately, a newborn died for unknown reasons. By April of 1990, however, the family had two sheep. In December of the same year,

they sold one of these sheep to Haji Misnating for 90,000 Rupiahs and loaned it to their married son, Miskari, so that he could rent a parcel of farmland. In October of 1991, Matori and Dewi sold their last sheep for 97,500 rupiahs because they had to pay the doctor, buy fertilizer, and buy food. Quite clearly, sharing animals was a way for Pak Matori's family to save money. It was also convenient for them because animals could be sold easily at any moment when cash was needed.

### Non-farming activities

In addition to farming, off-farm and non-farming activities have also been important to both Matori's and Dewi's household: e.g. the production of bamboo baskets and bamboo utensils. In fact, some of their sons and daughter were also involved with this particular activity when they were young and unmarried. It was an activity from which the family could maintain regular earnings and with which they could purchase the items they needed for everyday use. Yet in addition to this activity and to his work as a spiritual advisor, Matori also cut sugarcane during the sugarcane harvest. All of these activities contributed considerably to the household.

Because of Dewi's rheuma and high blood pressure, she and Matori had to stop making bamboo baskets. Dewi had been to the hospital several times, but was never cured. Her illness ultimately affected their farming greatly. For instance, the family had to stop cultivating rice, and there was no one who could substitute her when it was time to plant and weed.

### Equipment

The family had several tools for farming, for off-farm activities, and for non-farm activities: two hoes, three big knives, a sickle, a hooked stick, an axe, and two *ani ani*. All of these tools were bought shortly after the family had started farming on its own.

### History of the house

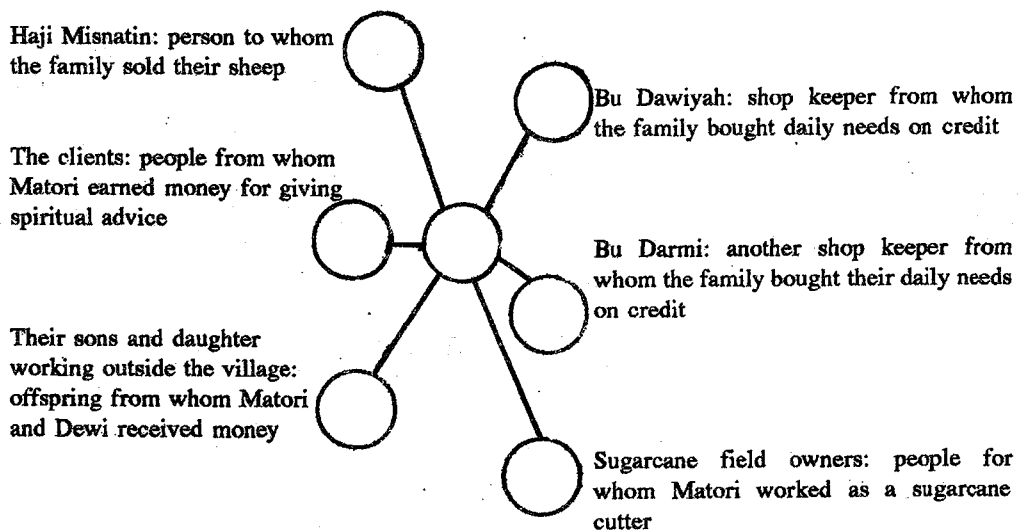
When Matori and Dewi started farming on their own in Putukrejo they lived in an old bamboo house on parcel 1. They themselves did not build this house; the former land owner did. In 1962 they made some minor improvements, but the house remained a bamboo house. When they were able to acquire enough money in early 1987, they renovated it and turned it into a kind of *klenengan* house; that is, they used brick only in minor parts of the wall and made most of the walls from wood. The floor of the house was cemented. According to Matori, it took them 15 days to build the house during which time 30 persons, mostly neighbors and relatives, helped without seeking any payment.

The house had two rooms and was furnished with a small table, four wooden chairs, an old wood coach, a bamboo coach, a cupboard made of local wood, and an old wall clock. Except for the wall clock, they purchased all the furniture when they married. They did not have any electricity and so used a hanging kerosene lamp for light. The kitchen was situated at the back end of the house. They used wood as their fuel to cook with.

### Social relationships and social status

Figure 5.7.2(1) shows the social network Pak Matori used in his income earning activities. Clearly family relations, neighbors, and traders played an important role. He and his family had good relations with their neighbors, and everyone helped each other when it was needed: e.g. when houses needed to be built. His married sons and daughter who worked outside the village also helped him and Dewi by providing them with clothes and money. Pak Matori was a member of a *kelompok pengajian*, a group that met to read the Koran. He was also a member of the Indonesian Veterans Association, but did not participate in it actively. Before she became sick, Dewi participated in an *arisan* for women in the hamlet.

Figure 5.7.2 (1): The Social Network of Pak Matori used for generating income



### 5.7.3 Summary of the position of farm and household in 1990

Before analyzing in more detail the processes of decision-making concerning some important activities of Matori's family, a summary is given of the situation of the household and the farm.

### **The household's composition and the labor force**

When the research took place in 1990, the family consisted of Pak Matori 74 years old and his wife, Bu Dewi, 54 years old. Within the context of my research, this means that the household had 1.5 labor units. This figure, however, is too high given that Matori was the only one who could carry out farm activities and non-farm activities. Owing to Dewi's poor health, then, it is more reasonable to assert that the farm had only one labor unit at its disposal.

### **Land units and the location of parcels**

Matori and Dewi had one parcel of land 0.50 hectares in 1990. All of the land belonged to LU2, meaning that the soil was of a reasonably good quality. (See Table 5.7.3(1) and Map 5.7.3(1).) The family lived in a house on the parcel indicated there.

Table 5.7.3 (1): Land units and land tenure in 1990

Land Tenure	Parcel	Land Unit (LU)	Area in Ha	Sub Total
Owned	1	2	0.28	0.50
		2	0.22	
Total				0.50

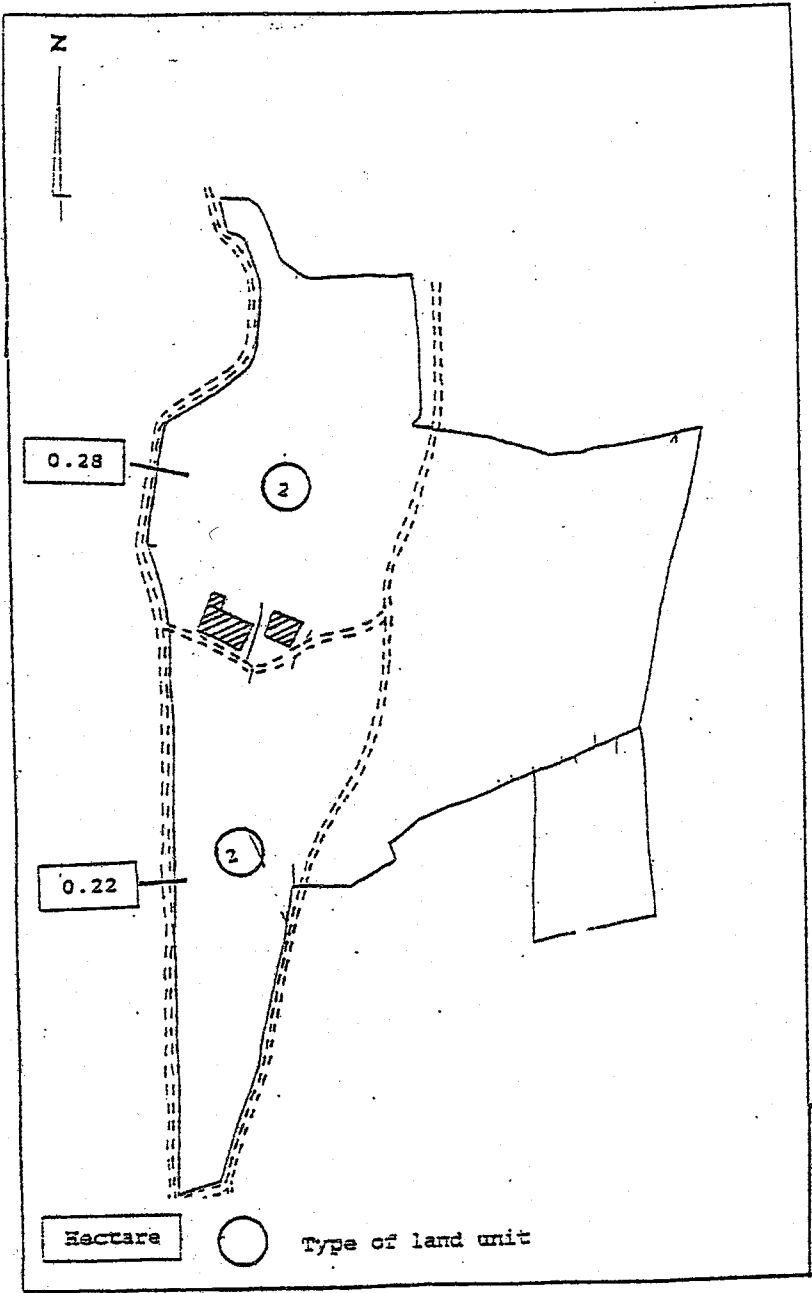
### **The land use**

Map 5.7.3(2) shows how the land was used in 1990. Around the house was a home garden containing a mixed cropping and trees. The land was not managed well: i.e. many parts of the parcel were overgrown with scrub. The land situated north of the house was used for a mixed cropping of maize, cassava, and cowpease and was subject to flooding during the rainy season. The land south of the house was planted with cassava and taro. The family's production of annual crops were used mainly for home consumption.

### **The livestock**

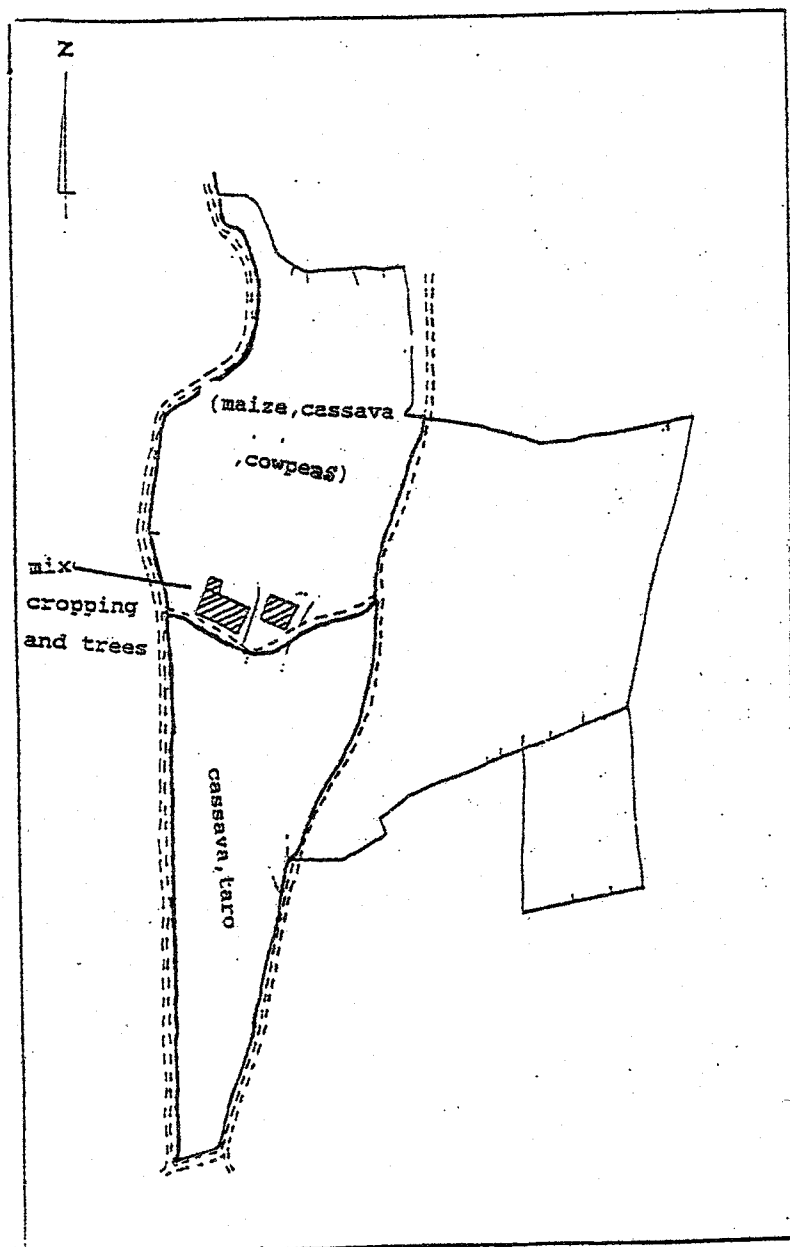
After Matori and Dewi shared a few heads of cattle with their neighbors in early 1990, the family came to own two sheep. In December of 1990 they had to sell one of these sheep; in October of the following year (1991) they had to sell the other.

Map 5.7.3 (1): Location of parcels and land units





Map 5.7.3 (2): Land use in 1990/1991



## Off-farm and non-farm activities

The income of the farm and of the livestock was hardly enough to provide for the needs of the household. Therefore, at 74, Pak Matori was forced to undertake off-farm and non-farm activities as a sugarcane cutter and as a spiritual adviser.

## The income

Table 5.7.3(2) indicates the household's sources of income between October of 1990 and October of 1991. The total incomes reported at the right hand side of this table are denoted in amounts after initial expenditures have been deducted (value added). This information must be used with care because it has been obtained via a survey. Nonetheless, it does give an impression of the economic position of the household.

Obviously the family's largest source of income was derived from off-farm activities, from non-farm activities, and from selling sheep. Its efforts to cultivate annual and perennial crops did not have an impact on their income. Clearly Pak Matori and Bu Dewi were poor.

Table 5.7.3 (2): Pak Matori's sources of income in 1990/1991

Month	Income					Total income
	Food Crops	Other seasonal Crops	Perennial Crops	Non Farm	Livestock	
Oct '90	0	0	0	0	-4,500	-4,500
Nov'90	0	0	0	14,025	0	14,025
Dec'90	-10,585	0	0	36,100	90,000	115,515
Jan '91	0	0	0	32,250	0	32,250
Feb'91	0	0	0	0	0	0
Mar'91	0	0	0	0	0	0
Apr'91	0	-675	0	2,000	0	1,325
May'91	0	-675	0	9,000	0	8,325
Jun '91	0	0	0	13,000	-500	12,500
Jul '91	0	0	0	0	0	0
Aug'91	0	0	0	22,000	0	22,000
Sep '91	0	0	0	60,000	0	60,000
Oct '91	0	0	0	0	97,500	97,500
	-10,585	-1,350	0	188,375	182,500	358,940

Source: INRES IFHS, 1990/1991

### 5.7.4 Some decision-making processes

#### Introduction

Three types of decisions are analyzed below. The first pertains to the annual crops that should be planted. The second centers around the sale of a sheep. The last decision regards the type of off-farm or non-farm activities that the couple chose to engage in. My purpose in analyzing these matters was to discover the main arguments and motives behind the decisions that were taken and to see how these arguments were used in the decision-making process.

#### Decision-making regarding the cropping strategy

Below are listed the alternatives that Matori and Dewi considered in regard to their cropping strategy. These decisions were made in the period of October of 1990 and implemented between November of 1990 and October of 1991. They were determined by the household's needs through the course of the year (the objective), the family's capital, the labor units available to it, the view that farmers in this area have about the seasons, and the types of soil available to them. See Table 5.7.3(1). You can consult Map 5.7.3(1) to examine the land units (LU).

**Alternative 1:** To cultivate some plots with soybean, maize, cassava, and groundnut. Matori and Dewi considered growing maize and cassava during the *rendengan* (rainy) season. If the rain was not so heavy they could cultivate soybean. Groundnuts could be planted during the *lemarengan* season because then the soil was usually relatively dry and therefore suitable for growth. Matori and Dewi had the knowledge needed to cultivate the crop. They would, however, encounter problems if they were to grow soybean and groundnut. Obtaining seed for maize and cassava did not present any problems, but the seed for groundnuts and soybeans did: they were expensive. The price of groundnut was good in the market, but the family needed more staple food. Moreover, the land where the groundnuts were to be planted had to be well prepared. And even when growing groundnuts was possible, it would be difficult to harvest the crop because of the soil type (clay loam soil). This soil is sticky when wet and hard when dry. Matori's age did not help matters here, and Dewi's health prevented her from helping him. Cultivating soybean and groundnut was also time consuming. Because the largest part of their land (located at the back of their house) was often flooded during the *rendengan* (rainy) season, the soybean seed and the groundnut seed would decay - something they experienced once before.

**Alternative 2:** To cultivate rice, cassava, and maize. Pak Matori suggested that these crops could be planted almost simultaneously during the *rendengan* season.

During the *lemarengan* season they could then cultivate a second maize crop. This strategy would provide them with sufficient food. Dewi, however, did not agree. True, she argued, planting maize and cassava in this fashion would not present a problem; the rice, however, was a different story. It was not so much the soil type or the price of the seed that would give them difficulties, but the complicated and time consuming activities involved in cultivating the rice: e.g. preparing the seed bed, planting the seed, nursing the crop, and weeding it. Normally, Dewi performed these functions; however, her illness prevented her from carrying them out.

**Alternative 3:** To cultivate maize, cassava, taro, and cowpease. Dewi proposed that they intercrop maize with cassava. First, acquiring the seed for maize and cowpease would not present a problem, nor would it be difficult to find the seedlings for cassava. In fact, they could use the maize seed and the cassava seedlings from last year's harvest. If for some reason they did not have maize seed of their own, they could buy it any time from a neighbor of theirs or from a nearby shop. Moreover, marketing the cowpease would not present a problem either because traders at the market in Banduharjo would be willing to buy it. The cowpease could be planted during the *lemarengan* season when less rain fell and could be cultivated together with the second maize crop. Cultivating these two crops would not be as time consuming as, say, rice or soybean. It was also something that Matori could do by himself. Homeyard manure mixed with sheep manure could be used to fertilize the soil.

Additionally, maize could be planted twice a year: once during the *rendengan* season and once during the *lemarengan* season. This would give them the food they needed. As for the *taro*, Dewi argued that it could be planted under most any circumstances because, like cassava, it was drought resistant. They would not even have to buy the seed for it because they could find it easily somewhere around the homestead. Moreover, no fertilizer would be needed for the crop except for homeyard manure. When their food stock of grain maize and dried cassava flour was finished, taro could also be used as a substitute. When the water supply was less abundant, Dewi and Matori figured they could cultivate cowpease. The advantage here was that the seed was inexpensive, and they had experience nursing the crop.

### **Making the decision and implementing it**

After considering and comparing alternatives 1, 2, and 3 Pak Matori and his wife decided that the last alternative was the most feasible one. Because Dewi was in poor health it was impossible for her to be actively involved in the day to day operations of the farm; consequently, the household faced a food shortage during the off-season periods. In addition to the local variety of maize they grew, then,

they also had to plant various varieties of cassava so that they would at least have some kind of agricultural production in the event that their maize or cowpease failed. By adopting this intercropping strategy, they hoped that they would be able to provide themselves with enough food throughout the course of the year.

As a result of the decision made in October of 1990, the following cropping strategy was followed from November of that year to October of 1991: During the *rendengan* season Matori and Dewi grew the local, *goter* variety of maize and various local varieties of cassava. They also grew *mbote* (taro). During the *lemarengan* season, they cultivated a second crop of maize and cowpease. During the *ketigo*, they waited to harvest their cassava, which was usually done during the second week of August. Finally, they usually harvested their *mbote* (taro) when their food stock at home was getting low.

### Concluding remarks

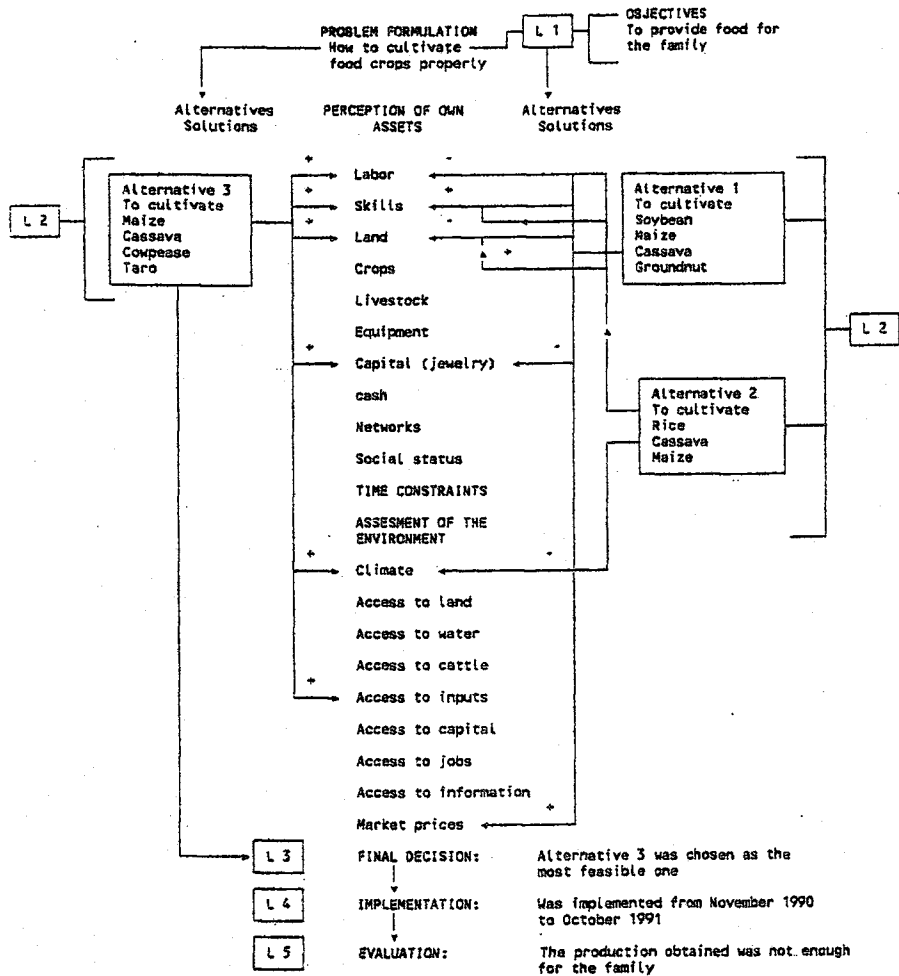
The decision-making process regarding cropping has been presented in Schedule 5.7.4(1) according to the decision-making model described in Chapter 2. The main objective of Matori and his wife during their decision-making process was to provide enough food for their family. They realized, however, that they had a problem after they had compared their objective with the resources (cash and labor) they had at their disposal (L1). In an attempt to solve their problem, they considered three alternatives. They then compared the conditions necessary to realize each alternative with the resources available to them (L2). Their line of reasoning finally led them to adopt alternative 3 as the most viable cropping strategy (L3). The decision was then implemented (L4). They soon saw that their solution did not solve their problem: The production obtained from the cassava and the maize was far from enough to provide them with what was needed for their consumption; therefore, they had to buy staple food from a shop keeper on credit.

### Decision-making regarding the sale of a sheep

In October 1991 Pak Matori and Bu Dewi sold one of their sheep for 97,500 rupiahs. The question is what were the main reasons for making such a decision?

In early October of 1991, the family needed 97,500 rupiahs to pay the doctor for treating Dewi and to pay for medicine which Dewi needed for her rheuma and high blood pressure. They also needed 50 kilograms of chemical fertilizer and some food. Matori and Dewi, however, did not have that much cash and, therefore, considered the following alternatives in order to raise the money needed.

Schedule 5.7.4 (1): Decision-making process regarding cropping strategy



**Alternative 1:** To sell their agricultural products. Matori thought that he and Dewi could sell their maize and cassava; however, Dewi considered this unrealistic because there was only enough food for their own consumption. This option, then, was considered too risky and, even if successful, would still not raise enough money to cover their expenses. Selling coffee was also impossible because their trees were not ready to harvest.

**Alternative 2:** To borrow money from Bu Dawiyah and Bu Darmi, two shop keepers nearby their homestead. Dewi proposed this suggestion to Matori but Matori rejected it because he had already bought some items from them on credit several weeks ago. He felt he could not ask for another loan before paying back the initial one. He was also afraid of creating too large a debt; consequently, he considered this option too risky.

**Alternative 3:** To borrow money from their son and daughter. Matori made this suggestion, but Dewi rejected it because their children had already sent them money the previous month. Moreover, their sons and daughters were also poor and had to take care of their own families.

**Alternative 4:** To sell their sheep. Both Matori and Dewi put this suggestion on the table. Although they realized that this was the only resource they had and that they would not have any resources once they sold it, it was still their best option given the situation. They hoped that they would be able to save some money in the future in order to buy another sheep.

### **Making the decision and implementing it**

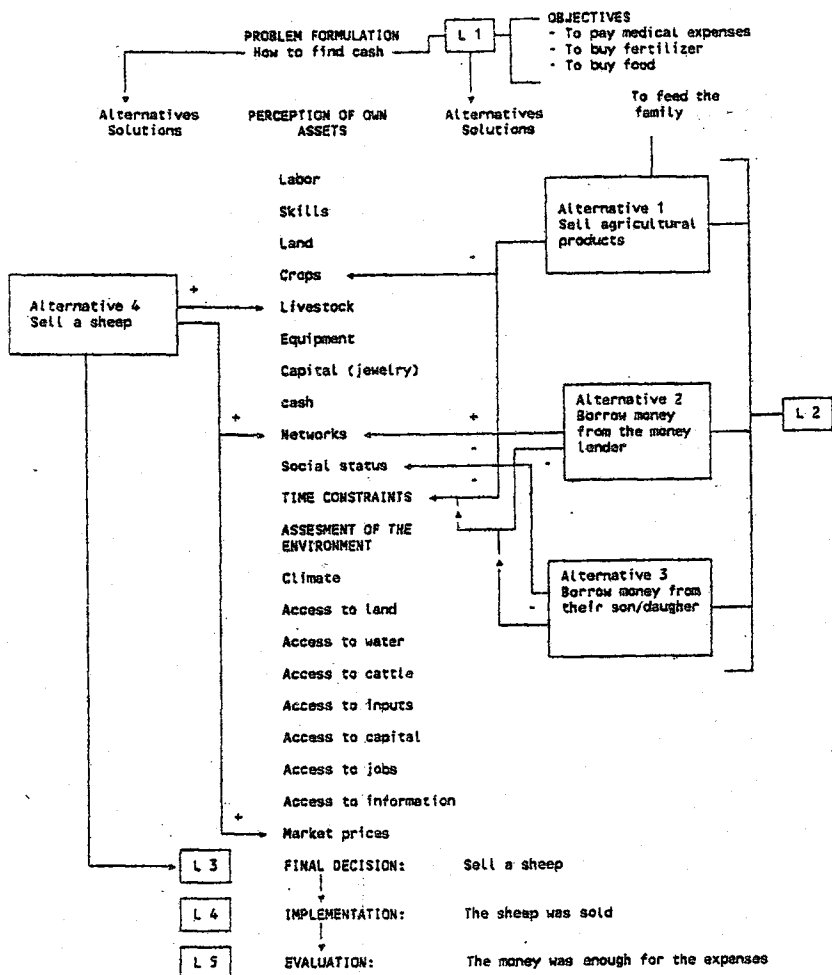
Having compared alternatives 1, 2, 3, and 4 Pak Matori and his wife found number 4 to be the most feasible course of action. The sheep was sold for 97,500 rupiahs. All their debts could then be paid. Twenty thousand rupiahs went to the doctor who treated Dewi and 45,000 was used to buy medicine. Of the 32,500 rupiahs left over, 20,000 was used to buy urea and 12,500 was used to buy food.

### **Concluding remarks**

The decision-making process has been systemized in Schedule 5.7.4(2). The decision regarding the sale of a sheep had to be made within a short time, and the alternative chosen had to be implemented at once. Alternatives in the other decision processes could be implemented in increments.

The main objective of Matori and his wife was to pay their doctor bill and to buy medicine. When the couple compared the costs needed to do these things with the

## Schedule 5.7.4 (2): Decision-making process regarding the sale of a sheep





resources available to them, they knew they had a problem (L1). The couple then considered four alternatives to solve the problem. The consequences inherent to each alternative were then compared with the resources which the couple thought were available (L2). This eventually led Matori and Dewi to the decision to sell one sheep (L3). The decision was then implemented (L4).

### **Decision-making with regard to off-farm and non-farm activities.**

From the very beginning of their efforts at farming, Pak Matori and Bu Dewi had been involved in activities not related to their farm. The main reason for this was that the income of the farm was not sufficient to cover the costs of their daily needs. Both Matori and Dewi took decisions pertaining to off-farm and non-farm activities. Bu Dewi, however, became unable to participate in the day to day operations because of her poor health.

The non-farm activities they engaged in were neither chosen at random nor in a pre-attentive way, but were selected after they had discussed several alternatives which, in their eyes, were relatively open to them. I list and discuss these alternatives below. These decisions were made at the very start of their efforts in farming, but were explained to me in 1990.

**Alternative 1:** Matori considered working outside the village as a *bakul bakso* (noodle soup seller) in the city of Malang because he thought he would be able to earn money regularly and save some of it. He would not need any capital because the *juragan* (wholesale trader) who employed the workforce would provide everything that was needed. He thought that he would be able to cash-in on such an opportunity because he would not need any special skills and because he was a friend of a *juragan* in the village who would be willing to help him. Dewi, however, did not go along with this idea because she claimed that Matori was too old for this kind of work and that there would be no one to take care of the farm when he was gone.

**Alternative 2:** Matori had also considered ploughing fields in order to earn some extra money. He would not have to leave the village to do this. He could then farm his own land, take care of his wife, and still earn 1,200 to 1,500 rupiahs each day. Although he never ploughed his own land, he thought he could handle the job because he had nevertheless gained the relevant experience in the course of his life; however, he did not own a plough or the cattle required for draft power. Moreover, it would be very difficult work for a man of his age.

**Alternative 3.** Matori also considered cutting sugarcane for other farmers in the village. He thought that this was a viable option because almost no special skills were needed and he had three big knives he could use. He knew that personal

relationships were the key for getting this kind of work and that he would have to be acquainted either with the owners of the sugarcane fields or with those who buy the crop in the fields before the harvest (the *penebas*). Additionally, he would have to join a group of sugarcane cutters (*kelompok penebang*) and, as a member of that group, should be willing to work as part of a team. Matori saw his chances here all the brighter because he thought he already had such relationships: some sugarcane field owners were Madurese and apparently good friends of his. Performing this kind of work meant that he would work between 7:00 am and 4:00 pm and that he could expect to earn 2,000 to 2,500 rupiahs.

**Alternative 4:** To be a spiritual adviser (*dukun*). Dewi and her relatives had once told Matori that he had the necessary ability and talent to be a spiritual advisor. During his time at a Muslim boarding school, a teacher had taught him Javanese astrology (*petungan*) and some magic formulas (*jampi-jampi*). With this knowledge, his wife said, he could help others and earn money as well. Matori himself perceived his knowledge as a gift from God (*Rejeki*). As a spiritual adviser, he would be able to marry people and advise someone to choose a good day (*hari baik*) either to start a new business or to move into a new house. He owned an old kris that supposedly had *yoni* (supernatural powers). One advantage of performing this work was that no capital was needed. The most important aspect of the work was simply to be able to persuade others. Moreover, he would only need a glass of water, some flowers, and a piece of paper on which to write down a magic formula (in Arabic).

### **Making, implementing, and evaluating the decision**

After carefully considering the advantages and disadvantages of these alternatives, Pak Matori and Bu Dewi decided that alternatives 3 and 4 were the most viable options to implement. The main reasons for this decision has already been mentioned but will now be phrased in the words of Matori and Dewi. According to Pak Matori:

*In order for my family to survive, I have to work much harder than before. I had to undertake off-and non-farm activities. Indeed, some of our married daughters and sons help us by sending money. But to be honest, this does not help a lot; therefore, apart from farming on our own, I must work for some rich farmers as a sugarcane cutter. At home I also work as a spiritual adviser. Most of my clients come from outside the village. I do not have a fixed rate for this advice. It depends on the kindness of the client. As a spiritual adviser I can earn between 5,000 to 10,000 rupiahs from a client. I usually use the money either to pay back the money I borrowed from the shop keeper or to buy food.*

According to Bu Dewi:

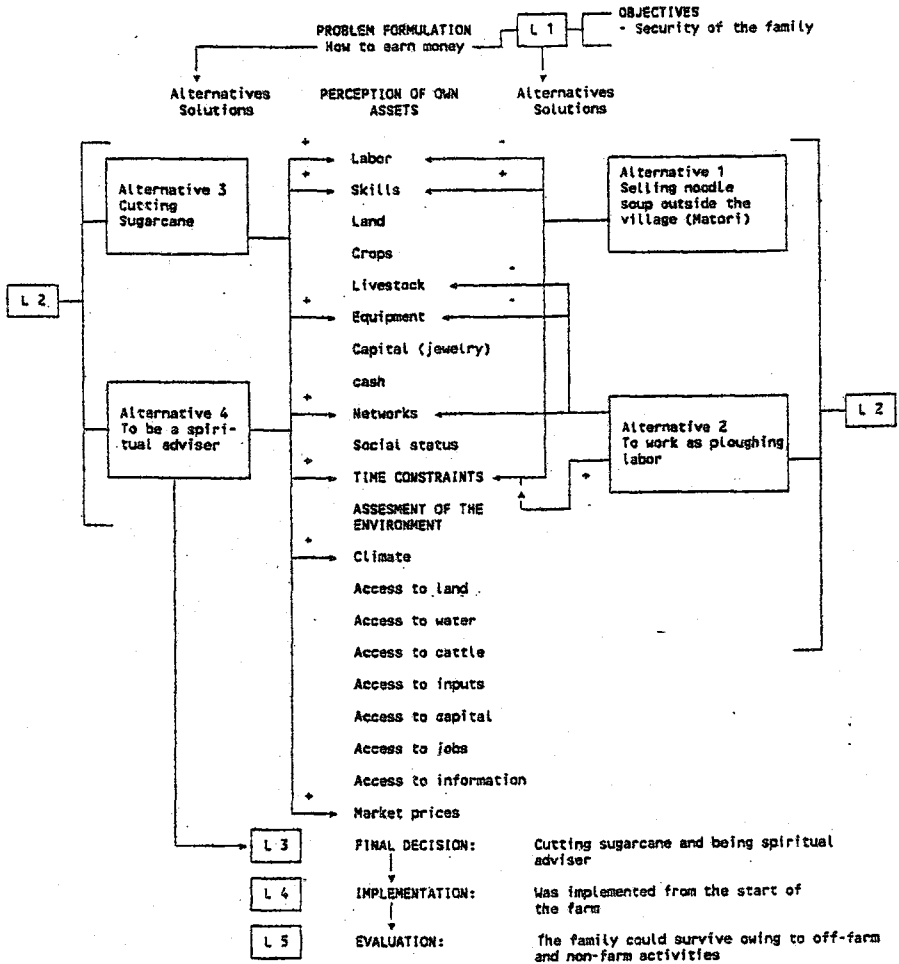
*I have acute rheuma and high blood pressure which has gotten steadily worse the last two years. My husband has to work alone. I hate this disease because I cannot walk and my hands always tremble. Consequently, my husband and I decided not to make bamboo baskets as we used to because I was the one more experienced in plaiting bamboo than my husband. Since we stopped making baskets our family has always faced financial problems. My husband often goes to the shop keeper nearby to borrow money or to buy food on credit, but of course all of this has to be paid back shortly after he gets money from his off-farm work and non-farm work.*

My research here has shown that non-farm activities have been necessary for the household from its very beginning and, therefore, have been implemented regularly. Yet even with these activities, the family still faced deficits in its household needs during the off-season periods.

### Concluding remarks

the decision-making process with regard to non-farm activities has been systemized in Schedule 5.7.4(3). The problem which Matori and Dewi identified here is obvious: there was not enough income from their farm in order to be able to satisfy their basic needs (L1). At first sight, it may seem as if Matori and Dewi performed their off-farm and non-farm activities in a pre-attentive way; however, from the decision-making process described above, it is obvious that the various options have been considered carefully, especially in the beginning (L2). The couple then compared the alternatives they thought they had available to them and compared them with the resources they thought they had under their control: e.g. labor, knowledge, and equipment. The preparation and implementation of the activities took place in a somewhat daily routine (L3 and L4). There were indications that the importance of such off-farm and non-farm activities were becoming increasingly important because of Dewi's poor health and, in turn, the farm's low output.

Schedule 5.7.4 (3): Decision-making process regarding non-farm activities



## **6 COMPARISON AND ANALYSIS OF FACTORS INFLUENCING DECISION-MAKING PROCESSES**

### **6.1 Introduction**

The main purpose of this chapter is to analyze and explain decision-making processes. In doing so, the chapter takes the farmers' assets into account and the constraints with which they and their families were confronted. The chapter will emphasize three main areas of decision-making: cropping patterns, livestock, and off-farm activities and non-farm activities. It will pay particular attention to the various motives underlying decisions that farmers made and the role of women in the decision-making process.

Starting with a comparative description of the assets which were available to each household, it will continue by indicating the number of each household's labor units, the quantity of land at each's disposal, the quality of that land, the type and quantity of livestock under each's management, the level of education each household attained, the skills that its members harnessed, the innovativeness each household showed, and the social network that gave access to the resources the households needed (e.g. cattle, capital, and market access). Within the framework of the assets that farmers had, the chapter will then examine the farmers' decision-making processes and the alternatives they considered.

### **6.2 A comparative description of the assets available to the households**

#### **6.2.1 The composition of the household and its available labor units**

Of the six families who participated in the case studies, five were Javanese and one was Madurese. Pak Matori (74) was the only Madurese in the study and the oldest head of the household. The youngest was Pak Simin (37).

As a consequence of increasing pressure on farmland, it was common for newlyweds of Javanese and Madurese families to reside either in the husband's parents' house or the wife's parents' house until new couples could build a house for themselves. Seldom did young people newly married actually own a house. Several economic factors bore the most weight when couples were choosing a place

to live: e.g. the financial advantages to be gained, the number of single children still in the families, the parents' need for extra help, or the availability of land.

Table 6.2.1(1) displays the ethnicity of the households, the age of the heads of the households, the size of the households' families, the types of households involved, and the number of labor units at the households' disposal.

In child bearing and child rearing households such as Pak Simin's and Pak Bani's, only parents can provide labor. The mother is often preoccupied with household duties and with caring for the young. The predominant tasks revolve around satisfying the basic needs of the children: e.g. clothes and food. The availability of labor units in households differ because of the age of the children in each household. Children 10 years of age or older can help their parents by taking care of their younger brothers and sisters; by collecting water, forage, or grass; and by harvesting crops.

In households whose children were grown, available labor units depended on whether any adult children (including those already married) still lived with their parents: e.g. the case of Pak Sabar, in which there were still children; and the case of Pak Matori, in which all the adult children left. Obviously this determines whether additional labor units were available to help the parents. Another factor in determining a household's composition and the labor units available to it was the presence of young grandchildren: e.g. Pak Karman's wife, Bu Gini, had to decrease her involvement in off-farm and non-farm activities.

Table 6.2.1 (1): Household composition and the availability of labor units in 1990/91

Farmers	Main Characteristics				
	Eth <sup>1</sup>	Agh <sup>2</sup>	Fms <sup>3</sup>	Thh <sup>4</sup>	Lbu <sup>5</sup>
Simin	Jv	37	5	CB	2.5
Bani	Jv	41	6	CR	4.0
Bagong	Jv	63	3	MT	1.5
Sabar	Jv	60	6	MT	4.0
Matori	Md	74	2	MT	1.5
Karman	Jv	50	5	MT	2.0

Source : Author's survey, 1990/1991

<sup>1</sup>Eth (ethnicity): Jv (Javanese), Md (Madurese)

<sup>2</sup>Agh (age of head of household)

<sup>3</sup>Fms (family size)

<sup>4</sup>Thh (type of household): CB (child bearing household), CR (child rearing household), MT (Mature or old household)

<sup>5</sup>Lbu (labor unit)

### 6.2.2 Land availability, the quality of land, and their consequences for farming

Quite obviously the socio-economic position of each household was different at the time of the research than when each household started to farm. The most important factor determining the differences between a household's departure point and the moment at which I studied it was the inheritance of land (*tanah warisan*). Three families could start to farm on their own because their parents gave them land when they married: Pak Sabar's, Pak Simin's, and Pak Bagong's. The other farmers in the study were not so lucky. Landless, without capital to start a small business, or lacking money to rent a piece of farmland, these farmers had to crop share for quite a long time before they could finally begin farming on their own.

Still, all the families researched experienced food shortages, particularly during the early periods of their farming career; consequently, all had to engage in various crop sharing schemes and perform various off-farm and non-farm activities in order to provide for themselves and their families. Yet even then their earnings often proved insufficient to really survive on. Fortunately, their social networks, such as family and neighbor relationships, were functioning to their advantage and could provide them with a part of their harvest, seedlings, seeds, food, and old clothes.

Eventually, the socio-economic position of these farmers and their families changed. Some improved the size of the land they held, while others were less successful. Table 6.2.2(1) displays the situation of the households' holdings during the research. With the exception of Pak Sabar's family, the rest all had holdings of less than one hectare, and only a small portion of their land was of very good soil (LU1).

Pak Sabar's family demonstrates how a farm household in a difficult situation can improve its socio-economic position. Because he and his family could increase their quantity of land to four parcels, their agricultural production was no longer solely orientated towards their consumption, but could also be directed towards trends in the market. Three factors made their progress possible: First, their farmland increased from 0.710 to 1.934 hectares; moreover, most of the soil (1.573) was categorized as LU2 and LU1: good to very good. Such a large piece of land with relatively good soil gave them more leeway to take a wider range of decisions. Second, Sabar had not yet distributed his land to his heirs; therefore, the land was not fragmented. Third, some of his sons married women from relatively well-to-do families from whom they acquired land.

Table 6.2.2 (1): Tenure and land quality in 1990/1991 (ha)

Farmers	Start farming	Situation during research					Land Quality			
		Pa1	Pa2	Pa3	Pa4	Total LPS	LU1	LU2	LU3	LU4
Simin	.551 Ih	.551 Owi	.16 Si			.711	.20	.07	.14	.36
Bani	.25 Si	.335 Ow	.513 Ow			.848	.300	.335	.203	.009
Bagong	.463 Ih	.463 Owi	.148 Si			.611	-	.611	-	-
Sabar	.710 Ih	.532 Ow	.440 Ow	.252 Ow	.710 Owi	1.934	.271	1.302	.361	-
Matori	.25 Si	.50 Ow				.50	-	.50	-	-
Karman	.155 Si	.055 Ow	.155 Si	.154 Si		.364	-	.364	-	-

Source: Author's survey, 1990/1991  
 Pa (parcel); Ih (inherited); Owi (owned and operated privately; formerly inherited from parents); Ow (owned, bought themselves, and operated privately);  
 Si (shared in with *Perhutani*, relatives, or neighbor)  
 Total LPS (Total size of land at the time of the research)  
 LU (land unit)



Pak Bani's family also made some progress in its socio-economic welfare. Once landless crop sharers, Bani's family came to own 0.848 hectares. Its economic development began to rise when it decided to migrate temporarily to Ngrawan in the 1970s where it shared crops and cattle until it could buy its own animals. The profit it earned from rearing cattle was then used to buy land in Kedung Salam. The largest portion of this land (0.635 hectares) belonged to categories LU1 and LU2, meaning very good to good soil.

Pak Matori's socio-economic position, on the other hand, deteriorated in the course of time, partially because it was subdivided among his children. His family's situation was exacerbated because Dewi, his wife, was in poor health and, consequently, unable to work on the farm or make bamboo baskets. Her poor health made it impossible for the family to cultivate rice and so their agricultural production was not enough to sustain them. Matori's and Dewi's case shows clearly that farm household conditions can change dramatically.

Pak Bagong's and Pak Karman's families also struggled to put enough food on the table for their families. Karman's family, for instance, simply did not have enough farmland; and even though the land the family did have was of a good quality of soil (LU2), it did not compensate for its lack of land. Having only 0.055 hectares at its disposal made it simply impossible for Karman and his wife to grow sufficient cassava and maize for their daily needs. Crop sharing was essential to his family and Pak Bagong's family. Yet even with this activity both families required credit from shop keepers and could pay off their debt only when they themselves were paid for their labor.

At the time of my research, Pak Simin's family maintained 0.767 hectares of land, of which only 0.27 hectares belonged to categories LU2 and LU1. Simin and his wife, however, were relatively young at the time, and so the chance for them to improve their lot was still open. For them, the agricultural production they obtained from cassava and maize was sufficient for their own consumption, and the coconuts and bananas they grew were marketed regularly for extra income.

### 6.2.3 Livestock

Livestock (*rojokoyo*) has always been important for the household economies in the area because it served as an additional source of income; however, the price of it at the local market was high. In the mid 1990, for instance, a small cow fetched between 250,000 to 300,000 rupiahs and big one between 650,000 to 700,000 rupiahs. Small holders with limited capital, therefore, could not afford to buy livestock and, so, sharing (*rumatan* or *gadhuhan*) was important to them. As we saw in the case of Pak Bani, sharing cattle was an important way for landless families to earn the money they needed in order to buy land.

Table 6.2.3(1) shows that the distribution of livestock over the farms. The opportunity to maintain livestock, cows in particular, was partially determined by the availability of labor units in a given household. Provided enough labor units were available, the presence of a substantial area of land filled with *tanah bongkor* (shrubs) and forest made it possible to collect fodder. Table 6.2.3(1) also shows that Pak Sabar's and Pak Bani's families were in a more favorable position to keep cattle in comparison to other families. Pak Simin kept sheep only because it allowed him to be independent from cattle owners. Though Pak Matori had cattle in the past, he only had two sheep during the research because his farm was in decline. Pak Bagong reared only one goat because he had no access to cattle.

Table 6.2.3 (1): Livestock and its tenure in 1990/1991

Farmers	Livestock and Tenure									Labor Unit	Hold- ing Size
	Sheep			Goat			Cattle				
	Ow	Si	Tot	Ow	Si	Tot	Ow	Si	Tot		
Simin	11	-	11	-	-	-	-	-	-	2.5	.711
Bani	-	-	-	-	-	-	1	4	5	4.0	.848
Bagong	-	-	-	2	4	6	-	-	-	1.5	.611
Sabar	5	-	5	-	-	-	2	2	4	4.0	1.934
Matori	2	-	2	-	-	-	-	-	-	1.5	.500
Karman	-	-	-	-	-	-	-	3	3	2.0	.364

Source: Author's survey

Note : Ow (owned); Si (shared in); Tot (total)

#### 6.2.4 Education and skills

Table 6.2.4(1) shows the level of formal education among farmers and their wives. Many of these farmers, particularly those fifty years of age or over, were illiterate.

Due to a lack of formal education, some of these farmers (Pak Karman, Pak Sabar, and Pak Bagong) could only speak their native language (Javanese). Among the older farmers, only Pak Matori could read the Koran, write a little bit of Arabic, and speak fluently the national language, Bahasa Indonesia. Unlike the others, Matori had attended a boarding school for Muslims (*Peasantren*) and had joined the army when he was young. Of the six farmers, only Pak Simin and Pak Bani were educated and could speak with outsiders in Bahasa, Indonesia. Both of these men had finished primary school (*Sekolah Dasar* or *SD*). Simin went so far as to finish junior high school (*Sekolah Menengah Pertama* or *SMP*) and receive

a diploma. Quite naturally, the education of these two men strengthened their social status in the community. For instance, Pak Bani was appointed head of the neighborhood association (*Ketua Rukun Tetangga* or *RT*) of his hamlet and often attended village meetings (*rapat desa*). Pak Simin was an active member of the LKMD, a local development committee where he was responsible for programs to improve the environment (*lingkungan hidup*). Because of Bani's education and, in turn, his position, forestry officials allowed him to operate a parcel of land. Like Bani, Simin, too, was head of the neighborhood association in his hamlet. The wives of both men, regardless of their education, were appointed head of the PKK, the womens' club at neighborhood level.

Table 6.2.4 (1): Level of education of farmers and their wives, 1990/91

Farmers and their wives	Level of education				Present position in the community
	FPS	JHS	ILT	LT	
Simin		+		+	head of <i>Rukun Tetangga</i> (RT) and a member of LKMD
Wife			+		head of PKK at RT level
Bani	+			+	head of RT
Wife			+		head of PKK at RT level
Bagong			+		
Wife			+		
Sabar			+		
Wife				+	
Matori				+	
Wife			+		
Karman			+		
Wife			+		

Source: Author's survey, 1990/1991

FPS (Finished Primary School);

JHS (Junior High School);

ILT (Illiterate);

LT (Literate)

Most of the wives of these farmers never went to school. Pak Matori's wife was the only who could read the Koran and write in Arabic because she attended a boarding school for Muslims. The reasons for the lack of formal education among these women were the absence of primary schools in the villages in the past and the perception of their parents regarding the role of the school. Bu Poni (Sabar's wife) and Bu Gini (Karman's wife), for instance, were both told by their parents that it was just a waste (*ora ono gunane*) for a village girl to go to school, and that the

most important duty of a woman in the village was to work hard in the fields and to take care of the family.

On the whole, however, it seems that children have been receiving more education than their parents, an indication that the perception of parents regarding formal education is changing. Additionally, the New Order Government launched the *program INPRES Sekolah Dasar* in the early 70s which has provided rural areas with several primary schools. This has facilitated school enrolment and attendance significantly.

As for skill, some of the farmers and their wives had talents which proved important for performing non-farm activities. Pak Bani, for instance, acquired skills in burning limestone which he had acquired on the job; moreover, he had learned how to rear poultry from a course he had taken many years ago. Pak Sabar had picked up the required skills to make roofing tiles which he used to sell to his neighbors. Pak Simin could manage a tiny shop (*toko pracangan*) because he used to help his brother-in-law operate a grocery shop. Like Pak Bani, Pak Karman also learned how to burn limestone. Because her parents taught her how to weave bamboo, finally, Bu Dewi had learned to weave baskets and, in turn, taught Pak Matori to do the same.

#### 6.2.5 Social networks

The farmers and their families obviously did not operate in a vacuum but had many social relationships to help them survive. These relationships were embedded in the cultural, social, and economic environment of the research area. The basis for these social networks may have been kinship, neighborliness, or social-economic significance.

##### Kinship ties

Kinship (*hubungan keluarga*) was very important for obtaining land. Bani, Sabar, Bagong, Simin, Karman, and their wives all acquired land either by inheriting it or by buying it from family members. Pak Bani, for example, bought his land from his mother and his aunt; Pak Sabar inherited his land from his parents and, much later, bought other parcels from his sister-in-law; Pak Bagong's wife inherited land from her parents; Pak Simin inherited his land from his parents; and Pak Karman bought his land from his aunt. Relationships based on family ties also played an important role in gaining access to livestock for sharing: e.g. Pak Bani acquired the cows he shared from his aunt and his sister; Pak Bagong obtained the sheep he shared from his brother-in-law; and Pak Simin obtained a cow for sharing via the help of his father. Help from relatives was often crucial, then, when couples had just started households and when there was sickness in the family.

### The broker (*perantara*)

Social networks outside one's circle of relatives were necessary in order to share livestock. Generally speaking, it is important for livestock owners to know whether a potential sharer can be trusted (*kapitayan*). In fact, trust is central to the entire sharing system. People in our study eager to share livestock with a person outside his familial circle first had to find someone who could function as a "social bridge": a broker or *perantara*. The *perantara* would then introduce the respective sharer to the animal owner free of charge. For instance, Pak Karman acquired his shared cow via the help of his neighbor, and Pak Matori obtained his livestock with the help of his friend, Pak Sabar.

Such networks, however, had to be maintained and, whenever, possible, strengthened. This entailed extra costs. Farmers, for example, often brought gifts (*punjungan*) such as banana, cassava, and maize during the harvest time to key people in their networks. They also offered *slamatan* food (*ambeng*).

### Local traders and shopkeepers

Local traders came to the farmers or farmers took their products to them. Before a farmer's agricultural produce penetrated outside markets, such as those in Malang and Surabaya, they first had to be channelled through to local traders. Farmers were very dependent on these traders to sell their products; therefore, it was very important to maintain good relations with them. Shopkeepers, too, were important to farmers because farmers could obtain credit from them in order to buy the items they needed. Naturally, farmers found it important to maintain good relations with these people too.

#### 6.2.6 Innovativeness

According to Röling (1988:26), innovativeness is indicative of one's willingness to accept change. Regarding the farmers in my study, this willingness can be measured via the new crops farmers incorporated into their farming system. Attitudes towards new situations and products such as varieties of annual and perennial crops were different among the six farmers studied. Put simply, some farmers were more innovative than others.

Table 6.2.6(1) shows the frequency in which farmers introduced new annual and perennial crop varieties since they started farming on their own. Only the introduction of new varieties of the most important staple crops in the area were recorded: maize and cassava. As for perennial crops (wood crops and fruit crops), only the introductions of new species have been registered. Trees planted long ago by former owners of a piece of land were excluded.

The innovativeness which farmers exhibited did not correlate to their level of formal education; however there was a relationship between their ability and capacity to innovate and their network in the re-greening program, especially when it came to perennials. Seedlings for woody perennial crops such as albizzia and mahogany (*Swietenia macrophylla*) were not always available in the market but were provided by the *Penghijauan Program*, *Reboisasi Program*, and the Brantas watershed project. The program was implemented through village organizations such as the *Rukun Tetangga*. Pak Sabar, for instance, belonged to one of the program's target groups in Putukrejo where the program was launched. Both Pak Simin and Pak Bani had access to seedlings for woody perennial crops because they were head of the *Rukun Tetangga*. Many farmers, however, who did not belong to the target groups of these programs, but who were still interested in cultivating their trees, could nevertheless get seedlings from their relatives or neighbors: Pak Karman, for example, obtained seedlings from his neighbor, and Pak Bagong acquired seedlings from his brother-in-law, a member of one of the target groups. The option to innovate was also largely determined by the quality of a farmer's land (land unit) and, to a lesser degree, by the size of his holding. As a rule, farmers are very selective in how they use their land. Farmlands of LU1 and LU2 quality were mostly used to cultivate food crops. Farmers rarely cultivated perennial crops on these land units. Land quality, then, might be the reason why an illiterate farmer such as Pak Sabar seemed to be more innovative than relatively well educated farmers like Pak Bani and Pak Simin. Sabar introduced new varieties and species of crops 24 times, while Simin and Bani introduced new varieties and species 21 times and 14 times, respectively.

Table 6.2.6 (1): Frequency in which new crops were introduced

Farmers	New annual crops		Total	New perennial crops	Total introduction of new varieties and species
	Cassava	Maize			
SIMIN	7	3	10	11	21
BANI	5	1	6	8	14
BAGONG	6	1	7	11	18
SABAR	10	3	13	11	24
MATORI	4	2	6	5	11
KARMAN	4	1	5	5	10

Source: Author's survey, 1990/1991

In addition, it is important to point out that there was an informal system for conserving and exchanging cassava varieties in which women played a major role and which transcended the administrative boundaries of villages: More concretely,

when a woman married and moved to her husband's house (*mecah uyah*) she almost always took her mother's cassava varieties with her. These varieties were called *telo babonan*, meaning "good quality of cassava varieties". The wives of Pak Sabar, Pak Simin, Pak Bani, and Pak Bagong all had small plots situated near their stable or at the outer rear of the kitchen where they tested and experimented with old and new varieties of cassava seeds and seedlings. The informal network for conserving and exchanging cassava varieties, moreover, extended still further because sisters, sisters in-law, mothers, and daughters often exchanged cassava varieties and discussed their qualities.

### **6.3 A comparison of decision-making processes and alternatives, considered against the background of available assets**

#### **Introduction**

Earlier I described the assets available to the households in detail. I will now discuss the decision processes of the farmers and the alternatives which they considered against the background of those assets. I discuss the decision-making processes regarding cropping patterns, livestock, and off-farming and non-farming activities of each of the six farmers. Additionally, the main motives on which farmers based their decisions are and the social context in which they found themselves will be discussed. Similarities and dissimilarities will then be identified. In the last section, I will deal with the economic situation of the households in 1990/91 and with their sources of income.

#### **6.3.1 Decision-making regarding cropping patterns**

Table 6.3.1(1) below depicts the alternative cropping patterns which the households considered.

The procedures the farmers used to select alternative cropping patterns was as follows: First they listed several alternatives which in their opinion were relatively feasible. Subsequently, they carefully considered factors relevant to the success of crops or crop combinations. They then compared their alternatives with the resources (assets) they had under control, as well as the opportunities which their environment afforded them. They then selected a particular cropping strategy if all the conditions necessary to implement it were available (labor, land, capital, and skill), and when the strategy fulfilled household requirements: e.g. food security.

Table 6.3.1 (1): Factors influencing alternative cropping patterns

Simin:	Bani:	Bagong:
<p><b>Alternatives:</b> 1 Maize+Cassava+<u>Groundnut</u> (**) <b>Bottle necks:</b> did not have enough labor to plant it; land was not suitable; did not have enough money to buy seed and fertilizer</p> <p>2 Maize+Cassava+<u>Sweet potato</u> (**) <b>Bottle necks:</b> not drought resistant; market price for produce was low</p> <p>3 Maize+<u>Soybean</u>+Groundnut (**) <b>Bottle necks:</b> did not have enough labor to nurse it; the land was not suitable; did not have enough money to buy seed</p> <p>4 (*) November-February (Rendengan): Rice+ Maize+Longbean+Cassava February-May (Lemarengan): Maize+Longbean</p>	<p><b>Alternatives:</b> 1 Rice+<u>Tobacco</u>+Maize (**) <b>Bottle necks:</b> did not have enough labor to cultivate it; no access to water source</p> <p>2 <u>Mungbean</u>+Maize+Cassava (**) <b>Bottle necks:</b> did not have enough labor to nurse it; not drought resistant; market price for produce was low</p> <p>3 (*) November-February (when the rain was heavy): Rice+Maize+Cassava February-May: Maize+Groundnut</p> <p>(*) November-February (Rendengan), when the rain was not heavy): Soybean+Maize+Cassava February-May (Lemarengan): Maize+Cowpease+Sesame seed</p>	<p><b>Alternatives:</b> 1 <u>Groundnut</u>+Maize+Cassava (**) <b>Bottle necks:</b> did not have enough labor to plant it; land was not suitable; did not have enough money to buy seed</p> <p>2 <u>Longbean</u>+Maize+Cassava (**) <b>Bottle necks:</b> the crop not resistant to plant disease; did not have enough labor to nurse it; market price for produce was low</p> <p>3 Rice+Cassava (**) <b>Bottle necks:</b> did not have enough labor for planting and weeding; land was not suitable; no access to water</p> <p>4 <u>Soybean</u>+Maize+Cassava (**) <b>Bottle neck:</b> did not have enough money to buy seed</p> <p>5 (*) November-February (Rendengan): Maize+Cassava+Root crops (Taro) February-May (Lemarengan): Maize+Taro</p>
Sabar:	Matori:	Karman:
<p><b>Alternatives:</b> 1 Rice+Maize+<u>Soybean</u>+<u>Groundnut</u> (**) <b>Bottle necks:</b> rain was too little for planting rice; land was not suitable for planting soybean; did not have enough money to buy seed for soybean; land was not suitable for planting groundnut; seed for groundnut was expensive</p> <p>2 Maize+<u>Sweet potato</u>+Cassava (**) <b>Bottle necks:</b> land was not suitable for planting it; not drought resistant; market price for produce was very low</p> <p>3 (*) November-February (Rendengan): Sugarcane+Maize+Cassava February-May (Lemarengan): Maize+Cowpease+Tobacco</p>	<p><b>Alternatives:</b> 1 <u>Soybean</u>+Maize+Cassava+<u>Groundnut</u> (**) <b>Bottle necks:</b> did not have enough labor; land was not suitable for planting the crops; did not have money to buy seeds</p> <p>2 Rice+Maize+cassava (**) <b>Bottle necks:</b> did not have enough labor for planting the crop; no access to water source</p> <p>3 (*) November-February (Rendengan): Maize+Cassava February-May (Lemarengan): Maize+Cowpease+Taro</p>	<p><b>Alternatives:</b> 1 Maize+<u>Sweet potato</u> (**) <b>Bottle necks:</b> did not have enough land; market price for produce was low</p> <p>2 <u>Groundnut</u> (**) <b>Bottle necks:</b> did not have enough money to buy seed; size of land available was too small</p> <p>3 (*) November-February (Rendengan): Maize+Cassava February-May (Lemarengan): Maize</p>

(\*) Indicates the alternatives chosen

(\*\*) Bottle necks refer to the crops underlined. See the case studies for a further explanation



Table 6.3.1(1) shows the bottle necks as farmers perceived them. Although their judgment varied, nearly all the farmers claimed that a given cropping pattern was not chosen when:

- the available labor units were insufficient to cultivate the crops
- the soil type was not suitable to cultivate the crops
- there was not enough capital to buy the inputs to grow the crops: e.g. the seeds for the crop were expensive and more fertilizers were needed than for other crops
- the climate (water requirements) was not conducive for growing a crop
- the market price of produce such as sweet potato and mungbean at the local market was very low in comparison to, say, maize and cassava

Climate and market price imposed restrictions on their options and their room to maneuver. That farmers seriously took environmental factors into account in their decision-making processes shows that they had a very thorough understanding of their situation. The seriousness in which they considered the price of their products, moreover, also indicates that the area they farmed was integrated into a market economy, even though it was a remote area south of Malang. Certain crop or combinations of crops were rejected if the requirements of the household were not met. Ultimately, farmers did not select the alternative that would give them the highest income; rather, they chose the option that satisfied their needs with the least possible risk.

### **6.3.2 Decision-making regarding livestock**

Like the decisions determining a farmer's cropping strategy and the off-farm and non-farm labor he chose to perform, decisions with regard to livestock were also taken attentively. Table 6.3.2(1) below shows the alternatives which farmers and their wives considered and their main motives for selling livestock.

Farmers and their families decided to sell a goat, a sheep or a cow when they needed money to cover expenses within a short period of time and when no other options were available to come up with this money. Quite logically, the most important aspect farmers and their wives considered was whether the option selected would raise the money they needed immediately. They usually hesitated to borrow money either from their relatives or from others because they did not want to damage relationships. Wives often strongly opposed selling food crops because it could have endangered the household's food security.

Table 6.3.2 (1): Factors influencing alternatives with regard to livestock

Simin:	Bani:	Bagong:
<b>Motive:</b> needed money for a <i>slamatan</i> <b>Alternatives:</b> 1 to sell available agricultural produce <b>Bottle neck:</b> endangered food security	<b>Motive:</b> needed money to renovate kitchen and to pay daughter's exam fee <b>Alternatives:</b> 1 to sell available agricultural produce <b>Bottle neck:</b> endangered food security	<b>Motive:</b> needed money to repay debt (for buying kitchen utensils) <b>Alternatives:</b> 1 to sell available agricultural produce <b>Bottle neck:</b> endangered food security
2 to borrow money from his brother-in-law <b>Bottle neck:</b> not possible, because it could have affected family relations negatively	2 to borrow money from the limestone <i>juragan</i> <b>Bottle neck:</b> no access to firewood	2 to sell bamboo baskets or borrow money from trader <b>Bottle necks:</b> no access to inputs; the money needed not ready available;
3. to undertake off-farm work <b>Bottle necks:</b> labor needed on farm; the money needed not ready available	3(*) asked for payment for half the value of a shared cow	3(*) sold a goat
(*)4. To sell a sheep		
Sabar:	Mutori:	Karman:
<b>Motive:</b> needed money to rent a piece of land <b>Alternatives:</b> 1 to sell available agricultural produce <b>Bottle neck:</b> endangered food security; income from sugar would arrive too late	<b>Motive:</b> needed money to pay medical expenses of his wife <b>Alternatives:</b> 1 to sell available agricultural produce <b>Bottle neck:</b> endangered food security	<b>Motive:</b> needed money to improve house <b>Alternatives:</b> 1 to borrow money from their employer <b>Bottle neck:</b> could have affected future income negatively
2 to borrow money from their daughter who worked in Malang <b>Bottle neck:</b> it could have affected family relations negatively	2 to borrow money from a money lender <b>Bottle neck:</b> earlier loans were not paid back at the time	2 to borrow money from their son <b>Bottle neck:</b> it could have affected family relations negatively
3 to borrow money from a money lender <b>Bottle neck:</b> interest rate too high	3 to borrow money from their sons and daughters <b>Bottle necks:</b> sons and daughters were also poor, and it could have affected family relations negatively	3 to sell available agricultural produce <b>Bottle neck:</b> endangered food security
(*)4 to sell a cow	(*)4 to sell a sheep	4(*) asked for payment for half the value of a shared cow

The asterisk marks (\*) indicate the alternatives that were chosen

### **6.3.3 Decision making regarding non-farm and off-farm activities**

Farmers and their wives took decisions about non-farm and off-farm activities only after they discussed seriously the advantages and disadvantages of the alternatives they proposed. Table 6.3.3(1) below shows the non-farm and off-farm activities that farmers and their wives considered, as well as the reasons why they discarded certain alternatives.

In scanning various non-farm and off-farm activities, farmers and their wives thought about what was needed to effectuate them and compared their ideas to the assets available: e.g. labor, time, skill, and equipment. A non-farm or an off-farm activity was likely to be chosen if it:

- yielded the immediate cash required
- required a minimum of capital
- required skills the household already had
- did not conflict with the time the household needed for farming

Indeed, the most important issue in a household's decision-making was how to find a suitable combination between the activities on its farm and its non-farm or off-farm activities. It needed to convince itself that it:

- could handle the activity
- would not be endangering the food crop production on their farms
- could still manage the farm properly

The last factor was often significant in determining whether a household member balked at a particular alternative.

### **6.3.4 Chief motives behind decisions**

What were the chief motives behind the various decisions that farmers and their wives made? According to the households studied, decisions were based on whether their effects would help in a household's attempts to survive, whether they would improve a household's socio-economic position in the community, and whether they would enable a household to participate in its village's social life.

Table 6.3.3 (1): Factors influencing alternatives of on-farm activities and off-farm activities

Pak Simin:	Pak Bani:	Pak Bagong:
<b>Alternatives:</b> 1 work in a city <b>Bottle necks:</b> labor needed on farm; no access to jobs  2 work in a local factory <b>Bottle necks:</b> did not have skills; did not have connections; no access to jobs  3 start small shop <b>Bottle necks:</b> did not have enough capital; no access to capital  (*)4 collected limestone (husband)  (*)5 collected leaves and snails (wife)	<b>Alternatives:</b> 1 be an agricultural laborer <b>Bottle necks:</b> no access to job  2 start a small shop <b>Bottle necks:</b> did not have the skill; did not have enough capital; no access to capital  3 operate a poultry business <b>Bottle necks:</b> did not have enough capital; no access to capital  (*)4 burned limestone (husband)  (*)5 collected wood for fuel and teak leaves (wife)	<b>Alternatives:</b> 1 collect limestone <b>Bottle necks:</b> work was too heavy; did not have land with limestone; lack of equipment  2 collect firewood (from own farm and from the forest) (Bagong and his wife) <b>Bottle necks:</b> no woody perennial; too risky e.g. being caught by the forestry police  (*)3 weave bamboo (Bagong and wife)
Pak Sabar:	Pak Matori:	Pak Karman:
<b>Alternatives:</b> 1 work outside the village (two sons) <b>Bottle neck:</b> labor needed on farm  (*)2 be a sawyer in the village (son A)  3 be a sawyer in the village (son B) <b>Bottle neck:</b> did not have the skill  (*)4 cut sugarcane (sons)  5 ploughing labor (son A) <b>Bottle neck:</b> did not have skill  (*)6 ploughing labor (son B)	<b>Alternatives:</b> 1 Work outside the village (i.e. selling noodle soup)  <b>Bottle neck:</b> labor needed on farm;  2 ploughing labor <b>Bottle necks:</b> work was too heavy; lack of equipment; no access to cattle  (*)3 spiritual adviser  (*)4 sugarcane cutter	<b>Alternatives:</b> 1 start small trading <b>Bottle necks:</b> labor needed on farm; did not have the skill; did not have enough capital  2 work as small middleman <b>Bottle necks:</b> labor needed on farm; did not have skill; did not have capital;  3 work as a craft man <b>Bottle necks:</b> labor needed on farm; did not have skill; did not have capital; lack of equipment  4 work as a noodle soup seller in Jakarta <b>Bottle neck:</b> labor needed on farm  (*)5 hoeing/ploughing labor (husband) (*)6 weed and cut sugarcane leaves (wife) (*)7 cut sugarcane (husband) (*)8 kapok picker (husband)

The asterisk marks (\*) indicate the alternatives that were chosen

## Survival

The survival motive was reflected in the cropping pattern a household chose, in whether it sold its livestock, and in the off-farm and non-farm activities it performed. Cropping patterns, for instance, were based on their tendency to reduce risk; hence, the mixed cropping strategy (*tumpanghari*). Additionally, local seeds and seedlings were preferred because they proved more adaptable to local conditions than high yielding varieties. One of the crops preferred was the cassava, because it played an important role in maintaining food security. In fact, households considered cassava their safety net when it came to providing them with their subsistence needs. The crop could be harvested when they needed it for consumption, it was drought resistant, and it could bear low soil fertility. In playing an irreplaceable role in maintaining food security, furthermore, women were the main producers of cassava and were almost entirely responsible for processing it. Cassava was even referred to as a woman's crop. Nonetheless, even though women decided which variety to plant, where to plant it, and when to plant it, this is not to say that men did not help in cultivating the crop. They, after all, were responsible for clearing the plots and preparing the land.

In addition to cultivating cassava, however, families also sold livestock to survive. (See Table 6.3.3(1). Pak Matori, for example, sold a sheep in order to pay his wife's medical expenses and to buy food. The six case studies, however, abound with other examples of how livestock contributed to a household's survival.

The case studies also show unequivocally how many farmers in the area were dependent on non-farm and off-farm activities because their farm production did not yield enough money for them to buy essential items for their households. The type of non-farm and off-farm activities which farmers, their wives, and other adult members of the household took differed from one village to another and from household to household. Regardless of the differences in their assets such as landholdings, tenure of land, tenure of livestock, available labor units, and the type of non-farm or off-farm activity they carried out, their chief motive for this type of activity was always the same: to acquire cash. In the case of Pak Karman and Pak Matori, for instance, the money they were able to get their hands on went directly to buy food or to pay back loans. Yet women, too, played active roles as income earners doing non-farm and off-farm activities. Pak Simin's wife, for instance, collected firewood and teak leaves, and Pak Karman's wife cut or cleaned sugarcane leaves (*roges*). With the money these women earned from their labor, they could buy everyday items such as sugar, salt, kerosene, and frying oil. Simultaneously, it made them less dependent on their husbands.

### Improvement in socio-economic position

For some families, a cropping strategy was not only based on the simple need to survive, but also on the wish to improve their socio-economic situations. Of the six families, Pak Bani's and Pak Sabar's belonged to this category because their agricultural production was more than sufficient for home consumption and, therefore, could also be sold at the market. Apart from cassava and maize, for instance, Bani's family was also able to sell their bananas, coconuts, soybeans, sesame seeds, and cowpease to the market regularly. Pak Sabar's family was even better off than Pak Bani's and could sell its bananas, maize, *Parkia speciosa* (*petai*), and sugar cane. In fact, selling sugarcane proved to be so profitable, that Sabar was able to buy his wife a gold necklace and a gold ring.

Certain families also sold their livestock in order to improve their living condition: Pak Bani's family sold livestock to renovate its kitchen; Pak Bagong's sold livestock to purchase some kitchen utensils; and even Pak Karman's family, visibly poor, sold livestock to renovate its house. To furnish a bamboo house (*omah gedek*) with walls partially made of brick (*omah klenengan*) or with walls made completely of brick is seen as a sign of success and, in turn, increases a person's social status. In fact, there is a humorous saying that goes "*ora duwe duwit utowo ingon-ingon ora dadi opa, pokoke omahe ketok padang*", meaning "never mind the money and the livestock, as long as the house is good".

One of the big distinctions between all of the case studies presented was the way in which Pak Sabar's family used the money it acquired from selling a cow and a gold necklace. Unlike the other farmers just mentioned, Sabar did not sell his livestock to renovate anything in his house. Instead, he invested the money in a plot of land and, by doing so, ultimately made an investment in his own farm. Such a case shows that farmers with greater resources will make different decisions than farmers who are not well off.

By and large, then, an animal served as a *celengan urip* (life saver) for most of the families studied. Because farmers considered animals as easy liquidity, they were willing to share them even though it was a somewhat risky and a time consuming venture: i.e. an animal had to be cared and it could fall ill or die. In economies constantly confronted with uncertainty, such as those in rural Indonesia, investing in animals is a way for farmers to protect their assets. For farmers not comfortable with banks whose interest rates do not keep pace with inflation, such a strategy may be considered rational.

### Participation in village social events

Not only did farmers and their families base their decisions on maintaining some kind of food security, but also on the desire to take part in the community as fully fledged members. Many of the social activities that took place costed money. We

saw how villagers were obligated (and willing) to attend various ceremonies in their village related to the life cycle of individuals: e.g. birth, circumcision, marriage, and death. When attending circumcision and marriage ceremonies, men usually paid 3,000 rupiahs to the ceremony holder and women three kilograms of rice, coconuts, bananas, and a bottle of frying oil. As we heard from some of the people in our case studies, it was considered impolite and shameful (*saru*) if someone in a village could not attend a ceremony simply because he had no money. The problem that people in these villages faced was that the money they needed for such things often could not be derived from their farms, but had to be earned from non-farm activities.

A more specific example of such a ceremony was the *mengengan*, the Lebaran ceremony. According to local custom, families were expected to buy new clothes and a pair of slippers before the ceremony and had to prepare good *salamatan* food. (This usually meant that some chickens were slaughtered which were then distributed to relatives and neighbors.) During the high point of the Lebaran celebrations (which could last up to one week), families were also expected to prepare drinks, cakes, and chips for the relatives and guests that came to visit them.

Yet other events not related to Islam or the life cycle also took place which the villagers were expected to participate in. The *camat* (head of the sub-district) and the *kepala desa* (head of the village), for example, repeatedly gave public speeches in which they urged all villagers to be *orang desa yang baik* (good villagers). This meant, for instance, that they should participate in the *bersih desa*: the cleaning of the *desa* and in a *slamatan* which is held annually - an event to which each household head is expected to contribute. Being a good villager also means that individuals should participate in the government's effort to develop a village (*pembangunan*). This meant mobilizing development funds in the villages through animal taxes (*kemetiran*) and the land and building tax (*Pajak Bumi dan Bangunan* or PBB). What worried the farmers was not so much that the tax had to be paid, but the way tax collectors collected the money. If, for instance, a farmer did not pay his tax on time, he could get into trouble. More specifically, if he wanted to work outside the village or visit relatives living outside the village, the *kepala desa* would not likely grant him a *surat jalan* (free pass) or *kartu tanda penduduk* (citizen identification card).

Clearly, these few examples illustrate that villagers needed money in order to participate as full members of the community. We should not forget, however, that the people also participated in events such as *arisan*<sup>2</sup> or that they sent their children to school, both of which cost money. For households whose incomes were not enough to cover their daily needs, such money usually had to be earned via non-farm or off-farm activities or by selling livestock.

#### 6.4 Sources of income

Table 6.4(1) shows that the main sources of income in 1990/1991 were from farm, livestock, and off-farm and non-farm activities. This data has to be used with care because it was obtained via a survey and only covers a single year.

According to the 1990 statistical data issued by the National Bureau of Statistics (*Biro Pusat Statistik*) rural people with a per capita income of 159,540 rupiahs (1 US \$ = 2,100 rupiahs) or less were considered below the poverty line (*orang miskin pedesaan*). When we divide the income of a household by the number of its members, and compare this with data from the Bureau of Statistics we see that three farm households were living under the poverty line (Simin's, Bagong's, and Karman's) and that three were some what above it (Bani, Sabar, and Matori). As mentioned earlier, however, it has to be realized that this per capita income is only from a single year. Moreover, a household member who suddenly ran into trouble could bring the entire household below the poverty line: e.g. Pak Matori's sick wife might entail still more medical costs and will probably have fewer opportunities to perform farm work, non-farm activities, and off-farm activities.

Table 6.4(1) also shows the differences between the economic positions of farm households and their sources of income. These differences are the result of differences in the assets available to the households. Pak Sabar and Pak Bani, for instance, could generate more income than the other four families because of the land they had and the labor units available in their households. For farmers who did not have enough land and labor, the income derived from crops was relatively small, and off-farm and non-farm activities played an important role in their household's economy. The income obtained from off-farm and non-farm work depended on the labor units available and on the type of off-farm and non-farm work carried out (see Table 6.3.3(1)).

Livestock was particularly important when farmers needed cash badly on short notice. For Pak Sabar's family, the major source of income was livestock. The contribution of non-farm and off-farm work was minor in this case because the family could rely on the income it yielded from its agriculture; in fact, agriculture was the second source of income in Sabar's household. For Sabar's sons, however, non-farm and off-farm activities were still important. Non-farm and off-farm activities (most notably limestone burning) were the largest source of income for Pak Bani's family, followed by the sale of livestock, and then the sale of agricultural products. In contrast, Pak Karman's and Pak Matori's families' second source of income came from selling livestock, while for Pak Bagong's it was the third source of income. For Pak Simin and his wife, non-farm and off-farm activities were the most important sources of income.



Table 6.4 (1): Income generation (in rupiahs) per activity category for six farm households from October 1990 to October 1991

Farmers	Holding size (in ha)	Labor units	Income				Total income	Per capita income
			Food crops	Other seasonal crops	Perennial crops	Non-farm activities		
Simin	0.767	2.5	28,725	0	134,430	211,050	459,205	91,841
Bani	0.848	4.0	-10,500	44,525	97,500	736,750	1,143,275	228,655
Bagong	0.611	1.5	100	900	56,800	340,950	428,750	142,916
Sabar	1.934	4.0	34,175	548,950	92,350	292,900	1,835,375	262,196
Matori	0.500	1.5	-10,585	-1,350	0	188,375	358,940	179,470
Karman	0.364	2.0	8,650	0	3,850	216,350	328,850	82,212

Source: INRES IFHS, 1990/1991

## **7 RECAPITULATION OF THEORIES AND THEIR RELATIONS WITH THE FINDINGS**

### **7.1 Introduction**

The main purpose of the chapter is to assess the extent that the findings in this study fit in with the theories formulated in Chapter 2. For obvious reasons, special attention will be given to the basic linking-loop-model and the pre-attentive and attentive ways of decision-making introduced.

### **7.2 Relationship of the theories to the findings**

This research used Van Dusseldorp's theory of decision making, the so-called basic linking-loop-model (van Dusseldorp, 1994) to systematize the decision-making processes which took place at micro level. This model hypothesizes five steps: problem identification, selection of alternatives, elaboration of alternatives, implementation, and evaluation.

The way in which the model was used has been indicated in various tables in Chapter 5. Applying the model and the research to my findings, however, was not easy because decision-making is seldom a linear process, but rather an iterative one. Moreover, an actor almost always has several, often interrelated, basic linking loops going on at the same time. The model, furthermore, only gives a sequence of steps in the decision-making process but does not clarify the motives behind the processes inherent to a farmer's choices. In this sense it should be considered a formal model and, as such, hardly gives any indication as to the rationale behind the decisions taken. The model, therefore, was mainly used as an instrument to systematize and organize the material. Nonetheless, this study has shown that van Dusseldorp's postulates are valid: small landholders have goals and objectives they want to reach with the least amount of costs, and they make their decisions in a more or less systematic way.

Another theory I used in order to understand the decision-making process at farm household level was the real life choice theory of Christina Gladwin (1980). This theory proposes two stages in the decision-making process, of which I used only the first for reasons mentioned in Chapter 2. The essence of the first stage is that farmers coping with a complex environment in which they have to choose from a set of alternatives have the tendency to simplify these alternatives into feasible

subsets that satisfy certain minimum conditions. In her theory, Gladwin defines an alternative as a set of discrete, interrelated aspects such as output level, timing of output, cash input requirements, dietary value, and the extent of a farmer's knowledge about a crop. An aspect or feature of an alternative determines conditions that are necessary before it is possible to implement it. In selecting cropping patterns, farmers compare the conditions that should be fulfilled (the aspects of the alternative) with the assets they have available to them. On the basis of this comparison, they will then choose the alternatives that best fit their possibilities. The second stage comprises decisions that have to be made when working out the alternative chosen in detail. To review, I did not include this stage in my research because I assume that neither the rationality nor the processes involved in stage 2 would differ remarkably from the processes in stage 1.

The research data would seem to concur with the basic idea of the first stage of Christina Gladwin's real life choice theory. The decision-making process pertaining to cropping strategies has shown that farmers chose an alternative or a combination of alternatives only when it met all the necessary, minimum conditions. Their screening procedure was as follows: First they listed several possible alternatives of crops. They then compared the aspects of the alternatives with the assets they had under their control: e.g. labor, soil type, capital, skill, or experience. In their comparison, they took external factors into account such as climatic conditions and market prices. A crop or combination of crops was subsequently eliminated on the basis of whether the aspects of the alternatives were in line with a farmer's assets and whether the needs of the household satisfied its need for food security.

My findings also show that food security and survival were the most important objectives for some farm households. Those households with fairly large holdings, good soil, and adequate food security, however, were more market oriented and willing to take greater risks by growing cash crops such as soybean, tobacco, or sugarcane. The final decision to sell livestock, furthermore, was always preceded by a comparison of various alternatives, as was shown in the cases of Pak Simin and Pak Matori. When farmers and their wives assessed the various aspects of each alternative for non-farm and off-farm activities, they asked themselves the following questions:

- would the activity yield immediate cash?
- did it require capital?
- was a certain skill needed?
- did it conflict with the time needed to farm?
- was it necessary to leave their village and their family behind for prolonged periods of time?
- what risks were involved?

Only when the aspects of an alternative were in line with their assets was an alternative selected. In selecting the alternative, they did not always choose one that would yield the highest potential. In the case of Pak Karman, for instance, the safety of the family was seen as more important than high returns. For Pak Bagong, too, collecting firewood, however profitable, was seen as too risky because of the chance of arrest.

Hugh Gladwin and Michael Murtaugh (1980) suggest that farmers often make decisions in a pre-attentive way. Pre-attentive here indicates that decisions made in the past have become routine and are no longer made consciously. When a decision involves a large amount of scarce resources or can affect the continuation of the farm, we say that the decisions under examination are made attentively. The decision-making processes discussed in Chapter 5 and analyzed in Chapter 6, however, were all made attentively. There could be four possible reasons for this:

**The seriousness of the issues involved:** This study examined decisions which were made in three areas important to a household's survival: the cropping strategy, the selling of livestock, and the performing of non-farm work. It is quite possible that farmers always made these decisions attentively because a wrong decision could seriously undermine the farm and the household.

**The agro-climatic conditions of the area:** The area south of Malang is a risky area to grow crops because of its climate and deteriorating soils. Farmers could be very much aware of this and are consequently forced to make their decisions attentively.

**The limit of a household's assets:** Because farmers and their families had limited access to capital, they had no capacity to absorb the consequences of risky decisions: e.g. crop failure. Risks, therefore, had to be avoided as much as possible because even a minor decision that was wrong could affect a family negatively. To prevent failure, then, decisions were made attentively.

**The way questions were asked during the interviews:** As mentioned in the subsection "Data collection techniques" back in Chapter 3, this study primarily deals with two central issues: Why and how do farmers and their wives behave as they do in their decision-making? Inevitably, the issues involved and the way I posed my questions forced farmers and their wives to recall events at a time when they made decisions for the first time. By doing so, the informants were invited to reconsider their past decision processes attentively. Given the fact that without prodding, the farmers and their wives gave detailed accounts of their former decisions as presented in chapter 5, I am convinced that they went through the processes described attentively. Still, this does not imply that no pre-attentive decision-making took place. Whatever decisions farmers and their wives took attentively, these decisions also included simple, routine activities: e.g. processing

cassava, using *ani ani* (a small palm-held reaping knife for cutting rice stalks), and tilling the land, etc. Nevertheless, farm households living at or below subsistence level and working under risky and difficult conditions had very little room for pre-attentive decision-making when it came to major decisions related to, say, cropping strategies.

Among the theories mentioned in Chapter 2, the only one which explicitly takes the risk factor in agricultural decision-making into account is Huijsman's (1986). The basic postulate of his theory is that there are two possible ways in which farmers make decisions pertaining to agriculture when they are faced with uncertainty: First, they may exhibit cautious optimization over a short period of time based on an adaption to changes in internal and external circumstances. In doing so, they search for new technologies, improve existing techniques, and experiment. All of these activities could be observed in the case studies. Second, they may opt for sequential decision-making (economizing) within a number of years, based on the need to adapt to chance constraints and to opportunities as they evolve in the course of a production cycle.

Clearly the research findings indicate that farmers adopted new crop varieties in their cropping strategies. They also indicate that the wives of the farmers were experimenters when it came to cassava. The cases studied also show that the decision-making processes of poor farmers such as Karman, Bagong, and Matori were mainly influenced by household needs, unlike Sabar who had opportunities to make decisions that in the long run would improve the socio-economic position of him and his family.

In the processing of choosing and implementing their choices, farmers always seriously took environmental factors into account and tried to find a way to maximize their agricultural production as much as possible. When confronted with several possible cropping strategies, for example, farmers in the case studies reacted to climatic uncertainty by planting crops which they thought were the most suitable and adaptable to their environment. This kind of cautious optimization can also be seen by the way they managed their farming. Their cultivation cycle usually started at the beginning of the rainy season between late September and early November. They usually did not begin to cultivate their crops until a minimum of seven successive days of rain had fallen in order to reduce the risk of a false start of the season. The preparation of the fields usually began during the dry season after the cassava harvest between July and September. For land of medium to light texture, farmers preferred ploughing with animal traction. Soils with a heavy texture or that were riddled with stones were hoed by hand. The land was left bare until the onset of the rainy season when the last ploughing or hoeing was done. This system helped water to penetrate the soil. All of this enabled farmers to minimize their risk and to control crop production activities properly. Their preference for a mix cropping system arrangement (*tumpang sari*) over a singular cropping system also indicates an attempt to minimize risk and to economize on their agricultural production, as

it provided an element of flexibility in order to cope with environmental uncertainty.

## **8 FACTORS INFLUENCING THE DEVELOPMENT OF FARM HOUSEHOLDS AND THE AREA**

After seeing how the process of choosing alternatives was carried out, it can be concluded that the drive to survive was the most important factor motivating farmers' behavior. Below some decisive factors that will affect the future development of farm households and the area in which they are situated will be highlighted.

### **Climate and land**

Undoubtedly, two important factors that will help determine the future development of the limestone area south of Malang are the climate and the condition of the land. The climate here is characterized by a very long period of severe drought. The land, furthermore, has deteriorated over the course of several decades because of over-exploitation. This particular situation is expected to continue as a consequence of a growing population dependent on agriculture.

### **The inheritance of land**

The research findings reveal that the socio-economic progress of farmers is largely determined by the inheritance of land at the start of their farming activities. Clearly a farmer's opportunity for further progress is favorable when he obtains a reasonable amount of (relatively fertile) land from his parents.

The traditional way that land is divided among heirs will create serious problems in the near future. In keeping with local tradition, each child has a right to an equal share of their parents' property regardless of gender. This means that holdings of one or two hectares will become fragmented into plots of land insufficient to sustain a livelihood at subsistence level. At the time of the research, significant numbers of families were already trying to make ends meet on an income below the poverty line. Further fragmentation of such land holdings will not only bring more families below the poverty line, but will cause the land to erode further and become less and less fertile.

This deterioration of the land could be assuaged by modifying the way land is inherited. Inheriting land, for instance, might be arranged in such a way that it is only given to those who are willing to stay in the village in order to farm the land.

Such a plan, however, also has its problems: e.g. it will not be easy for parents to decide who should stay and who should leave and, consequently, could create conflicts among family members.

### **Disruptive events**

One disruptive event, for example, is the illness of a household member. Many farm households are extremely vulnerable because they have no reserves. Their entire property often only consists of a very small piece of land, a house poorly maintained for the most part, old furniture, outdated equipment, and a few heads of livestock which are often shared. For a small holder the sickness of a household member, especially when it is of a long duration, is likely to be a disaster. It has a direct impact on both the farm and the economy of the household. Due to the loss of labor the farm cannot be managed properly; consequently, its agricultural production declines and food shortages occur. Additionally, opportunities to earn money via off-farm or non-farm activities inside the villages and outside the villages vanish. Sick household members also mean bills for doctors and medicines. Such events often mean that a family has to sell its cattle and its land. This then affects its ability to farm. It often means that the family has to live on credit which is difficult for it to pay off.

### **The social network**

The social network of the farmers, based on kinship, neighborliness and economic relationships, plays a significant role in the lives of small farmers. The role of such networks are important for acquiring credit, gaining access to land, and obtaining cattle for sharing. These networks also provide their users with information and inputs: e.g. the exchange of cassava varieties by women. Building houses, furthermore, would be close to impossible if poor farmers could not rely on the help of their neighbors and relatives. The case studies have also shown that social networks were crucial for survival when young married couples started to earn a living on their own and when a family member fell ill. Such networks ensure that people can share their poverty and help extremely poor families to avoid complete failure when they experience difficulties. What these networks will not be able to avoid in the future, however, is that poverty in the area will continue to increase.

### **Future prospect of development of the farm households**

The future prospect of the people in the limestone area, then, seems to be filled with gloom. At the time of my research, agriculture was still the backbone of the area's economy; yet many farmers at the time could hardly eke out enough profit to cover their daily needs owing to the lack of farmland, the uneven distribution of



land, the poor soil quality, and the unfavorable climatic conditions. As mentioned earlier, land will in all probability continue to fragment and become increasingly scarcer due to a growing population and the traditional way of inheriting land. Aggravating the plight of these farmers are the diminishing opportunities for off-farm activities in agriculture, an important source of income particularly for the landless farmers. In short, opportunities in the field of agriculture will continue to diminish and agricultural development will continue to negatively affect the environment unless a considerable portion of the population decides to migrate elsewhere.

The impact of government programs for improving the socio-economic well-being of the rural population in the limestone area of south Malang has been limited. So far, the government in this area has been dealing with its re-greening program for the most part. The Brantas watershed project, for instance, provided target groups with planting material for fruit trees. A person from the sub-district office responsible for coordinating the program informed me that the main motive behind this program was not only to improve the socio-economic conditions of poor farmers in this area, but also to protect the lake behind the Sutami dam (*Karangates*) from silting as a result of soil erosion in the upland areas south of Malang.

The development efforts sponsored by the government in the area north of Malang has stimulated a considerable industrial development during the last two decades. Malang, too, has shown an impressive economic growth, yet very little of this growth has trickled down to the villages south of Malang. In this area, there were only several small scale, low technology industries such as rice mills and limestone kilns. Here farmers are poorly organized and unable to influence their socio-economic environment. Their living could be improved if the (local) government played an active role in empowering the people and in providing and developing socio-economic infrastructures in the area.

Taking all factors into consideration the development of the limestone area is extremely problematic. Whatever governmental programs are designed and implemented for this area, or however rational, systematic, and innovatively farmers and their wives make decisions, agricultural development will still only be possible when the numbers of farmers is reduced either through diversification or through out-migration.

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## Summary

This thesis is about decision-making in six farm households in East Java. The research carried out uses the case study approach and focuses on the intellectual locus of the actors who took decisions. The indigenous knowledge and the way it is generated and used by farmers when they make decisions is considered relevant in this respect. Beginning with Chapter 1, the central issue is, how do poor farmers arrive at decisions regarding their farm household's and what is the rationale underlying the decisions they make?

In Chapter 2 four theories are discussed to illuminate farmers' decision-making. It begins with van Dusseldorp's basic linking-loop-model. Van Dusseldorp's model gives a sequence of steps in the decision-making process and is mainly used as an instrument for systematizing and organizing the research data. In this chapter also Christina Gladwin's theory of real life choice is mentioned, in which Gladwin distinguishes between two stages in the decision-making process: During the first stage, farmers eliminate potential alternatives by comparing their aspects with the assets available to them. In the second stage, the farmer subsequently elaborates on the alternative he has chosen. The study, however, will principally focus its attention on the first stage of Gladwin's theory. In chapter 2 also the attentive and pre-attentive decision-making theory of Hugh Gladwin and Michael Murtaugh is discussed. This theory states that decisions are often made pre-attentively when it comes to routine activities. Huijsman's theory of decision-making under risk and uncertainty, also described in Chapter 2, states that there are two possible ways in which farmers make their decisions when they make them under uncertain situations: The first way is through cautious optimization. Here farmers gradually improve their agricultural productivity and increase the income generated from their agricultural activities, while keeping production and financial risks at a manageable level. The second way entails improving existing techniques and experimenting.

Chapter 3 explains methodology used: the case study approach. The most important techniques that are applied are open-ended interviews, structured interviews, and participant observation. Life histories have also been made.

The description of the area is given in Chapter 4. The research area is situated in the limestone range, south of Malang. The villages Kedung Salam and Putukrejo were researched because they contain farm households confronted with a relatively low income, a low crop productivity, and a high level of soil erosion. Kedung

Salam is approximately 66 kilometers south of Malang and Putukrejo about 49 kilometers.

The case studies of the farm households are finally presented in Chapter 5. The studies speak for themselves. They simply tell about the farmers, the decisions they made in regard to their farms, and why they made those decisions.

A comparison and an analysis of factors influencing the decision-making processes is discussed in Chapter 6. Four families were mature households, one family was a child bearing household, and one was occupied with child rearing. With the exception of Pak Sabar's family, the five remaining had holdings less than one hectare, and only a small part of their land consisted of very good soil. All the farm households reared livestock which they either owned or shared. Some farmers were relatively educated, while others were illiterate. Out of all the farmers, Sabar was the most innovative. With regard to income, three farm households (Simin's, Bagong's and Karman's) fell under the poverty line whereas the other three (Bani's, Sabar's and Matori's) were somewhat above it.

A recapitulation of the theories cited and their relationships to the findings are presented in Chapter 7. The basic linking-loop-model proved to be useful for organizing and systematizing the material.

Additionally, the findings of the study seem to agree with the characteristics of the first stage of the real life choice theory. The decision-making process concerning cropping patterns have shown that a farmer will choose an alternative or a combination of alternatives of crops only when it meets the necessarily minimum conditions. A crop or combination of crops will be chosen on the basis of two sets of criteria: when the aspects of the alternatives match the assets available, and when the needs of a household are met, most notably its food security. For most farm households in this study, food security and survival were the most important objectives; however, for households (e.g. Sabar and Bani) with fairly large holdings, good soil, and a reasonable degree of food security, market-oriented objectives were significant and, so, greater risks were taken. The final decision regarding the selling of livestock was always preceded by a comparison of various alternatives, as was shown in the cases of Pak Simin and Pak Matori.

In the decision making processes concerning non-farm activities, farmers and their wives carefully assessed various aspects of each potential, non-farm activity. Only when the aspects of the alternative matched a family's assets was an alternative selected. Striking in the studies was that the alternative chosen was not the one which could render the highest return. In the case of Pak Karman, for example, the safety of the family took precedence over a possible higher return. For Pak Bagong, collecting of firewood, however profitable, was seen as too risky because of the chance of arrest.

The case studies have shown that all the decision-making processes were initially made attentively. There are four possible reasons for this: 1) The selected issues were so important for the small farmers because they could affect the conti-



nuity of the farm and the household; 2) the region south of Malang belongs to a risk prone agricultural area and, so, farmers were always confronted with uncertainties; 3) the households had no capacity to absorb the consequences of a certain decision: e.g. a crop failure. A wrong decision, after all, could bring disaster to a family; 4) the issues involved and the way questions were asked during the interviews forced farmers and their wives to go back to the past when they made decisions for the first and, therefore, attentively. Because farmers and their wives gave detailed descriptions of their decision-making processes without having to be prodded, it may be assumed that they made the decisions, they described, attentively. For poor farmers in risk prone areas, it seems that there is little room for pre-attentive decision-making when it comes to selecting alternatives.

The findings also correspond to the theory used by Huijsman, especially as regards the strategies for cultivating new cropping varieties. The study found that farmers and their wives were experimenters. The decision making processes of the poor farmers were mainly influenced by household needs and survival. Only Pak Sabar made decisions that in the long run could improve his family's socio-economic position. Cautious optimization can be seen by the way farmers managed their farms. Farmers usually did not begin to cultivate their crops until a minimum of seven successive days of rain had gone by. This, they hoped would reduce the risk of a false start of the season. They preferred to use a mixed cropping system in which different crops grew on the same plot. This is another indication that their intention was to minimize the risk of crop failure and to economize their agricultural production. This strategy was flexible and, as a result, best in coping with environmental uncertainty.

Chapter 8 discusses some decisive factors that will affect the future development of the households and the area. Important factors that will determine the future development of the area are the climate and the condition of the land, Chapter 8 predicts that pressure on the land will intensify because of increasing land fragmentation and over exploitation.

The socio-economic progress of farmers is largely determined by the land they inherit at the start of their farming career. Inheritance, in fact, serve as a foundation for his subsequent success or failure. The way land is divided among the heirs is the reason why land is becoming more and more fragmented and will create serious problems in the near future. Further fragmentation of land holdings will not only bring many more families below the poverty line but will also cause a further deterioration of the land due to a loss of fertility and to erosion.

Small holders are extremely vulnerable. Their entire property often only consists of a very small piece of land, a house often in poor condition, old furniture, little equipment, and a few heads of livestock which they often share with an owner. The sickness of a household member, therefore, especially when he or she is ill for a prolonged period of time, is likely to be a disaster. His or her illness has a direct impact on both on the farm and the economy of the household. Sick

household members bring costs for doctors and medicines; consequently, these families often have to sell their cattle and their land and, as a result, their ability to farm is made more difficult. Often they are forced to live on credit which they find difficult to pay off.

The social network of the farmers, based on kinship, neighbourliness, and economic relationships, plays a significant role in the lives of small farmers. It is important for obtaining credit, for gaining access to land, for sharing cattle. It is also significant for acquiring information and inputs. Social networks are particularly crucial when young, married couples start off and when a family member becomes sick. These networks allow the people to share their poverty and, as a result, enable poor households to escape complete ruin when they encounter difficulties.

The impact of government programs for improving the socio-economic well being of rural people in the area has been limited. Up till the time of the research, the government in this area has mainly dealt with the re-greening program. Still, the Brantas watershed project provided target groups (mainly men) with planting material for trees and fruit trees. The motive behind this program was not only to improve the socio-economic conditions of poor farmers in this area, but also to protect the lake behind the Sutami dam (Karangkates) from silting as a result of soil erosion in the upland areas south of Malang.

The development efforts sponsored by the government in the area north of Malang has stimulated a considerable industrial development. The industries are mainly concentrated between the cities of Surabaya and Malang, but very little of the economic growth has trickled down to the villages south of Malang. In this area, there are only several small scale, low technology industries such as rice mills and limestone kilns.

Taking all factors into consideration, the development of the limestone area is extremely problematic. Whatever governmental programs are designed and implemented for this area, or however rational, systematic and innovative the farmers and their wives make their decisions, viable agricultural development will still only be possible when the number of farmers in the area is reduced either through diversification or through out-migration.

## Samenvatting

Dit proefschrift behandelt besluitvormingsprocessen in zes boeren huishoudens in Oost Java. Bij het onderzoek is gebruik gemaakt van de case study benadering en was de focus gericht op de actoren die de besluiten hebben genomen. De lokale kennis en de wijze waarop deze werd gegenereerd en gebruikt door de boeren bij het nemen van besluiten heeft veel aandacht gekregen.

In hoofdstuk 1 is het centrale onderwerp hoe boeren beslissingen nemen die betrekking hebben op hun huishoudens en de rationale die daaraan ten grondslag ligt.

In hoofdstuk 2 worden een viertal theorieën besproken die aangeven hoe besluitvorming bij boeren tot stand komt. Van Dusseldorp's "basic-linking-loop-model" geeft een aantal stappen aan in besluitvormingsproces en is vooral gebruikt als een instrument om het verzamelde materiaal te systematiseren en te ordenen. Vervolgens komt Chistina Gladwin's "real life choice" theorie aan de orde waarin zij een onderscheid maakt tussen twee fasen in besluitvormingsprocessen. In de eerste fase elimineren boeren potentiële alternatieven door de aspecten van deze alternatieven te vergelijken met de middelen die zij ter beschikking hebben. In de tweede fase werkt de boer het gekozen alternatief in detail uit. Deze studie richt zich vooral op de eerste fase van het besluitvormingsproces. Tevens wordt de "attentive en pre-attentive" besluitvormingstheorie van Hugh Gladwin en Michael Murtaugh besproken, waarin wordt gesteld dat veel beslissingen, die op routinematige wijze worden genomen, op een "pre-attentive" wijze tot stand komen. Tenslotte komt Huijsman's theorie van besluitvorming onder risico en onzekerheid aan de orde. Deze theorie stelt dat er twee manieren zijn waarop boeren beslissingen nemen wanneer zij met onzekerheden worden geconfronteerd. De eerste manier is door middel van voorzichtige optimalisatie. Hier verbeteren de boeren geleidelijk aan de produktiviteit van hun bedrijven terwijl zij de produktie en financiële risico's op een beheersbaar niveau houden. Als gevolg daarvan neemt hun inkomen toe. De tweede benadering is experimenteren met en het verbeteren van bestaande produktie technieken.

In hoofdstuk 3 wordt de methodologie die is gebruikt, te weten de case studie benadering, besproken. De belangrijkste technieken die zijn gebruikt waren open-ended interviews, gestructureerde interviews en participatieve observatie. Ook is gebruik gemaakt van levensgeschiedenissen van de respondenten.

De beschrijving van het onderzoeksgebied wordt gegeven in hoofdstuk 4. Dit is gesitueerd in het kalksteen gebergte ten zuiden van Malang. De dorpen Kedung Salam en Putukrejo zijn onderzocht omdat daar boerenbedrijven waren met een laag inkomen en een lage produktiviteit van gewassen. Bovendien worden de boeren geconfronteerd met een aanzienlijke bodem erosie. Kedung Salam ligt ongeveer 66 kilometers ten zuiden van Malang en Putukrejo ongeveer 49 kilometers.

De case studies worden gepresenteerd in hoofdstuk 5. Deze spreken voor zichzelf. In deze case studies worden de boeren huishoudens beschreven, de beslissingen die zijn genomen met betrekking tot het bedrijf en de redenen waarom deze beslissingen werden gemaakt.

Een vergelijking en analyse van de factoren die deze beslissingen hebben beïnvloed wordt aangegeven in hoofdstuk 6. In vier families waren de kinderen volwassen en vaak al het huis uit, in één gezin werden nog kinderen geboren en in één huishouding waren de kinderen nog afhankelijk van de ouders. Met uitzondering van Pak Sabar hadden vijf gezinnen een grond bezit van minder dan een hectare en slechts een klein deel van hun land was van goede kwaliteit. Alle huishoudens fokten vee dat of van henzelf was of was gepacht van anderen. Sommige boeren hadden een redelijk onderwijs niveau maar anderen waren analfabeten. Sabar was de meest innovatieve boer. Wat betreft het inkomen lag dit voor drie huishoudens (Simin, Bagong en Karman) onder de armoede grens. Van de andere huishoudens lag het inkomen iets daar boven.

Een korte samenvatting van de besproken theorieën en hun relatie met de gevonden gegevens is weergegeven in hoofdstuk 7. De "basic-linking-loop" was nuttig voor het organiseren en systematiseren van het materiaal. De uitkomsten van de studie komen overeen met de eerste fase van de "real life" theorie. De beslissingsprocessen met betrekking tot het bouwplan voor de gewassen laten zien dat een boer alleen een alternatief of een combinatie van alternatieven kiest, wanneer het aan alle minimale condities voldoet. Een gewas of een combinatie van gewassen wordt gekozen op basis van twee groepen van criteria. Komen de aspecten van het alternatief overeen met de bedrijfsmiddelen die hun ter beschikking staan en wanneer wordt voorzien in de behoeften van het huishouden. Met name de voedselzekerheid was daarbij van groot belang. Voor de meeste huishoudens in deze studie waren voedselzekerheid en het overleven van het gezin de belangrijkste doeleinden. Voor de huishoudens van Sabar en Bani, met relatief veel land, met goede grond en met een redelijke mate van voedselzekerheid, waren markt gerichte doeleinden van belang en als gevolg daarvan werden grotere risico's genomen.

De uiteindelijke beslissing of vee zou worden verkocht werd steeds vooraf gegaan door het vergelijken van verschillende alternatieven zoals blijkt uit de case studies van de bedrijven van Pak Simin en Pak Matori.

In de besluitvormingsprocessen met betrekking tot werkzaamheden buiten het bedrijf maakten de boeren en hun vrouwen zorgvuldige schattingen van de verschillende aspecten van elk mogelijk alternatief. Alleen wanneer de aspecten van

een alternatief geheel overeen kwamen met de vaardigheden en mogelijkheden van het huishouden, werd een alternatief gekozen. Opvallend was dat vaak niet het alternatief werd gekozen dat de hoogste opbrengst kon opleveren. In het geval van Pak Karman was de bestaanszekerheid van het gezin van groter belang dan een hoger inkomen. Pak Bagong zag af van het verzamelen van brandhout, ook al zou dit veel geld kunnen inbrengen, omdat het risico om gearresteerd te worden te groot werd geacht.

De case studies laten zien dat al de besluiten werden genomen op een "attentive" wijze. Er zijn vier mogelijke redenen dat geen "pre-attentive" besluitvorming werd waargenomen: 1) De gekozen onderwerpen waren zeer belangrijk voor de kleine boeren omdat het voortbestaan van het bedrijf er mee was gemoeid; 2) het gebied ten zuiden van Malang behoort tot een streek waar landbouw steeds met veel risico's moet worden bedreven; 3) de huishoudens hebben geen vermogen om eventuele negatieve consequenties van bepaalde beslissingen op te vangen zoals bijvoorbeeld een misoogst van een gewas, een foutieve beslissing kan catastrofaal zijn voor een gezin; 4) zowel de onderwerpen die waren gekozen, alsmede de wijze waarop de vragen waren gesteld forceerden de boeren en hun vrouwen om terug te gaan tot het moment wanneer de beslissing voor het eerst, en dus "attentively", was genomen. Maar omdat de boeren en hun vrouwen steeds gedetailleerde beschrijvingen gaven van hun beslissingsprocessen zonder dat zij daartoe aangespoord werden mag worden aangenomen dat de beslissingen die zij beschreven, ook steeds "attentively" zijn gemaakt. Voor arme boeren, in gebieden waar het bedrijven van de landbouw gepaard gaat met grote risico's, is er weinig ruimte voor "pre-attentive" beslissingen wanneer het gaat om het maken van keuzen tussen alternatieven.

De uitkomsten van het onderzoek ondersteunen de theorie die gebruikt is door Huijsman, speciaal wanneer het gaat om de strategieën met betrekking tot het verbouwen van nieuwe gewas variëteiten. Uit de studie bleek dat de boeren en hun vrouwen experimenteerden, bijvoorbeeld de vrouwen met de cassave die zij bij hun huis planten. De besluitvormingsprocessen van de arme boeren werden hoofdzakelijk beïnvloed door de onmiddellijke behoeften van de huishoudens en hun overlevingskansen. Alleen Pak Sabar maakten beslissingen die op de lange duur de sociaal-economische positie van zijn huishouden zouden kunnen verbeteren.

Voorzichtige optimalisatie kon worden gezien in de wijze waarop de boeren hun bedrijven beheerden. Boeren begonnen over het algemeen niet met het planten van gewassen voordat het tenminste zeven dagen achtereen geregend had. Op deze wijze hoopten zij het risico te verminderen dat zou kunnen ontstaan bij een afwijkend begin van het regenseizoen. Zij gaven de voorkeur aan het "mixed cropping" systeem waarin verschillende gewassen op het zelfde perceel werden verbouwd. Dit is een indicatie dat het hun bedoeling is het risico zoveel mogelijk te beperken.

In hoofdstuk 8 worden de factoren besproken die van doorslaggevende betekenis zijn voor de toekomstige ontwikkeling van de huishoudens in het gebied. In deze

discussie worden ook de toekomstmogelijkheden van de bevolking in beschouwing genomen. Belangrijkste factoren die de toekomstige ontwikkelingsmogelijkheden van het gebied zullen bepalen zijn het klimaat en de conditie van het land. De druk op het land zal toenemen en dit heeft een verder gaande fragmentatie en overexploitatie tot gevolg.

De sociaal-economische vooruitgang van de boeren wordt overwegend bepaald door het land dat zij erven bij het begin van hun carrière als landbouwer. Het is deze erfenis die de basis legt voor succes of mislukking. De wijze waarop het land wordt verdeeld onder de erfgenamen veroorzaakt een steeds verdergaande fragmentatie van het land en dit zal ernstige problemen in de toekomst met zich meebrengen. Verdere fragmentatie zal niet alleen in de toekomst het inkomen van veel huishoudens onder de armoede grens brengen maar ook een verslechtering van de kwaliteit van het land tot gevolg hebben als gevolg van het verlies van bodemvruchtbaarheid en erosie.

Klein landbouwers zijn van nature zeer kwetsbaar. Hun gehele bezit bestaat meestal alleen uit kleine stukken land, een huis vaak in een slechte conditie, wat oud meubilair, weinig gereedschap en vee dat vaak niet eens hun eigendom is, maar gepacht wordt van de eigenaar. Ziekte van een lid van het huishouden, vooral wanneer die van lange duur is, is meestal een ramp. Zieke familieleden brengen kosten met zich mede voor doctoren en medicijnen en daardoor moet deze families vaak hun vee en land verkopen, wat de voortzetting van het bedrijf in gevaar brengt. Vaak moeten zij schulden maken die nauwelijks kunnen worden afbetaald.

Het sociale netwerk van boeren dat bestaat uit familie, buren en economische relaties speelt een belangrijke rol. Het is nodig om toegang te krijgen tot krediet, land en het pachten van vee. Het speelt ook een belangrijke rol bij het verkrijgen van informatie en produktiemiddelen. Sociale netwerken zijn vooral van belang wanneer een jong echtpaar een bedrijf wil stichten of wanneer er iemand in het huishouden ziek wordt. Deze netwerken maken het mogelijk dat de armoede gedeeld wordt en voorkomt dat huishoudens volledig geruïneerd worden wanneer zij in moeilijkheden komen.

De invloed van overheidsprogramma's om het sociaal en economisch welzijn van de bevolking te verbeteren is gering. Tot het moment van het onderzoek heeft de overheid zich vooral bezig gehouden met een herbebossingsprogramma. Het Brantas project heeft doelgroepen voorzien van plant materiaal van bomen en fruitbomen. Het motief hierachter was niet alleen om de sociaal-economische positie van de boeren te verbeteren maar ook om het stuwmeer achter de Sutami dam (Karangkates) te behoeden tegen dichtslibben, als gevolg van de erosie in het gebied ten zuiden van Malang.

De ontwikkelingsactiviteiten die ondersteund worden door de overheid in het gebied ten noorden van Malang hebben tot een belangrijke mate van industrialisatie geleid. De industrieën zijn vooral geconcentreerd tussen de steden Surabaya en Malang. Maar weinig van deze economische groei is doorgedrongen tot de dorpen ten

zuiden van Malang. In dit gebied zijn er alleen maar kleine industrieën met een laag technologisch niveau zoals rijstpelmolens en kalkbranderijen.

Al deze factoren in overweging nemend, is de ontwikkeling van het kalksteen gebied uitermate problematisch. Wat ook voor ontwikkelingsprogrammas door de overheid worden ontworpen en uitgevoerd, en hoe rationeel, systematisch en innovatief boeren en hun vrouwen ook beslissingen nemen, een duurzame landbouwontwikkeling zal alleen maar mogelijk zijn wanneer het aantal boeren in het gebied wordt verminderd, hetzij door diversificatie hetzij door uit-migratie.

## Ringkasan

Tesis ini mengulas tentang pembuatan keputusan di enam rumah tangga petani. Mereka, masing-masing adalah keluarga Pak Simin, Pak Bani, Pak Bagong, Pak Sabar, Pak Karman dan Pak Matori. Penelitian ini menggunakan pendekatan studi kasus dan titik beratnya adalah pada lokus intelektual dari para aktor pembuat keputusan itu. Penelitian ini menyadari sepenuhnya betapa pentingnya pengetahuan lokal dan cara bagaimana pengetahuan semacam itu diciptakan serta dipergunakan oleh para petani tatkala mereka membuat keputusan. Isu sentral dalam penelitian ini adalah bagaimanakah para petani yang miskin sumber-sumber itu membuat keputusan yang menyangkut rumah tangganya dan apakah motivasi yang mendasari keputusan yang mereka buat (Bab 1).

Pada Bab 2 dipaparkan empat teori utama yang dalam penelitian ini dipergunakan untuk menjelaskan pembuatan keputusan yang dilakukan oleh para petani. Teori pertama ialah yang disebut "the basic linking loop model" yang dikembangkan oleh van Dusseldorp. Model ini memberikan rincian berupa langkah-langkah dalam proses pembuatan keputusan dan model ini dimanfaatkan sebagai instrumen guna mensistematiskan serta mengorganisasikan materi temuan penelitian. Teori kedua ialah "the theory of real life choice" yang dikembangkan oleh Christina Gladwin. Teori ini telah memilah proses pembuatan keputusan dalam dua tahapan. Pada tahap pertama, pembuat keputusan melakukan eliminasi atas alternatif-alternatif dengan cara membandingkan aspek-aspeknya dengan aset yang tersedia. Pada tahap kedua, alternatif terpilih kemudian diolah lebih lanjut. Penelitian ini lebih mengutamakan tahap pertama. Teori ketiga, ialah "the attentive and pre-attentive decision making" yang dikembangkan oleh Hugh Gladwin dan Michael Murtaugh yang pada intinya menjelaskan bahwa keputusan acapkali dibuat secara spontan (pre-attentive), jika telah menjadi sesuatu hal yang rutin. Teori keempat, ialah "decision making under risks and uncertainty" sebagai pernah dipergunakan oleh Huijsman. Teori ini pada prinsipnya menjelaskan bahwa dalam situasi penuh resiko dan ketidakpastian ada dua cara yang mungkin dipergunakan oleh petani dalam membuat keputusan: 1) dalam jangka pendek, berdasarkan adaptasi terhadap kondisi internal dan eksternal, melakukan upaya optimalisasi secara hati-hati seraya berusaha menemukan teknologi baru; 2) menyempurnakan teknik-teknik yang ada, serta ekeperimentasi.

Bab 3 menjelaskan metodologi yang dipergunakan. Dalam hal ini pendekatan yang digunakan ialah studi kasus. Teknik-teknik yang dipergunakan untuk



mengumpulkan data adalah wawancara terbuka dan terstruktur serta pengamatan terlibat. Selain itu data diperoleh lewat penelusuran riwayat hidup petani. Penelitian dilakukan di wilayah perbukitan lahan kering, Malang Selatan. Dua desa yang dipilih sebagai daerah penelitian ialah desa Kedungsalam dan Putukrejo. Alasan utama yang mendasari adalah, karena banyak rumah tangga petani yang menghadapi persoalan rendahnya tingkat pendapatan, rendahnya produktivitas tanaman dan tingginya tingkat erosi lahan. Desa Kedungsalam berada di kilometer 66, Malang Selatan, sedangkan desa Putukrejo sekitar 49 kilometer.

Deskripsi tentang daerah penelitian dipaparkan pada Bab 4, sedangkan studi kasus atas enam keluarga petani yang diteliti dijelaskan secara rinci pada Bab 5.

Perbandingan dan analisis atas faktor-faktor yang mempengaruhi proses-proses pembuatan keputusan dijelaskan secara panjang lebar pada Bab 6. Pada studi kasus ini empat keluarga petani termasuk kategori "rumah tangga dewasa", satu keluarga termasuk kategori "rumah tangga melahirkan anak" dan satu keluarga termasuk kategori "rumah tangga membesarkan anak". Lima keluarga, kecuali keluarga Pak Sabar, memiliki lahan pertanian kurang dari satu hektar itu pun hanya sebagian kecil saja yang termasuk lahan subur. Kesemua keluarga petani ini berternak, baik milik sendiri maupun gaduhan. Sebagian dari mereka berpendidikan, dan sebagian lagi buta huruf. Diantara para petani tersebut, Pak Sabar adalah satu-satunya petani yang berpikiran maju. Berdasarkan pengamatan, penghasilan tiga keluarga petani (keluarga Pak Simin, Pak Bagong, dan Pak Karman), ternyata berada di bawah garis kemiskinan, sementara tiga yang lain (keluarga Pak Bani, Pak Sabar, dan Pak Matori) berada sedikit di atasnya.

Rekapitulasi atas teori dan hubungannya dengan temuan penelitian disajikan pada Bab 7. Teori "basic linking loop" terbukti sangat bermanfaat guna mengorganisasikan dan mensistematisasikan materi. Temuan penelitian nampaknya sejalan dengan inti tahap pertama teori real life choice. Proses pembuatan keputusan menyangkut pola-pola tanam menunjukkan dengan jelas bahwa suatu alternatif atau sebuah kombinasi alternatif-alternatif hanya akan dipilih manakala memenuhi beberapa persyaratan minimum tertentu. Suatu tanaman atau kombinasi tanaman tertentu akan dieliminasi menurut dua kriteria: kalau aspek-aspek alternatif itu cocok dengan aset dan kalau kebutuhan rumah tangganya akan keamanan pangan terpenuhi. Bagi sebagian besar rumah tangga petani yang diteliti upaya menjaga keamanan pangan dan bertahan hidup merupakan tujuan utama. Kendati demikian, bagi para petani seperti keluarga Pak Sabar dan Pak Bani lantaran memiliki lahan garapan yang cukup luas, relatif subur, serta telah mapu memenuhi kebutuhan pangannya, cenderung semakin berorientasi pasar dan semakin sanggup memikul resiko yang lebih besar.

Keputusan akhir menyangkut penjualan ternak senantiasa diawali dengan cara membandingkan pelbagai alternatif sebagai terungkap pada kasus keluarga Pak Simin dan Pak Matori. Dalam proses pembuatan keputusan di luar kegiatan pertanian, suami-isteri menelaah berbagai aspek dari masing-masing alternatif secara

cermat. Mereka hanya memilih alternatif yang dianggapnya paling sesuai aset yang dimiliki dan pilihan itu sendiri bukanlah yang selalu mendatangkan keuntungan lebih besar. Dalam kasus Pak Karman, misalnya keamanan keluarga lebih dipentingkan daripada perolehan keuntungan. Bagi Pak Bagong, kegiatan mengumpulkan kayu bakar di hutan, betapapun cakup menguntungkan, dipandang sebagai sesuatu yang penuh resiko karena bisa saja setiap saat ditangkap oleh polisi hutan.

Studi kasus ini juga menunjukkan bahwa semua proses pembuatan keputusan dibuat secara atentif. Ada empat kemungkinan yang bisa menjelaskan persoalan ini; 1) pokok persoalan yang di pilih dalam penelitian ini sangat penting bagi petani kecil karena kemungkinan berdampak negatif terhadap kelangsungan usaha tani dan rumah tangganya; 2) Kawasan Malang Selatan termasuk daerah pertanian yang beresiko tinggi sehingga para petani senantiasa dihadapkan pada situasi penuh ketidakpastian; 3) Dalam keadaan seperti itu, rumah tangga-rumah tangga yang diteliti tidak sanggup menerima konsekuensi-konsekuensi tertentu, semisal gagal panen. Kesalahan sekecil apapun dalam membuat keputusan dapat mendatangkan bencana bagi keluarga petani; 4) Isu-isu dan cara menggali informasi selama wawancara berlangsung agaknya telah memaksa para petani dan isteri-isteri mereka kembali kepada masa lampau di mana keputusan senantiasa di buat secara atentif. Namun, mengingat tanpa ada unsur paksaan pun ternyata para petani dan isteri-isteri mereka memberikan gambaran yang rinci atas proses pembuatan keputusannya, saya menjadi yakin bahwa mereka memang telah membuat keputusan itu secara atentif. Bagi petani miskin yang tinggal di kawasan pertanian yang penuh resiko, tatkala mereka harus memilih alternatif nampaknya cuma sedikit saja ruang yang tersedia untuk pembuatan keputusan yang bersifat pra-atentif.

Temun penelitian, khususnya yang menyangkut strategi tanam para petani, juga sejalan dengan teori yang dipergunakan oleh Huijsman, karena mereka pun selalu memasukkan varietas-varietas tanaman baru. Dalam hal ketela pohon, para petani tersebut, juga isteri-isteri mereka terbukti merupakan para pencoba yang ulung. Proses-proses pembuatan keputusan para petani miskin ini melulu dipengaruhi oleh kebutuhan rumahtangganya dan kebutuhan untuk bertahan hidup. Dari semua petani yang diteliti, hanya keputusan yang dibuat oleh Pak Sabar yang kemungkinan dapat meningkatkan posisi sosio-ekonominya dimasa datang. Upaya optimalisasi yang dilakukan secara hati-hati dapat dilihat dari cara mereka memanage usaha taninya. Untuk menghindari resiko "salah mongso", para petani biasanya mulai mengolah lahan setidak-tidaknya tujuh hari setelah berakhirnya hujan yang teratur. Mereka lebih menyakai menggunakan sistem tanam tumpang-sari daripada sistem tanam mono-kultur. Hal ini merupakan indikasi upaya memperkecil resiko serta memperhemat produksi pertanian mereka. Strategi ini terbukti cukup luwes guna menaggulangi lingkungan yang tak menentu.

Pada Bab 8 tidak hanya dibicarakan faktor-faktor yang mempengaruhi perkembangan rumah tangga petani dan wilayah Malang Selatan di masa datang melainkan juga propek masyarakat yang tinggal di wilayah lahan kering berkapur

tersebut. Bererapa faktor penting yang akan menentukan arah perkembangan wilayah lahan kering berkapur Malang Selatan di masa datang, diantaranya adalah sifat cuacanya yang ditandai oleh musim kering yang panjang, serta eksploitasi lahan yang telah berlangsung selama beberapa dasa warsa yang berakibat makin memburuknya kondisi lahan tersebut. Kondisi ini akan kian parah jika desakan kebutuhan akan lahan pertanian semakin meningkat.

Tingkat kemajuan sosio-ekonomi para petani sepenuhnya ditentukan oleh diperoleh tidaknya warisan berupa lahan pertanian pada saat mengawali kegiatan usaha tani mereka. Warisan lahan itu berfungsi sebagai fondasi bagi mantabnya langkah-langkah selanjutnya dalam karir mereka sebagai petani. Namun, cara lahan itu dibagikan kepada para ahli waris (di mana masing-masing beroleh jumlah bagian yang sama, dan hal ini sudah berlangsung sejak lama), akan menciptakan persoalan serius di masa datang. Ini tak lain, karena para petani yang tak lagi bisa memenuhi kebutuhan dasar mereka sendiri tentu tak akan punya peluang untuk menggarap lahan itu menurut cara-cara yang aman lingkungan dan berkelanjutan. Fragmentasi kepemilikan lahan yang berkepanjangan jelas tak hanya akan mengakibatkan kian banyaknya keluarga yang hidup di bawah garis kemiskinan melainkan juga kerusakan lahan yang semakin parah sebagai akibat semakin merosotnya tingkat kesuburan lahan dan erosi.

Kondisi sosio-ekonomi kebanyakan petani miskin amat ringkih. Keseluruhan harta benda mereka acapkali hanyalah berupa sejengkal lahan garapan, sebuah rumah yang reyot, perabotan rumah tangga dan alat pertanian yang sudah usang dan beberapa ekor hewan peliharaan hasil menggadu. Oleh karena itu, sakitnya seorang anggota keluarga, apalagi jika berlangsung dalam waktu yang lama, akan membawa bencana bagi rumah tangga. Hal ini pada gilirannya akan berdampak langsung baik terhadap usaha tani maupun ekonomi rumah tangga tersebut. Sakitnya anggota rumah tangga berarti ada sejumlah onkos yang harus dikeluarkan baik untuk dokter maupun obat-obatan yang diperlukan. Akibatnya, mereka terpaksa menjual ternak dan lahannya. Ini semua akan berpengaruh terhadap peluang bertaninya di masa datang, dan untuk menjaga kelangsungan hidupnya mereka terpaksa hutang kanan-kiri.

Jaringan sosial baik atas dasar hubungan kekerabatan, ketetanggaan maupun hubungan ekonomi, memainkan peran penting dalam kehidupan para petani kecil. Jaringan sosial berperan penting untuk memperoleh kredit, untuk memperoleh akses berupa lahan dan ternak gaduhan. Melalui jaringan sosial seperti itu pula informasi dan sarana produksi usaha tani didapatkan. Jaringan sosial juga memainkan peran penting bagi pasangan muda tatkala mereka memulai usaha taninya dan tatkala seorang anggota rumah tangga jatuh sakit. Lewat jaringan sosial itulah kemiskinan dipikul bersama dan sebuah jaringan diciptakan guna menghindarkan diri dari bencana yang tak terganggu.

Dewasa ini sektor pertanian masih menjadi tulang punggung ekonomi di kawasan ini. Meski demikian, pada saat ini sudah cukup banyak petani yang pendapatannya

dari sektor pertanian tak lagi mencukupi untuk memenuhi kebutuhan mereka sehari-hari. Alasannya adalah kian berkurangnya lahan pertanian, sebagian karena distribusi pemilikan lahan yang tak merata, kualitas lahan yang jelek dan kondisi agro-klimatologis yang tak menguntungkan. Kelangkaan lahan pertanian dan fragmentasi pemilikan lahan itu akan cenderung meningkat akarena pertumbuhan penduduk dan sistem pewarisan lahan. Ini semua pada akhirnya akan kian mempercepat proses kerusakan lahan karena kemampuan daya pikulnya telah melampaui batas. Kendati saat ini peluang-peluang kerja di luar usaha tani masih cukup terbuka dan menjadi salah satu sumber andalan pendapatan para petani gurem, kelak pada akhirnya akan mengalami kemerosotan yang tajam.

Dampak program-program pemerintah dalam upaya meningkatkan kesejahteraan sosial-ekonomi penduduk pedesaan di wilayah lahan kering berkapur Malang Selatan sangatlah terbatas. Sebegitu jauh program pemerintah yang cukup menonjol hanyalah program yang berkaitan dengan masalah penghijauan dan reboisasi. Proyek DAS Brantas menyediakan bibit tanaman bagi kelompok sasaran (melulu pria). Motif di balik program ini bukan hanya untuk meningkatkan kondisi sosio-ekonomi petani-petani miskin di daerah ini, tetapi juga untuk mencegah banjir buatan pada bendungan Sutami (Karangkates) dari pendangkalan yang diakibatkan oleh erosi lahan yang berasal dari daerah-daerah perbukitan Malang Selatan.

Upaya-upaya pembangunan yang disponsori pemerintah di wilayah Malang Utara selama dua dekade terakhir telah mendorong perkembangan industri secara meyakinkan. Industri-industri itu terutama terkonsentrasi diantara kota-kota Surabaya dan Malang namun pertumbuhan ekonomi yang amat meyakinkan itu ternyata hanya sedikit sekali yang menetes ke bawah ke desa-desa Malang Selatan. Di desa-desa Malang Selatan ini hanya ada beberapa industri-industri skala kecil berteknologi sederhana semisal penggilingan padi dan pembakaran gamping.

Dengan memperhitungkan seluruh faktor yang telah disinggung di atas maka pembangunan wilayah Malang Selatan sungguh problematik. Program-program pemerintah apapun yang dirancang bangun dan diimplementasikan bagi wilayah ini, atau betapapun rasional, sistematis dan inovasinya para petani dan isteri mereka dalam membuat keputusan, pembangunan pertanian hanyalah dimungkinkan jika jumlah petani yang ada dikurangi, baik lewat upaya diversifikasi ataupun lewat transmigrasi.

# Glossary

## A

Akasia:	acacia ( <i>acacia auriculiformis</i> )
Ambeng:	slamatan food
Ani-ani:	small palm-held reaping knife for cutting rice stalks
Apokat:	avocado ( <i>Persea americana</i> )
Arisan:	savings club among households
Arjuna:	name of a hybrid variety of maize

## B

Bakul:	small local trader
Bakso:	noodle soup; one of the popular non-farm activities villagers engage in is the selling of noodle soup. It is done mostly by young men when they migrate to the city.
Bambu:	bamboo ( <i>Bambusa</i> spp)
Bahu:	a local measurement, commonly used in the desa Putukrejo to measure the size of land. One bahu equals one Kebon, and 1.5 kebon is equal to one hectare
Bancaan tandur:	a small meal given prior to the planting season to give thanks
Bekicot:	snail
Beton:	the name of a local variety of cassava (sweet)
Biro Pusat Statistik:	the National Bureau of Statistics
Blantik:	a middleman for cattle, goats, or sheep; he assesses the value of an animal or sells it on the market.
Blimbing:	starfruit ( <i>Averrhoa carambola</i> )
Boro or Nglemboro:	seasonal migration to the city for the purpose of seeking work; migrants may even go as far as the gulf states
BRI:	an acronym for Bank Rakyat Indonesia
Bongkor:	uncultivated land usually due to shallow and/or stony soils
Bondo Deso:	village property usually in the form of land
Bupati:	head of a regency
Buruh matun:	weeding laborer

## C

Camat:	an administrative official, head of a sub-district
Carik:	a member of the village administration, the village secretary

Cethet:	local measurement to measure land size; One cethet of land is equivalent to 0.25 hectares
Cecek:	name of local variety of cassava (bitter)
Cetho:	concrete
Celengan urip:	life savings in terms of cows, sheep, or goats

**D**

Desa:	village
Didakokne:	parents land
Dusun:	hamlet

**E**

Empu Sono:	name of local variety of cassava (sweet)
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**F**

Faroka:	name of a local variety of cassava (bitter)
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**G**

Gabug:	usually refers to married people unable to have children
Gadhuhan:	sharing institution
Gamping:	limestone
Gaplek:	dried cassava
Gadung:	dioscorea hispida, yam
Gembili:	dioscorea alata, yam
Gembrung:	good soils or good structured soils
Genjah warangan:	a name of a local variety of maize
Genjah tongkol:	a name of a local variety of maize
Gerat:	soils which have hard a consistence, usually also having a low organic matter content
Getok-tular:	traditional systems of sharing knowledge and experience
Goter:	name of a local variety of maize
GOLKAR:	an acronym for Golongan Karya (the government party)
Grasak:	gravely or stony soils; they are usually shallow
Gugur gunung:	the mobilization of non-paid labor among villagers for maintaining desa roads or public buildings
Guyuban:	living in harmony or within the framework of social reciprocity.
Gusti Allah:	God the Almighty

**H**

Haji:	a title for a person who has performed the pilgrimage to Mecca
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**I**

INPRES:	an acronym for Instruksi Presiden (Presidential decree)
INRES:	an acronym for Interdisciplinary Agricultural Research Training project

**J**

Jati:	teak ( <i>Tectonia grandis</i> )
Jobong:	kiln for burning lime
Jamu:	herbal drink or herbal medicine
Jimpitan beras:	an arisan in the form of husked rice
Juragan:	the employer, but can also mean large scale trader, businessman.

**K**

Kaliandra:	caliandra ( <i>Caliandra calothyrsus</i> )
Kartu tanda penduduk:	citizen identification card
Karet:	name of a local variety of cassava (bitter)
Kastal:	name of a local variety of cassava (sweet)
Kedokan:	a system of crop sharing where the sharer is only responsible for a certain activity such as planting, weeding, or harvesting

**Kebijaksanaan massa**

mengambang:	the Floating-mass Policy
Keconggah:	not the better choice but workable
Kedondong:	golden apple ( <i>Spondias dulcis</i> )
Kelapa:	coconut palm ( <i>Cocos nucifera</i> )
kelompok tebu bebas:	the free sugar cane growers group, a group outside a TRI (see TRI)
kelompok tebu liar:	the free sugar cane growers group, a group outside a TRI (see TRI)

Kluwih:	breadfruit ( <i>Artocarpus communis</i> )
Kemetiran:	a tax on animals, usually paid once a year
Kepala desa:	head of a village
Kepala dusun:	head of a hamlet
Kertoaji:	assessing the value of animal subject to sharing; it is usually done prior to and after certain period rearing

**Kersaning Gusti Allah: God's will**

Ketigo:	dry season usually starts from May/June to September
Kewajiban Mulyo:	an honor and an obligation
Krajan:	core hamlet of the village, usually the home of the kepala desa
Krenthil:	name of local variety of cassava (sweet)
Kuning:	name of a local variety of cassava (sweet)
KUD:	an acronym for Koperasi Unit Desa (Village Unit Cooperative)
Kyai:	Muslim teacher

**L**

Lebaran day:	celebration at the end of the fasting month
Lempung:	heavy clay textured soils
LKMD:	an acronym for Lembaga Ketahanan Masyarakat Desa (Development Planning Committee)
Lemarengan:	a season which takes place between wet season and dry season; it starts start in February and last until May
LMD:	an acronym for Lembaga Musyawarah Desa (Village Council)

**M**

Main:	gambling
Madat:	drug addictive
Majer:	sterility (for animal only)
Mahoni:	mahogany ( <i>Swietenia macrophylla</i> )
Malam:	the name of a local variety of cassava (sweet)
Maling:	to steal
Mangga:	mango ( <i>Mangifera indica</i> )
Mandor:	foreman
Mangkrag:	term used to denote a situation in which a certain activity cannot be done completely
Manjing:	doing off-farm or non-farm work
Maro-anak:	sharing offspring of livestock under leasing arrangement
Maro-bati:	sharing profit of livestock under lease
Marto Saelan:	name of a local variety of cassava (bitter)
Matun:	weeding, usually done by a woman
Matrejo:	name of a local variety of cassava (bitter)
Mecah uyah:	when young married couples move out of their parent's house and into their own home
Melinjo:	<i>gnetum gnemon</i>
Megengan:	a ceremony taking place a day before lebaran day
Menthik urang:	name of a local variety of cassava (sweet)
Menjalinan:	name of a local variety of cassava (bitter)
Mertelu:	a crop sharing system in which a harvested crop is divided on a 3:1 ratio: 3 parts to the land owner and one part to the labor
Mes:	fertilizer e.g. TSP, ZA, Urea etc.
Minum:	drinking an alcoholic beverage
Milang-miling:	searching for an appropriate wife
Mlio:	a name of a local variety of maize
Mongso:	season
Mongso laip:	the long period of drought
Montro:	the name of a local variety of cassava (bitter)
Musim paceklik:	drought season or famine season
Munakiban :	see Selawatan

**N**

Nangka:	jackfruit ( <i>Artocarpus integra</i> )
Ndoro:	the name of a local variety of cassava (sweet)
Nglaju:	commuter
Ngrabuk:	fertilization of the land by applying farm yard manure or animal manure (goat, sheep, or cattle)
Nggambir:	small to medium, blocky, structured clay soils, usually very hard when dry
Ngrampyang:	harvesting: normally done by women not involved in the process of planting and weeding (paddy); those who perform ngrampyang receive a one-tenth of the harvested crop from the land owner



Nyonya: the name of a local variety of cassava (sweet)

## O

Omah : house

Omah gedek: a bamboo house

Omah klenengan: a wall in a house partly made of bamboo and partly made of brick

Omah Gedong: a fully brick wall house

Orang yang dipercaya: the most trustworthy people

Orang desa yang baik: good villager

## P

Pajak Bumi dan Bangunan: land and building tax collected by the government annually, abbreviated as PBB

Palawija: annual food crops other than rice

Panili: vanilla (*Vanilla planifolia*)

Papaya: papaya (*Carica papaya*)

Pecuren: a certain place nearby a stable or at the outer rear of a kitchen where women keep old and new varieties of cassava for experimenting

Pejas: to cut the stem of cowpease a little bit

Pejantan: (Javanese) a bull that serves a cow

Pedaringan: food stock for home consumption

Pemacek: (Javanese) a bull that serves a cow

Pembangunan: development

Penadu Arab: the name of a local variety of cassava (sweet)

Penadu Biasa: the name of a local variety of cassava (bitter)

Pengedok: contract labor in a sharecropping arrangement

PLN: an acronym for Perusahaan Listrik Negara (the State Electricity Corporation)

Pasar: market place

Pasaran: market days: five days a week according to the Javanese calendar; the cycle of this calendar starts with Pon, followed by Wage, Kliwon, Legi, and Pahing

Penebas: local middleman who buys a crop which is almost mature

Pedet: calf

PDI: an acronym for Partai Demokrasi Indonesia (the Indonesian Democratic Party)

Pethetan: ornamental tree

Petai: parkia (*Parkia speciosa*)

Pethatan: drought period during the rainy season

Pekarangan: home-garden

PKK: an acronym for Pendidikan Kesejahteraan Keluarga (Motherhood association for educating and improving family welfare)

Perabot desa: village official/village apparatus

Perantara: broker in cattle sharing

PERHUTANI: acronym for Perusahaan Hutan Negara Indonesia (The state Forest Enterprise)

Petik:	rice harvesting
Pisang:	banana ( <i>Musa paradisiaca</i> )
Pletrekan:	a local tax which paid monthly by farmers as a fee for the desa apparatus; it common in the desa Kedung Salam because most of the desa apparatuses here do not have "tanah bengkok" (official land) at their disposal
PPP:	an acronym for Partai Persatuan Pembangunan (the Development Unity Party)
Punel:	tender
Punjungan:	gifts
Pupuk:	mineral fertilizers
<b>R</b>	
Rabuk:	farmyard manure
Rapat desa:	village meeting
Randu:	kapok tree ( <i>ceiba pentandra</i> )
Rejeki:	God gifts
Rendeng:	wet season usually starting from November and ending in April
Roges:	cleaning or cutting sugarcane leaves when the crop is 5 months of age
Rojokoyo:	livestock
Rumatan:	see Gadhuhan
Rumput gajah:	elephant grass ( <i>Pennisetum purpureum</i> )
RT:	an acronym for Rukun Tetangga (neighborhood association)
RW:	an acronym for Rukun Warga (neighborhood association)
<b>S</b>	
Sabru:	the name of a local variety of cassava (sweet)
Sapi kuru:	the name of a local variety of cassava (sweet)
Sayan or Gotong royong:	exchange labor among neighbors or relatives
Selawatan:	an association that meets to read the Koran Samar: uncertainty
Sapi doro:	heifer
Sawah:	irrigated (rice) field
Sebik item:	the name of a local variety of cassava (bitter)
Seli:	the name of a local variety of maize
Sembung:	the name of a local variety of cassava (bitter)
Sengon:	albizzia ( <i>Albizzia lebbeck</i> )
Sengon laut:	albizzia ( <i>Albizzia falcata</i> )
Sepon:	the name of a local variety of cassava (bitter)
SD:	an acronym for Sekolah Dasar (Primary School)
Seli:	the name of a local variety of maize
Sembung:	the name of a local variety of cassava
Slamatan:	a religious meal meant to give thanks
Slumprit:	the name of a local paddy variety
Sengon:	albizzia lebbeck, albizzia
Sengon laut:	albizzia falcata, albizzia
Sepon:	the name of a local variety of cassava

SMP:	an acronym for Sekolah Menengah Pertama (Junior High School)
Somah:	household
Srisedani:	the name of a local variety of gogo rice
Srinthil:	goat or sheep manure
Sumur belik:	a well, either privately or publicly own
Suket(Javanese):	grass
Surat Jalan:	a free pass
Susuk-sinusuk:	a mechanism of selling and buying a calf or heifer between an owner and a rearer after an animal been assessed by a blantik
Suweg:	a kind of root crop, usually planted in the home garden or in less fertile land; it is usually consumed for breakfast

## T

Tandur:	planting
Tahlil:	see Selawatan
Tanah babatan:	sometimes also called Tanah baon: lands belonging to the PERHUTANI (see PERHUTANI)
Tanah bengkok:	official land
Tanah warisan:	inheritance of land
Takdir:	fate
Telo babonan:	good varieties of cassava
Tiyang cekap :	neither rich nor poor
Tiyang mlarat:	the poor
Tiwul:	processed dried cassava for home consumption
Tebasan:	pre-harvest sale of crops when they are already visible; the harvest is organized by the penebas (people who organize the tebasan)
Tegalan:	dry arable farming system
Tembakau:	nicotiana tabacum, tobacco
Telo Jawa:	a name of cassava, local variety
Tani ukil:	skilled farmer
Tongkol:	a name of local variety of maize
TRI:	an acronym for Tebu Rakyat Intensifikasi (Intensified Sugarcane Grower's Group)

## U

Utang:	to borrow money
Uwi:	yam

## W

Wadang:	the name of a local tree (pterosperrum acerifolium)
Wektu mbiyen:	the past
Wektu samengko:	the present
Wektu tembe mburi:	the future

## **Curriculum Vitae**

Solichin Abdul Wabab was born in Malang, East Java in Indonesia on November 1, 1948. After completing his secondary education in Malang in 1967, he graduated from Brawijay University in Malang with a BPA degree in Public Administration in 1972. He continued his studies at Brawijay University and obtained a Doctorandus (Drs.) degree in the same field in 1978. Since then, he has been a member of the Faculty of Administrative Science at the university.

Mr Wabab also studied at the Institute of Social Studies in the Netherlands from 1986 to 1987, where he obtained an MA degree in development studies. His specialization was public policy and administration. He was promoted to senior lecturer in public policy at the Faculty of Administrative Science at Brawijaya University in 1990.

From 1990 to 1992 he was member of an Interdisciplinary Research Training project (INRES) carried out by Brawijaya University, Wageningen Agricultural University, and the University of Leiden. The aim of this project was to develop new methods to conduct farming system analyses. His work in this project has enabled him to carry out field work for his PhD on decision-making processes.