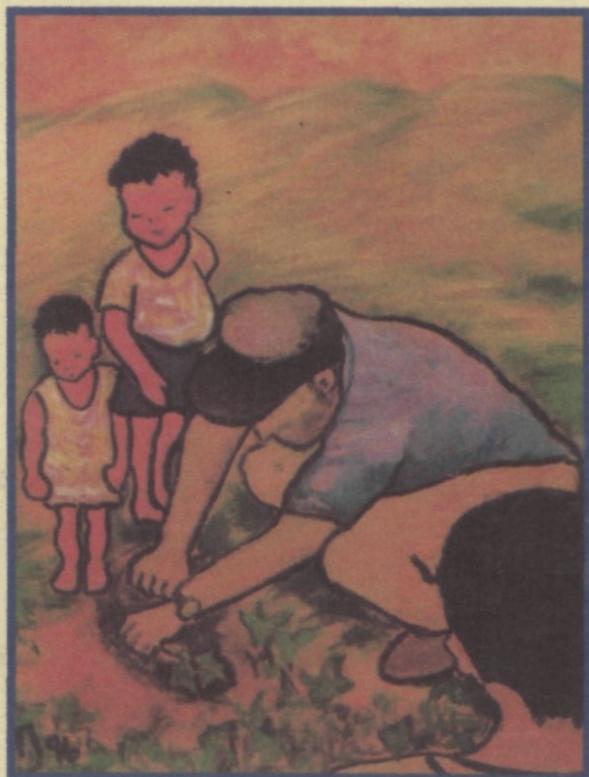


SERIE UPWARD working paper 5

Rural livelihood systems: A conceptual framework

Anke Niehof and Lisa Price



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Upward Working Paper No. 5

Rural livelihood systems: A conceptual framework



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UPWARD is a network of Asian agricultural researchers and development workers dedicated to the involvement of farming households, consumers and other users of agricultural technology in rootcrop research and development. It is sponsored by the International Potato Center (CIP) with the funding of the Government of the Netherlands.

The purpose of the UPWARD Working Paper Series is to encourage debate, exchange ideas, and broaden our knowledge of rootcrop production and utilization through understanding the perception of farmers, consumers and other users. The views expressed in the papers are those of the author(s) and do not necessarily reflect the position of the UPWARD Network.

Comments are warmly invited.

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Preface

At the UPWARD Bogor workshop in 1999, the Wageningen-based Dutch Support Network (DSN) for UPWARD was requested to write a paper on the subject of the concept of livelihood that would be useful for UPWARD researchers. Responding to this request, DSN-members Anke Niehof and Lisa Price wrote a position paper on the concept of livelihood.

Discussions within the DSN in Wageningen took the idea one step further. It was decided to write several papers of which the position paper would be the first. Based on the conceptual framework in this paper, other papers would have to be written. Although these would cover distinctive fields, they would all focus on the concept of livelihood and be linked to the position paper.

Eventually, the Wageningen-UPWARD series on Rural Livelihoods was developed. The series will consist of a series of booklets, which will follow the format of the UPWARD working papers, and which will be printed in the Netherlands. All booklets will have the title of the series on the cover. The series as a whole will be edited by Aad van Tilburg and Anke Niehof. The first three publications of the series will come out in the spring of 2001. The first one will be the original position paper, called: *Rural Livelihood Systems: A Conceptual Framework*, by Anke Niehof and Lisa Price. The second one will be by Conny Almekinders and Jaap Hardon, and will be entitled: *The Role of Genetic Resources in Rural Livelihood Systems*. Number three is by Aad van Tilburg and is entitled: *Livelihood Diversification of Farming Households in Northwest Sierra Leone*. A fourth one will be on livelihood, food, and nutrition (by Marianne van Dorp and Wijnand Klaver). It is envisaged that a few more will follow.

The Los Baños office of UPWARD will be provided with a stock of sets to distribute among UPWARD researchers and research institutes affiliated with UPWARD or CIP. The DSN sees this series as a collaborative effort with UPWARD and, at the same time, as a DSN contribution to UPWARD research.

This first paper in the series deals with a number of issues that concern the concept of livelihood. It starts with a general discussion on the concept in which a model is presented that pictures the various linkages between livelihood, household, resources, and environment. In the following sections the topics of resources and assets, livelihood vulnerability, and the relationship of livelihood to household and livelihood to gender. The paper winds up the discussion by looking at the complexity of livelihood environments and at the themes of interdisciplinarity and the place of the users' perspective in relation to the concept of livelihood.

Keywords:

Livelihood generation, livelihood vulnerability, resources, household, gender.

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1. Introduction

In this paper we explore the concept of rural livelihood and demonstrate its relevance for research in the rural sector. The users' perspective with a household focus has been, and continues to be, an important orientation of UPWARD research. The concept of livelihood has now been added to this central orientation in UPWARD'S new phase. The central role of the concept of livelihood in future UPWARD research does not mean a shift away from the users' perspective or from the household level of analysis. We see the household as the locus or the immediate context of livelihood generation. Furthermore, we believe that for participatory research approaches, in which the users' perspective is a central tenet, it is important to understand livelihoods and the potential impacts of interventions.

For researchers to effectively integrate the concept of livelihood, it is important to reflect on its meaning. This paper is a contribution to clarifying the concept. We also hope that this clarification will also allow results of related research project sponsored by UPWARD to be more comparable and thus more amenable to a meta analysis.

We start the paper with a discussion of the concept of livelihood in general and go on to emphasise rural livelihoods. We then discuss the issues of livelihood sustainability, the links between livelihood and household, and the issue of gender in relation to livelihood. We conclude the paper with a look at the relevance of the concept of livelihood for interdisciplinary agricultural research and development.

2. Livelihood as a concept

In the UPWARD publication "Sustainable livelihood for rural households: contributions from rootcrop agriculture" (UPWARD, 1998), the concept of sustainability receives more attention than that of livelihood. In the preface, Campilan, when discussing sustainable livelihood, lists key issues for the study of sustainable livelihood. The third and the fourth one are especially relevant to our discussion of the concept of livelihood. As the third issue, Campilan points to the necessity of integrating the fields of genetic resources, production, utilisation, and development effects in rootcrop research. As we hope to show, the concept of livelihood can perform such an integrative function. The fourth issue mentioned by Campilan is the need for households to have the knowledge and skills to enable them to manage a

more complex livelihood environment (Campilan, 1998: xi). Although Campilan does not spell out what he means by 'a more complex livelihood environment', he touches here on an important issue, to which we shall come back below. In his contribution in the same publication, Wheatley explicitly raises the question of what is a sustainable household livelihood. He cites the definition of the World Commission on Environment and Development (WCED): "adequate reserves and supplies of food and cash to meet basic needs", and states further that "sustainable livelihood can be assured through:

- Stable employment with adequate remuneration;
- Engagement in productive activities which are ecologically sustainable and economically sound;
- Ownership of or access to resources and their management, within their capacity to recover".

The wording "within their capacity to recover" presumably refers to the use of resources in such a way that they are not irreversibly depleted. Wheatley summarises that a sustainable livelihood is achieved "when a viable enterprise trades and/or adds value to the primary products of a sustainable agro-ecological system" (Wheatley, 1998: 4-5). In this summary sustainable livelihood is equated with sustainable enterprise, which is quite different from the emphasis on basic needs in the WCED definition. Several questions emerge from the discussion above as follows:

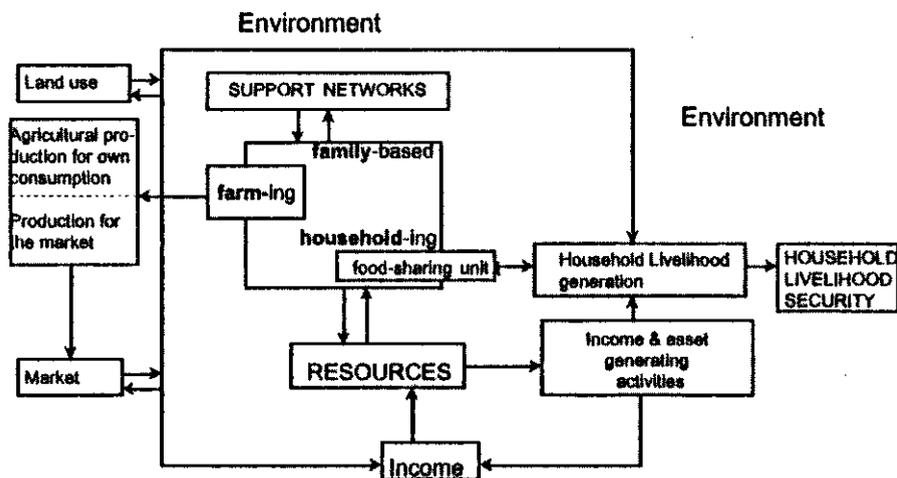
- What is livelihood?
- When are livelihoods sustainable?
- What is the relationship of livelihood to household?
- How do we interpret a complex livelihood environment?

In this section we will attempt to answer the first question. The other questions will be dealt with in subsequent sections.

A livelihood is the material means whereby one lives. Livelihood generation refers to the bundle of activities that people undertake to provide for their basic needs (or surpass them). For the results or outcomes of those activities the term livelihood is used. Livelihood as a concept for research and development thus includes what people do (given their resources and assets) and what they achieve by doing it. Chambers (1989: 7) defines livelihood as "adequate stocks and flows of food and cash to meet basic needs", which is a definition along the same lines as the WCED definition quoted above. Our problem with these definitions is that they do not distinguish between the dimensions of process, activities, assets and resources, and outcomes. These flows or supplies of food and cash are not just there. They have to be brought about through the process of livelihood genera-

tion, which is comprised of activities and the resources and assets needed to carry out these activities. We also assume that these activities are interrelated and affect each other, because they are all geared towards the objective of securing and enhancing livelihood. Therefore, livelihood generation will display the workings of a multifaceted and dynamic system, which we call the livelihood system. By applying an ecosystem perspective (Deacon and Firebaugh, 1988; Hardon-Baars, 1994), we can more clearly see how outputs are generated by using resources, and how important strategic management of resources, also referred to as throughput, is.

Figure 1: Backward linkages of household livelihood security



In Figure 1 above crucial linkages are pictured that relate desired output, namely livelihood security, to the activities and means (inputs and throughput) required to achieve it. The whole of the linkages and the boxes they link is the livelihood system. The box in the centre depicts the family-based farming household system, consisting of the sub-systems of family, farm and household. These sub-systems overlap, but their boundaries do not necessarily totally coincide. For example, non-family may belong to the household.

As can be seen in the figure, the livelihood system is embedded in a wider environment and interfaces with other systems. For rural livelihoods the ecological, economic (markets), and socio-cultural environments are of particular importance. The household as the level of analysis occupies a central place in the diagram. Householding or household production can be seen as a bundle of activities, directed at satisfying the material needs of the household members and at creating the conditions for the satisfaction of immaterial needs (Hardon-Baars, 1994). The satisfaction of these needs requires inputs, which we call resources and assets. The processing, use and management of these inputs constitutes the throughput of the system. An important output of household production is livelihood. Households can only accomplish the aim of satisfying all these needs when they generate livelihood. Having accomplished livelihood security implies that the household can provide for its members' needs in a sustainable way.

The livelihood activities comprise the most active part or the throughput of the livelihood system. Livelihood activities are often of various kinds. The bundle of activities carried out to achieve a certain livelihood can be called a *livelihood portfolio*. For instance, the livelihood portfolio of a sweet potato farming household could include cultivating sweet potato for own consumption, raising pigs (and feeding them with sweet potato leaves), household noodle production for the market, and migrant labour. People do not generally carry out livelihood activities in a haphazard manner. They have strategies by which the activities are structured and on the basis of which they are planned. These *livelihood strategies* are part of the system's throughput, as are the decision-making and management needed for strategy implementation.

Households and individuals

With regard to livelihood in relation to household, we tend to speak of household strategies and household decision-making. This is not to imply that households are monolithic units without which there is no differentiation in status, power, or interests of different household members. However, we do think that "households, like all enduring groups, must have emergent properties which we can treat as existing above the individual level" (Anderson et al., 1994: 48). Thus, within the household there are joint strategies and there is joint decision-making. But, at the same time, individual members can have their own strategies and take their own decisions, either or not for the benefit of the household as a whole. Though, obviously, there are limits to the degree individual household members can pursue their own individual interests. Belonging to a household entails preserving a minimum level of solidarity.

We may conclude that there are different patterns of operation of households, depending on the degree to which strategies are jointly designed and decisions are jointly taken. In an article on how households cope with poverty it is stated as follows: "Where men and women have separate budget responsibilities, each may adopt different strategies for maintaining their own as well as their dependants' livelihoods. But even where – ideologically and practically – women and men are seen as part of households which pool income (although usually controlled and distributed by the head), women can try to protect their own separate income sources as part of a personal survival strategy" (Johnson, 1992: 380). In the section on gender we will come back to these issues. Gender is an important factor in the household production of livelihood.

Decision-making forms part of household resource management. It is a component of the throughput of the livelihood system. As regards household decision-making, there are several points to take into account. First, there are four dimensions to decision-making: the subject or topic, the decision-maker(s), the outcome or the decision, and the process of decision-making. It rarely makes sense to discuss decision-making in general. How decision-making takes place, who is involved and what the outcomes are, usually depends on the subject that is decided upon. In a study on the role of gender in agricultural decision-making in rural households in China, this proved to be very important. In this study (Chen, 1996) the analysis of decision-making was narrowed down to the actors and the outcomes. There proved to be topics on which men were the main decision-makers, topics on which women were the main decision-makers, and topics on which decisions were jointly taken. But this pattern shifted depending on the kind of farming household involved. Five types of farm management were distinguished: joint management, mainly male managed, mainly female managed, exclusively male managed and exclusively female managed farming households. The role of women in decision-making on farming issues differed significantly according to the type of family household. Thus, household-decision making is a complex issue. Joint decision-making cannot be taken for granted, but has to be investigated empirically, by conducting interviews and doing observation.

The adjective rural

With regard to the rural sector, we include not only households who actively and directly engage in agricultural production. Households which have no farm of their own but sell their labour to agricultural producers, or make a living from processing, storing or exchanging local agricultural produce or

from facilitating or marketing agricultural produce, are also regarded as rural households. Thus, rural livelihood systems comprise livelihoods directly based on agriculture, those linked to agriculture, and livelihoods which are based on non-agricultural activities. Furthermore, rural livelihood systems can have components linked to or based on agriculture, as well as components not linked to or based on agriculture.

The contents of a household's livelihood portfolio have to be empirically assessed for these various components and their role in the livelihood system. In a publication about rural livelihoods it is warned that: "Agriculture and its linked activities are key to rural economy but not identical with it, nor do they necessarily generate sufficient employment and other livelihood opportunities in the countryside" (Bernstein, 1992: 3). In the same publication the following table can be found:

Table 1: Means of rural livelihoods other than farming land

| | Wage employment by: | Self-employment in: |
|-----------------------|---|--|
| Agriculture | (Richer) farmers | Share-cropping or other Tenant-farming |
| Agriculturally linked | Input suppliers, contractors, crop merchants, transporters | Artisanal production, Small-scale processing |
| Non-agricultural | Industry, trade, other services | Handicraft production, petty Trade and other services |

Source: Bernstein, 1992: 4

The table shows the different kinds of livelihoods (or components of livelihood portfolios) that can be found in rural areas. The table is important for three reasons. First, it draws our attention to the pluriformity of rural livelihoods or livelihood portfolios. Second, given this pluriformity, it implies that agricultural activities cannot be studied in isolation of other means of livelihood. Third, it includes the variable of class. Vulnerable or poor livelihood systems will have the kind of means of livelihood found in the second column of the table. Of course, there will always be linkages and often relationships of interdependency between the livelihoods based on activities in the first and second column.

Households in which the main means of livelihood is agriculture (the first row in the table) are farming households. In the diagram above, the dimen-

sion of farm is integrated with the dimensions of household and family. This reflects the theoretical point of departure that we see farming households as family-based merged systems of agricultural and domestic production and consumption (Niehof, 1998). In this way, the farming system forms part of the household system and the livelihood system. The same applies to households whose means of livelihood are agriculturally linked (second row in the table). For example, artisanal production and small-scale processing are integrated with domestic production. In such activities family labour is always – at least partly - used. Also in handicraft production and petty trade (third row in the table) family labour plays an important role. This integration of economic and domestic production and the interchangeable allocation of household resources are typical of subsistence level household economies.

The rural households whose means of livelihood can be found in the second column and the first two rows of the table, constitute the focus of this paper. UPWARD research is mainly directed at households engaged in subsistence farming and at households engaged in subsistence farming in combination with small-scale processing or artisanal production. However, we have to keep in mind that rural economies are made up of different kinds of livelihoods, and that the kind of livelihood systems which are the primary subject of this paper should not be studied in isolation from the others.

3. Resources and assets

The inputs to the livelihood system are resources and assets. Resources can be seen as immediate means needed for livelihood generation. Engberg (1990) distinguishes several types of resources:

- Human resources, which are needed to provide productive labour, and which consist of cognitive skills, psychomotor skills, emotional skills, social skills, and physical strength;
 - Material resources, such as land, money, livestock, agricultural tools, space, facilities (e.g. household water supply), means of communication and transport, etc.;
 - Environmental resources, which can be divided into resources in the physical environment (both natural and man-made) and resources in the socio-institutional environment (such as markets, kinship networks, etc.).
- As Engberg notes, time is an important factor in the use and management of resources. It is neither human nor material, but all activities have a time

dimension. "It cannot be accumulated or increased but the way it is used can be altered and organised" (Engberg, 1990:17). Time allocation is an essential variable when studying livelihood generation. It is also a variable that is particularly sensitive to gender differences. Gender plays a role in the normative aspects of time allocation: what are men and women supposed to spend their time on, and time allocation has to be related to what is referred to as the practical gender needs (see Moser, 1994). There is much more to say about gender in relation to resources and livelihood. This will be the subject of one of the next sections.

Based on Engberg, a slightly different classification of resources and assets can be made. Before we present this classification, we have to make some remarks on the difference between the concepts of resources and assets. Quoting Swift (1989:11), we see assets as "a wide range of tangible and intangible stores of value or claims to assistance". In other words: assets can be converted into resources when necessary, in day to day living as well as in a situation of crisis. For instance, experience can be an asset. It becomes a resource when people apply it to a new situation, using their cognitive skills to do so. Livestock is an asset when it is kept for its value. It can be converted into money when the need arises. Livestock is a resource when used in agricultural and domestic production. Biodiversity at farm level is an asset. It becomes a resource when is it purposively used in agricultural and food production.

We see liability as the opposite of asset. For example, good health is an asset, bad health is a liability, while labour (for which you need good health) is a resource. In rural Sub-Saharan Africa, where so many households are affected by the AIDS-pandemic, this might be an important perspective. While gender is included in the matrix below as an asset or resource, gender can also be a liability! In the matrix, the distinction between resources and assets is not made. Resources and assets are grouped according to the level at which they are available and accessible, and according to their nature: material or immaterial.

In Table 2 we have grouped relevant resources and assets according to level (personal, household, or environmental) and we made a distinction between material (tangible) or non-material (intangible) resources and assets. At the environmental level biodiversity can be both natural and the result of human interventions.

Table 2: Resources and assets in livelihood generation

| | Personal level | Household level | Environmental Level | |
|--------------|---|--|---------------------------------|---|
| | | | Natural | Man-made |
| Material | Physical strength, health, talents | Space, income, tools, buildings, livestock | Land, soil, water, biodiversity | Infrastructure, biodiversity |
| Non-material | Skills, education, gender, experience, capabilities | Experience, knowledge, management, information | (kinship) | Market, church, social/political institutions, support networks |

In the table kinship is placed between brackets as a natural environmental resource. The brackets are there, because though kinship has a natural or biological base, it works only through the meanings people attach to it. After a discussion about the impossibility of finding a universally applicable definition of kinship, Harris (1990: 31-2) concludes: "The only thing kinship systems have in common is that they are cognitive systems employed for the ordering of social relationships which have reference to some aspect of 'physical' kinship". The brackets do not mean that kinship is not important. On the contrary, empirical evidence shows the importance of kin relations, also in livelihood generation. For example, Mula (1998) describes in her study the role of kinship in the coping strategies of rural households faced with a continuing disaster. Kinship relations and networks are included in the support networks, which are placed in the man-made column of environmental resources and assets. Having an extended kinship network is an asset, because of the claims to support that it implies. A last note on the contents of the table is that (agro-) biodiversity has been placed in both the natural and the man-made column. Biodiversity is a nature-based asset or resource, but it can be enhanced through human intervention.

The concept of entitlement can be placed in the linkages between the levels. For example: gender determines entitlements to land, household income may determine entitlements to political offices, etc. Personal level and household level assets determine access to and claims on environmental resources. This matrix can then be linked to the diagram in which livelihood security is an outcome of domestic and agricultural production, for which resources and assets are needed. In the diagram, the support networks are given a separate box, although they are part of the resources a household has. This is done because of their evident importance and to make them more visible. Above we already referred to kinship-based sup-

port networks, but support networks need not be kinship-based. Support networks can be based on geographical proximity, for instance. Institutionalised relationships of labour exchange and mutual help, such as *gotong royong* in Indonesia and *bayanihan* in the Philippines, constitute support networks.

The health and stability of rural assets and resources are of increasing concern in research and development. Negative changes in these will undoubtedly impact livelihood activities. Changes to environmental parameters such as soil quality, human parameters such as family farm labour, economic environments such as markets, and changes in agro-biodiversity, will all ultimately feed back into the livelihood system and impact livelihood strategies.

The output of the system is livelihood. When judging the quality of the output, in the sense of achievement of the system's objective of provision for basic needs (and beyond), some livelihoods are better than others. Livelihoods will differ according to their degree of sustainability or vulnerability.

4. Sustainable and vulnerable livelihoods

Chambers (1989:6) describes sustainability in the context of livelihood as the ability to maintain and improve livelihoods while maintaining or enhancing the assets and capabilities on which livelihoods depend. Vulnerability has to do with not having enough assets and the inability to create or maintain them (Swift 1989). In case of unsustainable or vulnerable livelihoods there is an insufficient base of assets and resources (including management and planning capabilities) to achieve a secure livelihood. The livelihood that is created is inadequate and cannot be maintained in the long term. Sustainable livelihoods are those that can avoid or resist stress and shocks and are able to bounce back when affected, while vulnerable livelihoods cannot cope with stress and shocks without being damaged. Vulnerable households have problems in providing for their members' basic needs, are unable to create a surplus, and are often chronically in debt.

In the livelihood strategies employed by rural households, *coping strategies* are a particular kind of strategy. Coping strategies are aimed at dealing with recurrent, hence foreseeable, situations of stress. For example, lean months during the pre-harvest period, for which agricultural households are

more or less prepared. They are strategies in the sense Anderson et al. (1994:20) use the concept of strategy: "as a useful shorthand for the overall way in which individuals, and possibly collectives, consciously seek to structure, in a coherent way, actions within a *relatively long-term perspective*" (our italics). Coping strategies, being strategies, have to be distinguished from *coping*. According to Davies (1993:60) coping in relation to food security can be described as "a *short-term response* to an immediate and inhabitual decline in access to food" (our italics). When people or households are just coping, they try to manage a stressful event or situation for which they could not prepare (Boss, 1988). Coping is a short-term reactive response, which has not been premeditated and, hence, does not have a strategic character.

A sustainable livelihood is also a secure livelihood. There is a relationship between the degree of livelihood security - or livelihood vulnerability when seen from the other end of the scale - and the kind of strategies that are used. Based on this relationship, the following typology of livelihood systems can be made:

- Secure livelihood systems based on effective and viable livelihood strategies, which do not need coping strategies;
- Vulnerable livelihood systems which need effective coping strategies to bridge difficult periods but are normally able to do so;
- Extremely vulnerable livelihood systems which break down in a situation of stress because of a lack of assets and an inability to develop effective coping strategies.

The last type of livelihood system is dependent upon external assistance during periods of stress. In between such periods, households with extremely vulnerable livelihoods will try to cope as best as possible or try to 'get by'.

The typology shows the relationship between strategies and resources and assets. Not only do strategies need resources and assets to be implemented, but the resources and assets a household can dispose of, also limit the scope and kind of strategies it can develop and their effectiveness. Lack of assets hinders the ability to design and implement effective coping strategies, pushing households into the category of households with extremely vulnerable livelihoods in the end. Sustainable strategies can be defined either in terms of the ability to maintain and enhance assets (Chambers, 1989), or in terms of the capacity to recover (or replace, one might say) resources (Wheatley, 1998). Vulnerability is defined as the inability to do so (Swift, 1989). In a Wageningen thesis on household food security in

Zululand, South Africa, it is shown that the relationship between strategies and assets/resources can be pictured as a spiral. Depending upon whether there are sufficient assets and resources and whether they are effectively mobilised for implementing livelihood strategies, assets and resources may be enhanced, degraded, or stabilised. In terms of resulting degree of vulnerability, households may manoeuvre themselves in an upward spiral or may be trapped in a downward spiral (Van den Herberg, 1999:122).

A typology such as this one can be important for policy purposes. Provided valid indicators can be found, it can be used to detect the most vulnerable category, in need of government assistance, or to identify vulnerable households in view of foreseeable problems (e.g. in case of drought). In the study on household food security in Zululand, South Africa, mentioned above, indicators were developed and applied to categorise rural households according to their degree of food (in)security (Van den Herberg, 1999).

In an article on household livelihood strategies Frank Ellis points to the importance of diversification as a strategy. He defines livelihood diversification as "a process by which rural families construct a diverse portfolio of activities and social support capabilities in order to survive and to improve their standards of living" (Ellis, 1998:1). The importance of diversification as a livelihood strategy will be reflected in the varied nature of the livelihood portfolio.

5. Livelihood and household

The answer to the earlier posed question about the relationship between livelihood and household forms the subject of this section. Above we discussed the concepts of livelihood, livelihood strategies, livelihood portfolio, vulnerable livelihoods, and so on. The logical question to ask is: whose livelihood (strategies, portfolio, etc.)? To make the concept of livelihood concrete and workable it has to be tied to a person or a group. In line with the household focus in UPWARD research, we will relate livelihood to household, and we will show that there are good reasons to do so.

Taking as our point of departure for discussion the statement that "households are one of the basic units of human social organisation. Though variable in form, depending upon cultural norms, environmental conditions, and particular circumstances, households represent to a large extent the

arena of everyday life for a vast majority of the world's people" (Clay and Schwartzweller, 1991:1, our italics). It is within this arena of everyday life, this 'basic unit of human social organisation', that the activities to provide for people's basic needs are undertaken. Livelihood is generated within the household. Ingrid Rudie has defined household as: "a co-residential unit, usually family-based in some way, which takes care of resource management and primary needs of its members" (Rudie, 1995: 228). Especially in the last part of this definition the overlap between livelihood and household becomes apparent. Above we already identified resource management as an important function in livelihood generation. Resource management of households is geared towards providing for the needs of its members, among them the primary (as Rudie says) or basic needs. Livelihood generation by using resources and assets is a main, though not the only, activity of households.

Because the fulfilling of basic needs rests upon the household, it makes sense to study livelihood portfolios at the household level. Likewise, livelihood strategies should be analysed at the household level, taking into account variation within households that impact the portfolio such as gender and age as well as the diversity that may be present between households based on differential assets and resources. The links between livelihood and the household are illustrated in the diagram presented earlier. They can be summarised as follows:

- Households are collectives involved in making and sustaining arrangements for resource management in order to provide for the basic needs of their members.
- Households generate livelihoods on the basis of strategies.
- The ultimate aim of these strategies is achieving livelihood security.
- The livelihood system is the integrated whole of arrangements and activities carried out by households to achieve this aim, including the resources and assets needed for this.

As food is perhaps the most important basic need of people, an overlap between the concepts of livelihood security and food security is to be expected. We see livelihood security as the more encompassing concept. Households with secure or sustainable livelihoods are also food secure, but the reverse is not necessarily always the case.

Food security may be achieved by households at the expense of providing for other basic needs, such as the need for proper clothing or shelter, though the food security of such households might be more spurious than

real. The category of extremely vulnerable households with regard to livelihood security (see typology above) will also not be food secure. The second category of households with vulnerable livelihoods may be food secure most of the time, though in difficult periods the coping strategies they use might boil down to foregoing other needs in order to be able to provide food.

The pitfalls in assessing household food security were discussed in Niehof (1998). When food security is subsumed under livelihood security these pitfalls apply to assessing livelihood security as well. Only sound empirical research can lay bare the actual mechanisms and strategies involved in the efforts of households to achieve both food security and livelihood security. Mapping the available and accessible resources and assets of the household, and investigating their allocation and use, are crucial for getting the complete picture. Here, the indivisibility of resources and assets has to be stressed. As we explained above, farm, family and household are to be seen as a merged system. A subsistence farmer cannot separate the assets and resources needed for farming and from those needed for maintaining the household. Their allocation and use will simultaneously affect the farming system, the household system, and the total livelihood system.

6. Gender and livelihood

The gender-based division of labour within households is one of the most recognised aspects of how a household pursues its livelihood strategies. What men versus women do is in part reflective of their culture, that is, male and female roles are constricted by what is deemed fitting male and female behaviour. What is deemed socially appropriate is learned behaviour, despite the fact that gender roles are associated with ones biological sex, these roles are not innately based on (caused by) biological sex. Cross-cultural data on the sexual division of labour show great variation in what men and women have as tasks, and the pioneering research of Margaret Mead on sex roles and personality illustrated that psychological attributes of men and women were also culture bound. For example, in some societies women are said to have attributes such as being sensitive, and gentle and in other societies women are thought to have aggression and shrewdness as attributes (Mead, 1935: 1950). Gender roles are further impacted by such factors as the household's level of wealth and social position. Gender is a strong organising principle within the household and

the way gender roles manifest themselves in livelihood strategies will intersect with ethnicity as well as class (or caste in the case of South Asia) and other variables such as age and wealth.

While men and women in households typically work together toward the wellbeing of household members, they are commonly engaged in different activities. They have different tasks and thus allocate their time differently. Even when they work in one enterprise, they are most commonly responsible for different aspects. For example, within agriculture women are commonly responsible for weeding and men for ploughing. In some cases this division between the male and female domain in livelihood generation can be very inflexible and strictly enforced. Highlanders of Papua New Guinea divide crops into those that are women's crops and those that are men's crops as well as a number of crops that are neither male nor female. For example, only women plant and tend sweet potato and only men plant and tend yams. Women who attempt to plant a male crop are subject to physical violence while men who attempt to plant and tend a female crop are subject to social ridicule (Sillitoe, 1981).

Technology interventions can often impact the livelihood activities of either males or females with subsequent implications for the livelihood system of the household as a whole. For example, Johannessen (1982) found that the introduction of a diesel-powered maize grinding mill that replaced women's hand grinding also eliminated women's concern for having soft grains. "In the old days, women preferred the softer grains since they had to grind corn by hand. Because this wasn't man's work, the men used to - and still do- concern themselves primarily with the keeping qualities of maize. Therefore men favour flint - crystalline - starch that is considered most resistant to insect attack" (Johannessen, 1982: 89). The introduction of milling technology had an impact on not only gender-based labour, but at the same time on other aspects of gender-based difference, in this case crop characteristic preferences. While not discussed by Johannessen, subsidiary impacts on the livelihood system may also include the transformation of soft grained maize from a resource back to an asset and ultimately the elimination of soft grained maize varieties completely (shifts in agro-biodiversity assets).

In other instances, we see women taking over male labour roles in farming. What is termed the "feminisation of agriculture" (Price and Broun, 1999) is a global trend and occurs not only because of from male out-migration to cities, but also because of desertion and male death. Certainly AIDS has

also had an impact on rural households leaving only the very old and young. Shifts in labour allocation that accompany these demographic transformations of course affect children in households too. Children can be required to work more and attend school less or they can suffer nutritionally as their mothers or grandmothers prepare fewer meals with less diversity, or have less time to devote to the care of very young children.

Women, in general have more restricted access to resources they can command compared to men, this is particularly critical among the poor and landless, as poor women invest their earnings more in child welfare than poor men (Buvinic, 1995). This is compounded by the fact that even when women work as agricultural labourers they make half or less than half of what men make as agricultural labours. The trend of increasing male migration in Asia is also coupled with a trend in the increase of women working for agricultural wages as labourers (Mehra et al., 1992).

While men and women engage together in enterprises, the control over human, material and environmental resources is commonly different for men and women within their households. Although men and women ideally co-operate to attain a secure livelihood system, their interests can come into conflict. In most poor rural households both men and women are engaged in survival strategies, but decision-making strategies are along the lines of each genders domain of responsibilities and the resources he or she can command. This includes areas where livelihood activities can or cannot be expanded, who decides, who does the work with what resources, who controls the product or income, and who decides how to allocate it. Assets within the household are often accompanied by gender-specific customary and or legal entitlements. These rights are important to have resources available for the enhancement of livelihood activities but they are critical in times of duress and include the ability to make decisions to borrow from kin, sell livestock, borrow from moneylenders, pledge land, sell land, and sell other household assets. These gender-based rights in many cases are ascribed, that is, are a socio-cultural product based on whether one happens to have been born a male or female. In this sense, women may or may not have a right to own land, they may or may not have a right to sell in the open market, and may or may not be able to decide how to even allocate their own labour and the fruits there of. In the final analysis, one's gender may be an important livelihood generation asset; including tangibles such as mentioned above, as well as intangible assets like gender-based indigenous knowledge and support networks.

The livelihood portfolio of a rural family reflects not only gender-based access to and control of resources and opportunities within households but also between households. The diversity observed in livelihood portfolios is not only culture-specific, but indeed depends upon strategies taken by male and female members in the different households in a given community. Studies conducted of women farmers and wild food collection and marketing illustrates this point. A province-wide study on the gathering and marketing of wild foods by women farmers and a group of non-marketers of these foods in Kalasin Province, Northeast Thailand, showed two distinct household income generation strategies. In the households of women marketers, women's cash contribution from the sale of wild foods made up 36.6% of household income, while the households of non-marketers showed the female head's financial contribution to household income to be a meagre 0.1% of the total. This was a statistically significant difference in women's own earnings. While husbands in the non-marketing households made a much higher financial contribution to the total household income, there was no statistically significant difference between the contribution of husbands in the two different household types nor between the households with regard to the contribution of other family members. Ultimately, the difference in the total income from all sources in seller households and non-seller households was not statistically significant (Moreno-Black and Price, 1993).

As the Kalasin case shows, looking at aggregate household income may often not reveal the true state of livelihood generation activities and using a standardised questionnaire without social insight may have missed this important income and livelihood generation activity women pursue. Thus, the user perspective coupled with the household level of analysis (intra- and inter-) is crucial to capturing a clear picture of livelihood. Likewise, coupling such an investigation of household's livelihood to gender-based assets and resources reveals their important linkage in the livelihood system. Gathering and marketing are women's work. The control of income from the marketing of wild foods as well as the control of gathering rights and access to these foods, are in the hands of women. This can be explained by their position as landowners in a system where agricultural and other land is inherited matrilineally and residence patterns are matrilocal. Thus, women had both the material resources (their own land or mother's land, from which they gathered species of high market value) as well as the socio-environmental resources of a female kin network on the basis of which both gathering and marketing groups were formed (Price, 1997).

Gender-based intra-household and inter-household strategies are both important areas of investigation. As the above case illustrates, the role that each sex plays has important consequences for the household livelihood portfolio. Using aggregate household income may mask selected contributions to a household's portfolio. Likewise, rigid and pre-determined labour and income categories for agricultural production, even when disaggregated by sex, can lead to an incomplete picture of livelihood activities undertaken by farming households (Feldstein and Jiggins, 1994).

7. The complexity of livelihood environments

Livelihood generation takes place within the household. The household is the immediate or internal livelihood environment. Household characteristics will affect the opportunities and constraints for livelihood generation. For instance, the proportion of people in the household who can actively contribute to livelihood generation in relation to those in the household who are dependent upon them is an important factor. Within the household environment the human and material resources needed for livelihood generation are encapsulated, and - as we said above - these resources are indivisible. We cannot just study the farming system and leave the household out of the picture.

Farming is a kind of livelihood. In the livelihood generation of a farming household, farming plays a major role. But the resources and assets needed for a sustainable livelihood based on farming are to be found in the household environment. This is actually not a very complex matter, but it is often overlooked in farming systems research. Looking at farming systems from a livelihood perspective requires a holistic approach, in which farm and household are together seen as integrated instead of separate. The complexity, if any, lies in the change of perspective, not in the concept of livelihood itself.

Households are embedded within a wider environment, which one could call the external livelihood environment. This environment offers resources (Engberg's environmental resources) but it also sets limits to livelihood generation. An extreme example is a disaster situation in which environmental resources are destroyed. In Mula's study, it is shown how the degradation of environmental resources in the wake of the eruption of the Mt. Pinatubo volcano kindled human resources; the innovativeness, perseverance, and social skills of the people in the communities affected by the

destructive effects of *lahar* (Mula, 1999). This example shows that people are never just the passive victims of adversity originating in the external environment. The human factor, in the sense of the allocation of human resources, will always be part of the situation. However, the decline or degradation of environmental resources will affect households differently according to the degree of vulnerability of their livelihood systems.

Given the variation in internal and external livelihood environments, it is not surprising that we will find a high degree of diversification in livelihood portfolios. According to Ellis, diversification may occur both as a deliberate household strategy and as a response to a crisis. It is a way to handle variation and uncertainties in the internal and external environments of households. Examples of diversification as a response to uncertainties in the internal environment, are provided by households in rural Sub-Saharan Africa who are afflicted by HIV/AIDS and have to cope with the dwindling away of their human and material resources. Diversification is both adaptive and reactive, as well as a way of making the most of a given situation. It can be a survival strategy of vulnerable households in times of stress, but it can also be an effective livelihood strategy, which prevents livelihood systems and households from becoming vulnerable.

Diversification as a notion is not inherently complex. That scientists and researchers engaged in rural development research might experience it as such, has to do with the compartmentalisation of research. As Ellis says, diversification as an individual or household level strategy "does not fit well into the conventional picture". It stands in contrast to confining notions of sectors and specialisation. The prevalent opinion is that diversification is merely a transient phenomenon or one associated with a struggle for survival. "Yet diversification may not be so transient, and it may be associated with success at achieving livelihood security under improving economic conditions as well as with livelihood distress in deteriorating conditions" (Ellis, 1998: 2).

8. Livelihood, interdisciplinarity, and the users' perspective

There are several implications of a focus on livelihood and the inclusion of the notion of diversification for research and rural development. First, a proper study of what resources and assets are used in livelihood generation, and of the way in which they are used and allocated, requires the input from various disciplines. The concept of livelihood as we have defined

and described it here, transcends disciplinary boundaries. Though the different disciplinary angles may relate differently to the concept of livelihood, in the end livelihood cannot be divided into sectors or compartments. The economic, social, agronomic, technical, political and other dimensions of livelihood cannot be treated as if they function apart from each other. Livelihood generation implies all those dimensions and they interact. Saving or strengthening livelihoods through external support requires a truly interdisciplinary endeavour.

The users' perspective retains prime place in all this. Livelihoods do not generate and sustain themselves. People generate and sustain livelihoods within the locus of their households. As Hardon-Baars (1997: 4) explains, though an observer may distinguish various categories of activities in household production, these are experienced as integrated by the household members. Livelihoods or households don't have needs. People have needs, which they try to satisfy by generating livelihood and by forming households. They can diversify their livelihoods and modify their households, according to the situation at hand. People have resources, use resources and are a resource. In his capacity as general advisor to the Minister for Development Co-operation, Prince Claus of the Netherlands used to say: "People *are* not developed, they develop themselves". They may need support in doing so, but this support can only be effective if the starting point is the people's own assessment of their own needs in their specific situation. This is what the users' perspective is about. It is also an actor perspective, because it is built on the assumption that people shape and re-shape their own situation and interact actively with their environment, using their skills, knowledge, and experience. Scientific support to rural livelihood generation can only be effective if the starting point is the users' perspective. Implied in the perspective is that there are different kinds of users, for instance of technological innovations. The perspective has to be fine-tuned to different groups of actors with different interests and to different or changing circumstances, in which factors like gender, generation (age) and class play a crucial role.

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