# SUSTAINABLE LIVELIHOODS IN SOUTHERN AFRICA:

# INSTITUTIONS, GOVERNANCE AND POLICY PROCESSES


**SLSA Working Paper 7**

## Diverse Livelihoods and Natural Resources: A Research Context

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# 1 INTRODUCTION

The purpose of this paper is to set out the principal considerations surrounding livelihood diversification that may be appropriate to take into account when researching natural resource access utilising the livelihoods framework. The points made here represent generalised findings about livelihood diversification, drawn from many different conceptual and empirical studies. Some of them may not be applicable to South Africa as a case-study country, due to the peculiarities of its past history whereby people were uprooted long ago from the natural resource basis of their livelihoods, and are now seeking to reconnect to land and farming as potential livelihood sources. In much of the rest of sub-Saharan Africa diversification takes place from an agricultural starting point, and it is the changing roles of farm and nonfarm activities, and the interaction between them, that are interesting from the viewpoint of rural poverty reduction.

A growing literature identifies the diverse livelihood strategies followed by rural households as a phenomenon the proper recognition of which could lead to an improved policy environment for tackling rural poverty. A number of considerations seem to lead in this direction: rural livelihoods are verified as diverse by numerous studies (Reardon, 1997); this diversity may be growing over time in sub-Saharan Africa (Bryceson & Jamal, 1997; Bryceson, 1999a); diverse livelihoods cut across orthodox economic sectors as well as across the rural-urban divide (Jamal, 1995); governments tend to be ill equipped to service or support diversity because they are organised along sectoral lines.

Research on livelihood diversification to date has tended to be preoccupied with four main aspects. One is the determinants of diversification i.e. the factors that cause families to adopt more diverse livelihood strategies, rather than switching between full-time specialised occupations (Ellis, 2000a). A second is the asset basis of livelihoods that permits this diversification to be more or less easily accomplished (e.g. Dercon & Krishnan, 1996). A third are the income distribution effects of different patterns of diversification (Reardon *et al*, 2000); and the potential to identify different income sources as having equalising or disequalising effects on rural incomes (Adams & He, 1995; Leones & Feldman, 1998). A fourth is whether diversification has beneficial or detrimental effects on farm output and productivity (e.g. Evans & Ngau, 1991).

It is worth noting that the links between diversification and natural resource access institutions is relatively under-researched; however some suggestive ideas about these links are discussed later in this paper.

## 1.1 Key findings from diversification studies

Starting with some brief points on the causes of diversification, the general SSA case is for this to occur when natural resource-based livelihoods are no longer able to provide a secure long-term livelihood on their own for a variety of reasons. Some of these are (i) land sub-division at inheritance causing plots to become less viable for family food security, (ii) adverse environmental change or cyclical trends that increase the risks associated with natural resource based livelihood activities, (iii) declines in agricultural markets relative to non-farm wage levels, making agriculture less viable as a source of livelihood, (iv) rises in input costs due to the removal of subsidies under adjustment programmes, and (v) deterioration in access to rural public services such as health or education due to poor economic performance, civil war, or cost-recovery policies under SAPs. These reasons are in addition to what might be called the "classic" or generic reasons for diversification, namely, mitigating seasonality and spreading risk in order to reduce individual and family vulnerability to adverse events and trends (Ellis, 2000a).

The proposition has been advanced by Bryceson (1999a, 1999b) that livelihood diversification in SSA has been accelerated by the negative impacts on the viability of natural resource-based livelihoods of structural adjustment programs. This process is referred to as "deagrarianisation". Some causes that fit into this hypothesis have already been mentioned in the preceding paragraph, viz. removal of agricultural price supports, removal of input subsidies, higher price risks due to market liberalisation, and cost-recovery in rural service delivery. It must be remarked, however, that this proposition is quite difficult to verify. There exist very few reliable longitudinal studies that would permit the inference that livelihoods are more diverse now than they were, say, twenty years ago. Some researchers have reached different conclusions, for example, that SAPs have enabled positive diversification, by choice, rather than due to negative impacts on farm-based livelihoods (e.g. Booth *et al*, 1993).

Findings on other aspects of diversification yield some interesting insights. Diversification can certainly improve food security in the face of high risks of drought or other climatic disturbances (Reardon *et al*, 1992). Indeed it is those most reliant on agriculture in marginal areas like the Sahel that are most vulnerable to such risks. The capability to diversify is enhanced by human capital in the form of higher education level (Dercon & Krishnan, 1996). However, wealth in virtually any capital e.g. land, or cattle, or education confers a greater ability to diversify (Dercon, 1998) because this overcomes barriers to access faced by the asset poor (lack of financial resources, inability to navigate officialdom). Education level is a critical determinant of the type of labour markets in which diversification takes place. Those with more education can gain jobs in skilled and salaried labour markets, while those with less education must often make do with casual, unskilled and part-time work in low wage labour markets.

This latter consideration helps to answer a frequent finding in diversification studies, namely that the poor and the better off may display the same proportional degree of diversification out of agriculture (e.g. nonfarm income corresponding to 60 per cent of total income), yet the absolute level of nonfarm income of the better off will be several times that of the poor (see Reardon *et al*, 2000). Whether participation in non-farm labour markets equalises or disequalises rural incomes depends on both asset and activity considerations (Adams & He, 1995). For those having little or no access to land (in Asia, the landless rural poor), improved access to non-farm income sources may have a beneficial effect on rural income distribution overall. However, improving the income streams of activities that depend on assets that only the better off are likely to possess will have an opposing effect.

In SSA, in general, there are marked gender and age differences in occupational mobility, so that women and children often continue to reside in the rural homestead, while men seek work in distant labour markets. In the past, this feature has been held to explain lack of success in achieving rises in farm productivity (Low, 1986). More positively, it may be male migration that ensures the food security of the rural homestead (David *et al*, 1995) given high levels of environmental uncertainty (c/f Reardon *et al*., 1992). A pertinent finding of the David *et al* (1995) study in the Sahel is that migration did not alter patriarchal patterns of decision making, nor the normative gender divisions of labour at household and village level. Key resource allocation decisions remained in the domain of male household heads despite their prolonged absence working in distant or urban labour markets.

The results of studies that have examined in detail the relationship between diversification and farm productivity are fairly mixed. On the one hand, there has been the observation for some locations that cash resources generated off-farm may be used for on-farm investment and therefore results in positive environmental change (Tiffen *et al*, 1994). Other researchers have found similar results, especially related to the positive impact on risk reduction that is confered by having diverse income sources (Evans & Ngau, 1991; Taylor & Wyatt, 1996; Carter, 1997). On the other hand, there is the widespread recognition that removal of able-bodied labour from the rural setting can result in diminished ability to respond to adverse environmental trends; it also alters the participatory structure of community institutions, a point to which the paper returns again shortly.

### 1.2 Links to natural resource management

Enhanced access to diverse non-NR income sources has been hypothesised to help take the pressure off key natural resources where conservation is an issue. Substitutions in labour time occur that means that less time is spent in gathering activities and more on non-farm income generation. Substitutions in consumption can occur which reduce the demands made on particular resources e.g. substitution of purchased kerosene for firewood made possible by non-NR cash generation. Whether these effects can

be distinguished from the "background noise" of unequal access to non-farm opportunities, inequality of wealth and income, population growth and so on is a pertinent point.

An important implication of diversification is that NR-based activities may become more or less permanently "part-time" in character, rather than the full-time job that is often implicitly or explicitly assumed about work or employment. Hence part-time fishing, part-time farming, part-time reliance on forest products etc. may become more the norm than full-time engagement in these things. The part-time nature of NR activities may alter the way they are managed, the technology that is appropriate for them, and the relevance of community institutions that govern access to them. In South Africa, in particular, the legitimacy of diverse part-time occupations is something that needs to be vigorously advocated; the orthodox position historically in that country is that only full-time, commercially viable, sector-based activities are worth considering as the objects of supporting policies.

Diversification has implications for NR management institutions (both traditional and advocated), that need to be considered quite carefully. For example, the advocacy of community management may not work for the rural poor where diversity and mobility are cornerstones of their ability to construct viable livelihoods. Some considerations are:

(a) community management places a premium on residence and participation as the basis of resource access decisions
(b) this may exclude those whose lifestyles are based on mobility and diversity, reducing their access to key resources
(c) an example drawn from coastal communities are fishing livelihoods that depend on the ability to move to where the fish are to be found; here territorial use rights established under community management institutions may result in a reduction of access, and therefore in a reduction overall in the ability of fishing as an activity to contribute to the livelihoods of the poor
(d) diversity and mobility are also often associated with ethnic or cultural differences, for example, the ethnicity of those who have sedentary lifestyles may differ from those who have mobile lifestyles, and community management could potentially result in social exclusion on that basis

The relationship of diversification to natural resource management institutions, especially institutions that are being advocated or put in place while the research is proceeding, constitutes one important area about which we have little systematic knowledge at present. The research design could explicitly recognise this, exploring both the nature of people's livelihoods in selected locations (differentiated by income-wealth categories) and the relationships to the natural resources to which they have access and the institutions that determine or modify access to these resources for different people.

The other area with respect to diversification in which little is know are the policy and institutional contexts that facilitate or encourage rather than inhibit or block diversification. Clearly, local level

initiatives like microcredit and microenterprise are designed to help people to create new forms of self-employment, or, at a larger scale, to start up businesses. However, these initiatives are often limited in scope and they take as given the wider policy and institutional context. There is a whole area around licensing and regulation, traditional authority, decentralised government authority, governance in decentralised institutions, community resource management, and so on that may hinder or help people who wish to diversify their livelihoods. There may be hidden barriers that give some people routes out of poverty while denying similar routes for others. Dimensions of gender, ethnicity, religion, age and so on are likely to be important in this regard.

### 1.3 Investigating livelihood diversity

The diverse nature of people's livelihoods is an area the investigation of which is unlikely to be captured very accurately by participatory and qualitative data methods on their own. These methods have their strengths for describing community-wide institutions, contexts and trends (including broad brushstroke impressions of sources of income that are becoming more important or less important to the community over time). They are also useful for discovering widely held perceptions about constraints, and the priorities that are placed by people on desirable outcomes of facilitating initiatives. However, these methods are unable to capture the diversity of livelihoods at individual or household levels, nor the relationship between livelihood patterns and assets, nor the differing patterns of livelihoods that may pertain between different income-wealth groups in a village or community setting. In order to discover these things a sample survey is indispensable. Thought then needs to be given to the scope of such a survey, its data coverage, its sampling method, and choices of sites in order to maximise the insights obtained by contrast and comparison between them.

These notes do not pretend to provide blueprint answers to these requirements, but they aim to contribute to the discussion about appropriate methodology in this area of the links between diversification and natural resource access.

Some clearing of the ground is in order. The livelihoods framework recognises five principal categories of asset, and livelihood strategies emerge from these, after being filtered through contextual opportunities and constraints of both institutional (PIP) and exogenous (vulnerability context) kinds. The pursuit of livelihood strategies then results in a set of outcomes such as higher income, increased security, less or more equal gender relations, and so on. The strategies themselves can be thought of as consisting of a "bundle" or portfolio of activities of an income-generating kind undertaken by different members of the social unit, and adding up to a picture for the social unit as a whole. It should go without saying that income here refers to income both in cash and in-kind (direct consumption of items produced or collected) not just to cash income.

A lot of studies of diversity make the mistake of thinking that it is just the number of different activities in which the individual or household is engaged which is interesting in order to understand people's livelihood strategies. Thus data is frequently collected and reported in a form such as "52 per cent of households had between 1-3 occupations; 30 per cent between 4-6 occupations; and the remaining 18 per cent 7 and more occupations". NGOs seem to be especially prone to thinking in this way about the livelihoods of the communities in which they work.

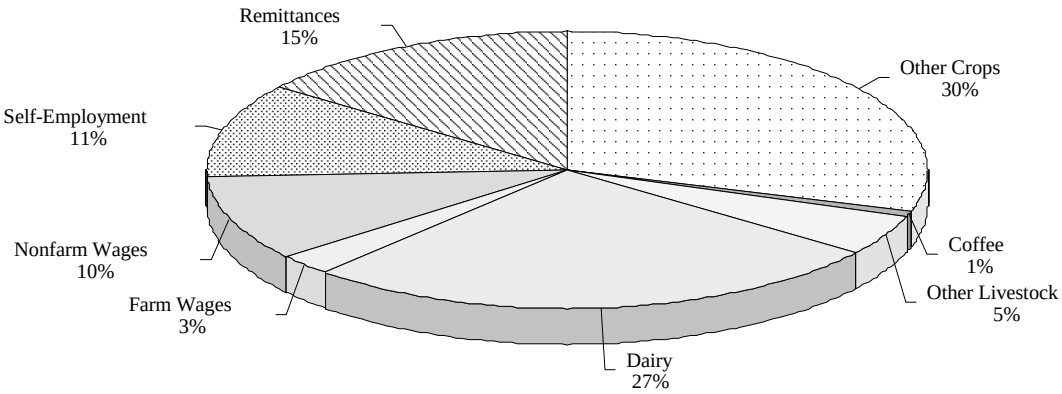
It is plain that this sort of short cut does not get us very far. Diversification essentially has two main axes: one is the number of different income-earning activities in which a household (or an individual) may be engaged; the other is the relative proportion of income gained from each activity. Some people refer to a "very diversified livelihood" meaning that the household has many different income sources; yet a household could have 11 different income sources with one of them alone contributing 95 per cent of the household income portfolio. Conversely, a household might have 4 different income sources, each contributing roughly a quarter of total household income. Which household is more diverse? The answer is that both axes are important in describing how important the capability to diversify is for the household livelihood strategy. However, diversification of the latter type (significant proportions of income being generated from several different sources) has quite different implications for deciding how to change policy contexts in order to provide improved routes out of poverty than diversification of the former type (one main income source, lots of minor ones).

The most accessible way of describing the livelihood strategies of households in different locations, or distinguished by income-wealth criteria, is to examine the composition of their total income from different sources. This is an income portfolio, and it seeks to identify the diversity of income sources as well as their contribution to total household income, utilising broad categories of income (e.g. crop production, livestock, wages etc.) rather than individual sources within those categories (Leones & Feldman, 1998; Ellis, 2000b: Ch.1). The observation of clear cut differences between the livelihood portfolios of the poor and those of the better off could, in theory, provide useful indicators for policy makers (see Adams & He, 1995). For example, if the poor were found to rely on seasonal migration and the better off relied on salaried employment, then there might be some confidence that policies to facilitate seasonal migration (information flows, recruitment agencies, transport vouchers etc) would reach the poor rather than better off rural groups.

In a case-study undertaken by the author in Tanzania, income data was collected from three villages within a particular district, purposively selected to represent varying degrees of remoteness from public infrastructure and services, so that the effects of location on income portfolios could be examined (Ellis *et al*, 2001). For each village, 30 households were interviewed, these being stratified into three income-wealth categories utilising a participatory wealth-ranking exercise, so that there were 10 households in each category. The pooled sample therefore contained 90 households comprising 30 from each village, and 30 from each income-wealth group. The small sample size in this instance was a deliberate decision predicated on the notion that data accuracy was more important than representativeness of wider populations. Income data is notoriously difficult to collect, and notoriously prone to inaccuracies of circumstance and recall (Deaton, 1997). However small sample size permits the pursuit of accuracy via repeat visits to households, and by conducting interviews separately with non-farm income earners resident in the homestead. This also has the benefit of enabling a subsequent gendered disaggregation of the livelihood portfolio of the homestead.

The pie-chart above illustrates the sort of analysis that can be generated from reasonably accurate data on household incomes. This chart shows the overall income portfolio across the pooled sample, however, of course, separate portfolios were generated across villages and across income-wealth groups. Some of these were found to be revealing (for example the effects of location) but others not so (income-wealth differences were swamped by the degree of variation around sub-sample means). Nevertheless the deployment of this sort of analysis is helpful for getting a more accurate idea of village or community

Figure 2: Mean Household Income Portfolio, All Villages




wide income sources than is possible from descriptive or qualitative enquiry. For example, for these villages, coffee is overtly the most productive activity in evidence, and if asked in a population census most household heads would state their occupation as being coffee farmers. Note, however, that coffee corresponded to just 1 per cent of household income for those villages.

The characterisation of mean household incomes using income portfolios suffers from the disadvantage that the averaging process typically disguises high degrees of heterogeneity within sub-groups and for the sample as a whole. The portfolio approach also obscures the two different dimensions of diversification discussed above i.e. number of activities versus income shares. A potential means of getting round this problem is to find a summary statistic that captures both income shares and participation shares in a single figure that can be compared across sample groups. An index of diversity, as commonly used in studies of bio-diversity, and also in portfolio analysis in financial economics, is potentially useful in this regard. One such index (Chang, 1997) is relatively simple to calculate, the formula for doing so being:

$$\frac{1}{\text{Sum of squares of proportional contributions to total income}}$$

In this, the sum is calculated of the share of each activity in total income squared (e.g. $0.40^2$ for crops, $0.15^2$ for wage income etc.). The resulting index is the inverse of a market concentration index known as the Herfindahl-Hirschman Index (Carlton & Perloff, 1994; Chang 1997). The maximum index value possible is equal to the number of income sources, and this would be attained if total income was equally distributed between each source, as shown in the following table.

**Inverse Herfindahl-Hirschman Index values**

| Proportional contribution to total income of each hypothetical income source | | | | | Index Value |
|---|---|---|---|---|---|
| Source 1 | Source 2 | Source 3 | Source 4 | | |
| 1.0 | | | | | 1.00 |
| 0.9 | 0.1 | | | | 1.22 |
| 0.5 | 0.5 | | | | 2.00 |
| 0.8 | 0.1 | 0.1 | | | 1.52 |
| 0.5 | 0.3 | 0.2 | | | 2.63 |
| 0.33 | 0.33 | 0.33 | | | 3.00 |
| 0.7 | 0.1 | 0.1 | 0.1 | | 1.92 |
| 0.4 | 0.2 | 0.2 | 0.2 | | 3.57 |
| 0.25 | 0.25 | 0.25 | 0.25 | | 4.00 |

In calculating this index for comparative purposes, decisions still have to be made as to how disaggregated the researcher wishes the data to be summarised in this way. For example, income can be grouped into categories (such as crop income), or can be left as individual items (maize, beans, chickpeas etc.). An example tabulation of this index across the villages and income-wealth groups of the previous Tanzania example is shown below. This reveals that this index, like income portfolio analyis, tends to exhibit high variation around sample means reflecting the heterogeneity of livelihood strategies within sub-groups (at least in this example).

The collection of good quality income data in fact permits analysis to go quite a lot further than is suggested by income portfolios or diversity indexes, once the data is arrayed in an accessible and easily manipulated form (we are not talking about sophisticated statistical methods here). For example, households can be grouped, instead of by income-wealth criteria, by typologies of livelihood strategy instead. Then variations in mean income levels between typical livelihood strategies can be examined to see whether this can provide further insights into the particular livelihood circumstances of the poorer members of the village or community. Such typologies usually require a decision rule, for example, specialisation is denoted by at least two-thirds of income arising from an individual source; then the same

**Table: Mean diversity indices, by village and income group – Tanzania example**

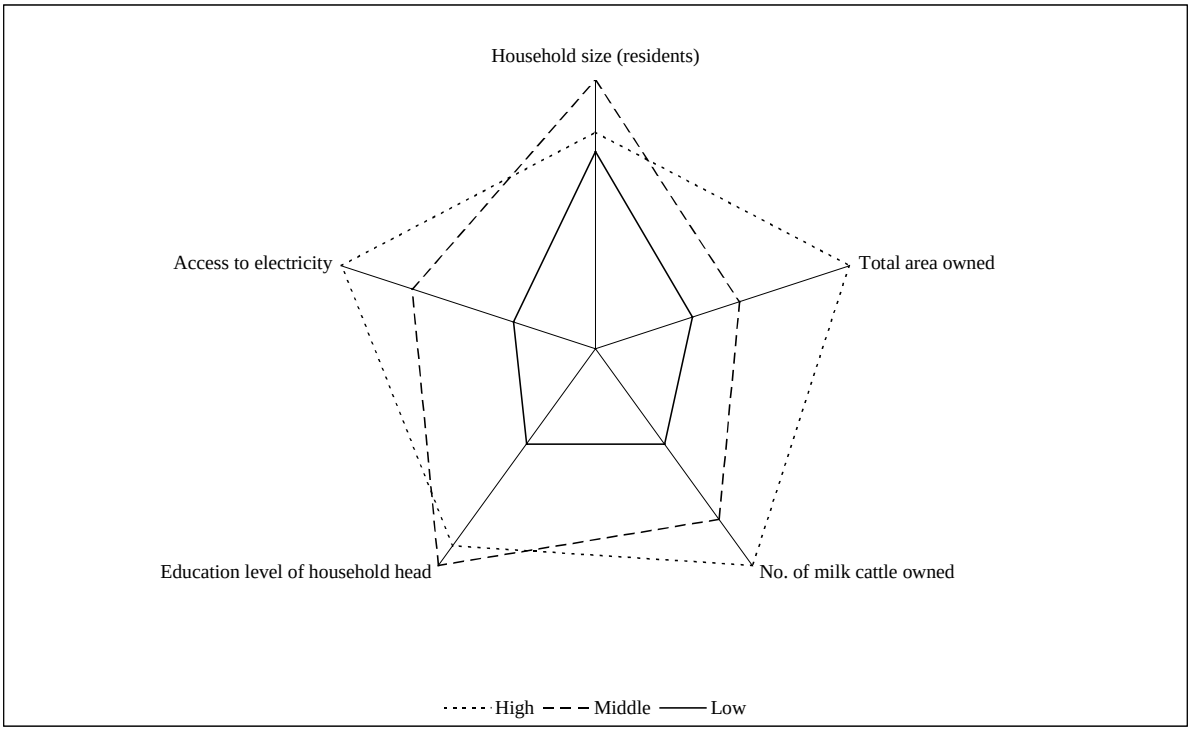
| | by Village | | |
|---|---|---|---|
| | Village 1<br>n=30 | Village 2<br>n=30 | Village 3<br>n=28 |
| Mean index value | 2.54 | 2.82 | 2.23 |
| Std. deviation | 1.12 | 1.12 | 0.83 |
| | by Income Group | | |
| | Low Income<br>n=30 | Middle Income<br>n=29 | High Income<br>n=29 |
| Mean index value | 2.39 | 2.56 | 2.37 |
| Std. deviation | 0.88 | 1.09 | 1.08 |

two-thirds rule is used also to describe mixed strategies (e.g. two-thirds of income obtained from a combination of farming and wage labour).

It was observed earlier that small-scale sample surveys were especially appropriate for investigating quantitative data on incomes. The other thing they are also good at is calibrating asset status between

different communities or income-wealth groups. Asset data is amongst the most accurate data that can be collected by sample methods because assets are typically uncontentious (how many bicycles do you have?) and are also visible (house construction, piped water etc.). Asset data can be used to construct radial graphs of varying degrees of complexity, such as that shown for five selected assets arising from the Tanzania case-study in the figure below. This plots the relative level of household size, education level of the household head, land owned, dairy cattle owned, and access to electricity, for the three income-wealth groups already described. The poor here are shown to differ markedly from the better off with respect to all assets except household size. Of course, in different settings, the 5 or 6 assets selected for this sort of exercise would vary according to local circumstances, for example, in fishing villages, ownership of boats and nets would be key assets.

**Figure: Selected household assets, by income-wealth group**




## 2 SUMMARY

This paper has represented something of a grand tour of diversification as a topic in rural livelihoods analysis. It has spanned such disparate elements as general conceptual issues, the findings of empirical studies, promising avenues for investigation, and the analysis of small-scale survey data on incomes and assets.

Perhaps one of the lessons that the paper wishes to draw is that there is quite a lot of mileage left in "old style" empirical research, and that this may result in a more accurate understanding of livelihoods, for certain purposes, than more action or process oriented research activities. There is scope for both types

of methodological approach and they should be deployed in order to take best advantage of complementarities between them rather coming down heavily one way or the other on normative grounds.

The paper tries to indicate key areas around livelihood strategies that are relatively under-researched, and which are therefore likely to result in valuable new insights as the outcomes of the research process.

One of these comprises the relationship between diverse livelihoods on the one hand and community-based decision-making with respect to natural resource access on the other. It is postulated that this relationship may not be free of conflicts and ambiguities that work to the disadvantage of the poor in particular. The current popular (and populist!) advocacy of community management may disguise differences of interest between resident and mobile lifestyles that have significant implications for the livelihood security of the rural poor.

The second critical area identified is that of enabling versus disabling, facilitating versus blocking, institutional contexts for livelihood diversification. In particular, the curious relationship between traditional authority and decentralisation government is one that we know little about, and we know even less about the way rules and regulations, licences and fees, levies and fines, access and barriers actually works itself out in specific village and community contexts. These things do not necessarily emerge from PRA methods since no one likes admitting in a group situation that they were stopped from trading in small parcels of fertilizer by that big farmer over there (who is also in the group), or that they have to give the chief two chickens a week in order to operate a bicycle repair shop.

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