POVERTY AND THE ENVIRONMENT: WHAT THE POOR SAY

An Assessment of Poverty-Environment Linkages in Participatory Poverty Assessments

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Participatory Poverty Assessments (PPA) seek to understand poverty from the standpoint of poor people themselves and include their voice in decision-making processes that affect them. PPA studies have led to a deeper and broader understanding of poverty. They have helped to reveal the capacity of poor people themselves to provide sophisticated insights into their own predicaments and to point to solutions. To date however, the key findings of the PPAs with respect to the environment have not been summarised. This report is intended to fill that gap.

This report presents the findings from a review of 23 PPAs covering 14 countries in Asia, Africa, Latin America and Europe. Where possible these were supplemented with other major qualitative studies in key DFID partner countries. The objective of the review was twofold:

- to document the main findings and key messages from PPAs and complementary studies and,

- to provide guidance on how poverty/environment links can be made more explicit in future PPAs.

Gaining a full understanding of poverty-environment links from the perspective of the poor was not a straightforward exercise. This was because the structure and methodology of the PPAs were not intended to support a detailed understanding of these links. Furthermore, poor people's perceptions of their 'environment' (a concept, like poverty, that is dynamic, multi-faceted and locally specific) were not questioned. This undoubtedly led to different working assumptions about values, meanings and understandings of the local environmental context. Nevertheless a review of a range of PPAs can provide signposts or guidance about what areas should be examined in future policy-orientated studies. Three distinct aspects were addressed in the review:

- the messages of the poor;

- what the PPAs leave out and,

- areas where environmental causes and effects are alluded to, but not elaborated upon.

Overview Of The Key Messages

Poor people's livelihood strategies are intricately tied to their environmental context. While these links are location-specific, participants referred to processes and trends that influenced their interaction with their environment and affected their well-being. These were not only biophysical changes in their surroundings, but social and political processes as well. It was made clear that this relationship between poverty and the environment is a complex one, often expressed indirectly.

In brief, well-being was related to the environment in terms of health, security, hygienic physical surroundings; safe and clean energy supplies; decent low density housing on hazard-free ground; access to and control over resources particularly regarding food security and agricultural production. While there were differences in urban and rural characteristics, the poverty-environment links were less distinct than is sometimes suggested.

Poor people demonstrated that the environment was a crucial 'card' in the balance of livelihood management. Although just one element in a complex livelihood strategy, if environmental resources were threatened, damaged or withdrawn, it had substantial impact on poor people's well-being. Some poverty-environment links were straightforward to dissect. However, more complex poverty-environment links were knitted into PPAs, which showed how a change in access to environmental resources can trigger a series of livelihood problems. The way poor people were able to use, maintain and control their environmental resources and services influenced their well-being. The PPAs demonstrated that three main factors determined how well they could do this:

Local environmental context:

Across the breadth of PPAs, rural and urban poor people talked of living in increasingly fragile biophysical contexts. Natural hazards, changing climatic conditions, and unpredictable seasons were common. Equally

important though were references to pollution, deforestation, soil exhaustion, and other trends resulting from intervention. On the one hand, the impact of these environmental changes were felt in terms of decreasing access to natural resources making livelihood management more difficult. On the other hand, disasters such as flooding, fire, chemical pollution were characterised as situations that could suddenly push a person into extreme poverty.

The poor, in relying on natural resources more heavily, felt themselves to be more vulnerable to environmental change. Particularly stressed was the gradual loss of access to stable environmental contexts. This, it was apparent, made people increasingly vulnerable as livelihood tasks became more time-consuming, more dangerous, more costly and often requiring more inputs. As a consequence, poor people talked of having to take unfavourable decisions and greater risks in order to balance the range of livelihood tasks. Levels of poverty were characterised by ever increasing dependence on Common Property Resources (CPRs) and a common concern was that despite poor people's knowledge of seasonal conditions, their ability to prepare themselves for the consequences were limited by their poverty.

Poor people were keenly aware of the effects of poor environmental health on their ability to move out of poverty. Unsanitary conditions and a poor working environment were identified as contributors to poor health. Chronic livelihood insecurity was raised as a critical factor in forcing poor people to work in environmentally dangerous jobs. In urban areas in particular, pollution of water sources, flooding of housing, lack of drainage and stagnation of water and lack of sanitation facilities were all raised as both causes and consequences of poverty.

How environmental shocks and stresses are experienced by poor people is linked to the ways in which they deal with environmental change and develop their management strategies. The PPAs demonstrated the commitment of poor people to adapt to their changing surroundings in order to maintain their livelihood

strategies. But other factors play a key part in determining how well people can use, maintain and control their environmental resources.

Political and institutional context

Throughout the PPAs the poor recognised that institutional structures and processes from micro level up to macro level were important influencing factors in how they were able to control, manage and access environmental resources. They were under no illusions about how power and their lack of it both underpinned well-being and shaped their relationship to the environment.

Several aspects were of particular concern. Firstly, the lack of accountability of government services and the ways in which government cutbacks in service provision had served to undermine access to information, goods and services regarding the environmental context. For the poor, their continual marginalisation restricted their access to information and public officials and consequently they had less understanding of how to make use of available goods and services.

Secondly, it was felt in several PPAs that markets were actively biased against the poor and that the allocation of permits for commercial exploitation of natural resources such as logging or fishing were inherently biased towards the wealthy. This, it was felt, not only skewed local markets but also had long term impacts on the local and national resource base. Governments' priorities were considered by some to override poor people's reliance on CPRs, and to threaten poor people's urban and rural security. Planning procedures and processes of consultation were raised as major causes for concern.

Thirdly, the point was raised in a number of PPAs that the institutional context influences the extent to which poor people can mitigate against and recover from disaster. The poorest were often excluded from benefits. It was argued that strong social networks and community co-operation were the best way of

improving livelihoods, and yet the breakdown in social cohesiveness because of long term entrenched poverty was commonly cited as a key reason for the poorest and most vulnerable being left-out.

Social differentiation

Throughout the PPAs it was apparent that social differences were clear mediating factors in people's interaction with their environment. This was particularly apparent in terms of gender relations, but clear references were made to age, caste, ethnicity and social status. Given the specific remit of the PPAs to address gender relations, it is unclear to what extent other social differentiation influenced environmental entitlements.

Gender differences surfaced particularly in relation to access and control over resources. The use of and reliance on CPR for survival was predominantly a female option, partly as a result of land tenure arrangements. The insecurity of collecting CPR and the declining resources therefore disproportionately affected women. Not only did they have less time for other production and domestic activities, they also faced greater risk and ill health. The same applied to other very poor community members, for example 'untouchables' in Nepal or ethnic minority groups in Bangladesh.

It was also stressed that seasonal changes affected different people in different ways. A long dry season in Sub Saharan Africa, for example, disproportionately affected women who reported the huge time burdens required for household fuel and water collection. Furthermore, as a result of environmental changes, children were increasingly involved in household tasks, often removing them from school for the purpose. This disproportionately affected girls, but boys also suffered.

Coping strategies also had consequences for certain household members. For example, reducing food consumption and substituting less nutritional food for women and often children was a way of dealing with food shortage in many areas. In many PPAs, women

stressed that in managing an increasingly complex set of livelihood activities they were forced into particular risk of ill-health and assault.

Lack of power and status of certain groups was attributed by many to be a contributory factor in their limited access to environmental resources. In a number of PPAs, women-headed households, for example, reported that their status made it difficult to get credit. This in turn made it difficult to buy agricultural inputs (seeds, fertilisers etc.) leading to chronic food insecurity. Minority groups, refugees, and migrants were consistently characterised as having no voice, due to their lack of representation and political networks, isolation and exclusion. This served to undermine their access to environmental goods and services.

The examination of PPAs demonstrated the resilience and resourcefulness of poor people. The way poor people adapt to their changing environment and the institutional arrangements that influence their ability to manage this change is clearly significant in their ability to maintain their livelihoods. Poor people utilised an array of actions ranging from adapting, mitigating and coping strategies. The type of strategy adopted depends on a range of factors - environmental, social, political. Moreover the range of strategies employed are balanced one against another within a given circumstance.

In all PPAs poor people had an awareness of the importance in protecting, and managing their environment whether it be specifically the natural resource base (mainly rural areas) or their physical environment (often but not exclusively urban areas). However, running throughout the PPAs was a common acknowledgement of the gradual decline in the ability of poor men and women to control and manage the natural resource base.

In the course of the review, a number of omissions were noted with regard to the environment in the collection, analysis and reporting of the data. In many reports, allusions were made to poverty-environment links without demonstrating the full cause and effect. The

nature of the indirect linkages between poverty and environment meant that the analysis was often obscured or could not be verified with evidence from poor people.

Key gaps identified

- **Definition of environment:** the term environment was not always subject to the same rigour as the term poverty. Consequently, the limited contextual analysis of the environment restricted a fuller understanding of the local poverty-environment linkages.

- **Local perceptions of environment:** Poor people's perceptions of the environment were rarely questioned. Without understanding local perceptions it is hard to avoid making assumptions about local poverty-environment links based on external - for example, conservationist or government - discourses.

- **Selection of research sites:** Not all PPAs selected research sites incorporating ecological indicators into their criteria. This meant that comparisons could not necessarily be carried out between poor people's livelihoods in different environmental conditions.

- **Spatial dimension of environment:** The spatial dimension of environment and its link to poverty was often alluded to but rarely developed. Most reports recognised a macro spatial dimension to the occurrence of poverty but very few looked at meso or micro level spatial dimensions of poverty.

- **Socially differentiated interactions with the environment:** Socially differentiated perceptions and values about the environment and the role if any it played in the understanding of poverty was the exception rather than the norm.

- **The bigger environmental picture:** Macro level issues: In the majority of PPAs there was an absence of contextual analysis with regard to environment issues. Issues emerged sporadically and were not necessarily followed through.

- **Policies, institutions, and processes:** In very few PPAs were policies, institutions and processes examined in relation to environmental goods and services beyond extension services.

- **Historical context:** This was discussed to some extent, but what was missing was the development of an historical trajectory defined and shaped by local people themselves.

- **Urban environment:** There appeared to be an assumption that environment equals natural resources and consequently this was primarily a rural issue. The concept of environment is multidimensional and natural resources can and do play a role in urban livelihoods. More attention could also be paid to health, environmental aspects of social safety nets, and spatial impacts on urban poverty.

- **Livelihood tasks:** Livelihood analysis was rudimentary. The ways in which people interact with their environment - on an everyday basis as well as during periods of crisis - goes a long way towards establishing an understanding of poverty and environment linkages.

- **Environmental health:** Little attention was paid to environmental health, work place issues and domestic health and safety in either urban or rural areas aside from sanitation.

- **Biodiversity:** Where issues relating to biodiversity where raised, the opportunity to explore the wider implications were rarely taken up.

Recommendations

1. Define a clear framework through which to examine poverty-environment linkages

In order to undertake an examination of the range and type of issues identified in the foregoing review, the 'environment' needs to be fully integrated into PPA design and methodology. By establishing a clear framework poverty-environment links can be addressed

strategically through ensuring that the issues are picked up at the design stage, during fieldwork and in the analyses of data. In particular, the following points are highlighted:

PPA design

As has been demonstrated in several of the PPAs, a thorough analysis can be made given the use of appropriate methodology and approach. Lessons learnt suggest that integration of poverty-environment links into the PPA will need to take into consideration:

- **Timing of data collection:** Seasonal changes have a clear impact on poverty and it is recommended that data be collected over a range of seasons. Where this is not possible, systematically drawing on existing data and triangulating information with follow-up participatory methods is essential.

- **Site selection and sampling:** Criteria for site selection will need to incorporate environmental concerns for example: ecological contexts; areas prone to natural disasters; areas of environmental degradation. Different options will need to be explored and will vary from country to country. However, given the desirability of maximising analytical links between survey results and integrated PPA poverty/environment themes and findings, this will be a critical consideration.

- **Research teams:** Inclusion of social and biological scientists with a environmental/natural resource background will strengthen both design and implementation

- **Literature review:** Prior to research, a review of current environmental literature ought to inform the team regarding poverty-environment debates as well as the regional environmental context.

- **Methods:** Methods selected will need to have the capacity to explore a range of issues regarding the environment. This will require an iterative process at the design stage and where appropriate, the commissioning of background overview papers aimed at providing the country specific context of poverty-environment linkages.

PPA implementation/fieldwork

- **Capacity of field teams:** Some of the gaps identified appear to be attributed to the limited capacity of field workers to probe effectively the social, political and cultural influences on poor people's interactions with their environment. In particular, there appears to be a need to develop the capacity of field researchers to follow through issues as they emerge in order to a) comprehend fully the knock on effects of changes in the environment and livelihood management strategies and b) build up a comprehensive picture of how poor people interact with the space around them. Strengthening their capacity is obviously a process and includes: making time in implementation workshops to discuss linkages and research approaches; field supervision picking up on environment issues or gaps and a review process designed to pick up on their inputs.

- **Support and external inputs:** Good practice lessons from Uganda, South Africa and Vietnam suggest that:

  - *Provision of modest technical assistance inputs at key stages in the PPA can have a powerful influence on strengthening attention to poverty-environment linkages.*

  - *Building of linkages and dialogue with environment-focused stakeholders in the private sector, across ministries and civil society especially specialist research institutions (e.g. energy private sectors/research institutes in countries where declining fuelwood supplies is recognised as a problem), will increase research-policy linkages and broaden ownership of results. This will be particularly important in integrating environment into poverty reduction strategies.*

  - *Some issues identified at field level will be*

better addressed through the commissioning of supplementary studies as an addition or amendment to the main PPA. For example the impacts of agricultural modernisation or clarification of property rights/tenure arrangements in rural, peri-urban and urban areas.

- *It is critical to the overall focus of the PPA to strengthen the review process in relation to poverty and environment linkages. The already well-established review process in the Pakistan PPA for example offers opportunities for enhancing attention given to integrating an environmental focus without placing undue strain on resources/capacity.*

2.   Incorporate an understanding of the poverty-environment context

As demonstrated in the review, the context - environmental, political and social - are key factors in influencing poor people's relationship with their environment. An examination of these factors is crucial in an analysis of poverty-environment links. Of particular interest:

- **Greater attention given to defining 'environment':** In the same way that poverty is unravelled in PPAs, local definitions of environment also need to be addressed in order to facilitate a fuller understanding of the complexities underpinning poverty-environment linkages. Breaking down people's perceptions of the environment at a local level and how their perceptions change over time support a process of understanding poverty-environment linkages. However, given the plethora of meanings surrounding the term environment and the consequent preconceptions about the links between poverty and environment, it is recommended that greater rigour be given to:

- *Clarifying terminology among researchers prior to the start of the research process. In this way assumptions/preconceptions can be made overt and methodologies developed with clarify rather than obscure local perspectives.*

- *It will also be useful to develop theme areas aimed at unravelling socially differentiated local definitions of environment. This in turn feeds into understanding local perceptions, values and terms for the environment.*

- **Examine socially differentiated values and uses of the environment:** The impact of socio-political influences on the way poor people are able to interact with their environment is a key issue to be incorporated into an analysis of poverty-environment links. This requires rigorous analysis because in effect these influences blur the links between poverty and environment. While the issue of gender relations was addressed to varying degrees in all PPAs, other social divisions were less rigorously analysed. Different social groups (e.g. caste, ethnicity, age etc) need to be analysed in terms of their:

  - *knowledge of, access to and control over resources including property rights;*

  - *livelihood strategies and division of labour within their environment;*

  - *understanding of environmental legislation and its impact on them;*

  - *perceived threats to and opportunities from their environment and,*

  - *impacts of environmental change on their livelihoods*

- **Facilitate an examination of the broader context:** A clearer examination of institutional influences on environmental goods and services, and local institutional responses to resource changes (e.g.

tracking these over time) would support a more detailed understanding of poverty-environment links. Examining the broader context helps to identify the social actors and interfaces that cause the main pressures on local environmental resources. An analysis aimed at examining how macro-policy relates to change in local livelihoods and environments requires overt attention to:

- *Government policies, legislation and their implementation with regards to environmental issues from the perspective of poor people. For example, the establishment of conservation areas, or issuing of fishing permits.*

- *Institutions and customs and their impact on people's access to environmental goods and services.*

- *Historical context and its influence on current livelihood sustainability.*

- **Examine the urban and peri-urban environment:** The importance of the environment on the urban poor emerged as an important but relatively unexplored issue. Examples referred to in the PPAs were the physical space in which they live, the scarcity of environmental resources on which they rely (e.g. fuelwood and water), dependence on scraps of land for urban agriculture and the impact of climate on livelihoods. These issues were discussed to a greater or lesser degree in the PPAs, some not touching on urban environment at all. In future PPAs the design, survey implementation and review process will all need to integrate and differentiate systematically urban and peri-urban perspectives in relation to the environment.

- **Incorporate a fuller analysis of livelihood management activities:** It is recommended that future PPAs address how people interact with their environment and what their practices are.

There will be a difference between everyday practices and those they adopt during periods of crisis – shocks and stresses. In particular key areas of interest include:

- *How they use and interact with the environment, including natural resources;*

- *The constraints they face in ensuring a stable livelihood and,*

- *How they adapt across seasons and cope with environmental change.*

3. Develop a handbook to ensure adequate treatment of environmental issues in PPAs

It is suggested that a separate handbook be produced that could summarise the main poverty-environment issues and provide guidance for integrating them into the design and implementation of PPAs. In particular, it is suggested that the handbook would:

- Relate closely to the PPA protocol, dividing guidance into sections appropriate to design, implementation and analysis.

- Identify key poverty-environment themes, and suggest approaches to integrating these themes into the existing PPA approach.

- Identify questions appropriate to an understanding of poverty-environment links, for example:

  - *Do different sorts of poor people degrade or improve various components of the environment to different degrees?*

  - *Do particular environmental shocks and stresses impose different kinds of costs or different levels of cost on different sorts of poor people?*

- *In what ways do formal and informal institutions influence the relationship of poor people to environmental goods and services?*

- *To what extent do poor people draw on environmental goods and services in order to maintain their livelihood security?*

- Suggest appropriate participatory methods for the examination of suggested themes.

- Incorporate a matrix to aid the analysis of PPAs from an environmental perspective.

In conclusion, the findings of this review make clear that the relationship between poverty and the environment is rarely simple or direct. An observation well-understood by poor people when given the opportunity to engage in analysis. In particular, understanding the local social, cultural and political context of environmental issues is essential. Moreover, explicit recognition of the diverse factors shaping people-environment relations is paramount if the messages of the poor are to be heard, understood and incorporated into policy formulation.

Since the 1990s, attention has increasingly focused on seeking a deeper understanding of the causes and consequences of poverty and providing policy solutions which will break the cycle of persistent poverty. An important innovation has been the development of participatory approaches to poverty analysis and policy formulation and in particular the emergence of Participatory Poverty Assessments (PPA).

PPAs seek to understand poverty from the standpoint of poor people themselves and include their voice in decision-making processes that affect them. PPA studies have led to a deeper and broader understanding of poverty. They have helped to reveal the capacity of poor people themselves to provide sophisticated insights into their own predicaments and to point to solutions (Brocklesby and Holland, 1998). To date, however, the key findings of the PPAs with respect to the environment have not been summarised. This report is intended to fill that gap.

We present here the findings from a review of 23 Participatory Poverty Assessments covering 14 countries in Asia, Africa, Latin America and Europe[1]. The PPAs under review were selected as representative of the Department of International Development's (DFID) key partner countries. The majority of the reports were country synthesis reports from the World Bank Voices of the Poor PPAs carried out to inform the 2000/2001 World Development Report. Where possible these were supplemented with other major qualitative studies in Key DFID partner countries. (See Annexe 1 for full list). The objective of the review was twofold:

- to document the main findings and key messages from PPAs and complementary studies and,

- to provide guidance on how poverty/environment links can be made more explicit in future PPAs.

1.1 PPAs and the Environment – Some Caveats

Despite the increasing awareness of the inter-relatedness between poverty and the environment, gaining a full understanding of these links from the perspective of the poor has not been an altogether straightforward exercise. This is, to be fair, because it was not the main remit of the PPAs to be examining environmental issues. Specifically,

- the structure and methodology of the PPAs were not intended to support a detailed understanding of the links between poverty and environment and,

- poor people's perceptions of their 'environment' were not questioned, undoubtedly leading to different working assumptions about locally-specific values, meanings and understandings of the environmental context.

This raises a number of concerns. Firstly, it creates problems of validity in a review of this kind. The Voices of the Poor reports adopted common categories of analysis across populations and regions in order to aggregate findings (see Box 1).

Box 1: Voices of the Poor

The second generation PPAs, carried out for the World Development Report 2000/2001, sought to provide a comparative analysis of the realities of poverty in 23 different countries. The key aspects studied were:

- Exploring well-being and ill-being

- Problems and priorities of the poor

- Institutional analysis

- Gender relations

Since the environment was not a chosen theme, the ways in which the topic was explored varied

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1   PPAs reviewed were: Bangladesh, Brazil, Ghana, India, Kenya, Malawi, Nepal, Nigeria, Russia, South Africa, Tanzania, Uganda, Vietnam and Zambia.

enormously between countries and between research sites in the same country. Three other studies reviewed from Uganda, Nepal and Vietnam, which were not part of Voices of the Poor, addressed linkages between the poverty and environment both in site selection and in the methodology adopted. One must therefore be cautious when comparing the thematic emphasis of one study with another, which had a different focus or adopted broader entry points.

Secondly, it is worth reiterating an accepted caveat with regard to PPAs. Conclusions drawn from PPAs provided indicative ideas about what might or might not be important to different groups of local people. In the context of an analysis of poverty-environment linkages, a review of a range of PPAs can provide signposts or guidance about what areas should be examined in future policy-orientated studies. This means that we need to analyse three distinct aspects:

- the messages of the poor;

- what the PPAs leave out and,

- areas where environmental causes and effects are alluded to, but not elaborated upon.

We return to this issue in section four of the report.

Thirdly, in the Voices of the Poor reports in particular, there were a number of discrepancies between the opinions of the poor and the interpretation of the researchers. We would suggest two possible reasons for this. In part it reflects the relative lack of importance assigned to environment issues in the Voices of the Poor methodology. Researchers were provided with guidelines, question prompts and suggested tools for exploring the selected themes but not for other topics that may have emerged. Combined with the relatively short timeframe for researchers this, by default, weakened the methodological rigour when applied to the environment. Where opportunities arose to explore

and probe environmental issues with the poor they were not always taken. One example is declining soil fertility – a concern raised in the majority of rural areas in the PPAs under review. In some PPAs the issue was reported with an overview interpretation of the causal factors based on the researcher's own general understanding of the issue. The data did not always support the view and could be contradictory, as was the case of the Malawi PPA.

Allied to this was the fact that the majority of research teams had not developed an overt framework for conceptualising and analysing poverty-environment linkages and thus made assumptions about what was or was not important for the poor in their region. The case study below clearly illustrates this point (Box 2).

Given these caveats, it is necessary to clarify both the conceptual framework being used in this review and the definitions of key environmental terms being employed here.

Box 2: Deforestation - Whose Problem is it? (case study from Tanzania)

Businda subvillage, Bukombe District was one of the eight research sites of the Shinyanga Participatory Poverty Assessment in Tanzania. Located in the north west of the country it is an area vastly forested and rich in natural resources. The report of findings was meant to give a broad picture about "the life of people in Businda" according to their own perception and understanding. The report achieved this objective to a great extent perhaps with one exception: that related to its analysis of environmental trends and specifically with its assessment of deforestation in Businda. In the Businda PPA deforestation was presented as a major problem requiring government intervention.

An assessment of the raw data and the process of data collection by one of the researchers reveal that the report's concern with deforestation in the district does not tally with the opinions of the Businda villagers. The issue of deforestation is only raised twice: once by bee keepers complaining of the distance they now need to travel to site their hives and once from women who raised the difficulties of collecting fuelwood around the homestead. Neither of these issues was probed further although cross-referencing of data suggests that in the case of fuel wood collection denial of access and control were significant aspects of their concern.

Source: Yashine-Arroyo: 1998

2.0 Conceptualising Poverty - Environment Links

The concept of sustainable development emerged onto the world agenda via the World Commission on Environment and Development, whose report came out in 1987. Essentially, it set in process an examination of the links between environment and development and was pivotal in that it considered social issues to be central to the effective management of the environment. Until then, the 'standard environmental agenda' was concerned primarily with biophysical processes and conservation and protection of natural resources.

The Earth Summit also launched Agenda 21, a global action plan based on the principles of sustainable development and the integration of economic, social and environmental objectives. It places particular emphasis on the importance of participation, and action plans based on local priorities and local involvement. The sustainable development agenda has progressed substantially since the 1980s and current approaches to development, such as the Sustainable Livelihoods Approach, are underpinned by an acknowledgement of the complex relationship between environment and development.

Box 3: Terms as Used in This Report

Biodiversity: The variability among living organisms from all sources; terrestrial, marine and other aquatic ecosystems of which they are part. This includes diversity within species, between species and of ecosystems. It includes cultivated species and varieties and agricultural ecosystems as well as natural ecosystems and their components.

Biophysical Environment: The natural environment including both living and non-living organisms and the interactions among them. Social, cultural and political factors are not considered in biophysical analysis.

Entitlement: A bundle of commodities over which a person can establish command. Environmental entitlements: sets of benefits derived from the environment over which people have legitimate effective command and which are instrumental in achieving well-being.

Environment: the condition or influence under which any person or thing lives or is developed.

Environmental services: services pertaining to natural resources and physical environment (eg. agricultural extension services, urban slum sanitation project).

Physical environment: the constructed or built surroundings in which a person lives.

Resource: a stock or reserve upon which one can draw when necessary.

Natural resource: a resource occurring naturally within the environment.

One of the key achievements of the United Nations Earth Summit in 1992 was the international recognition that global poverty and environmental concerns are closely linked, and cannot be tackled in isolation. In particular, the Conference highlighted the impact of lifestyles in developed countries on both the environment and people's livelihoods in the rest of the world. These principles are widely reflected in subsequent policies and action plans world-wide.

Examination of this complex relationship is by no means simple. A task made more difficult by the fact that different disciplines understand the 'environment' according to their own speciality, thus generating a range of paradigms that can create a plethora of concepts manifest in a confusion of terminology. In addressing the links between poverty and environment, a clear understanding of the language used is vital (See Box 3).

Even with clarification of terminology, the term 'environment' remains an abstract concept, drawn into different debates to plug a language gap. In fact the 'environment' means different things to different people in different places. Moreover, there is a distinction that must be made between popular conceptions of environment which may be informed by local context-specific social, political and cultural frames of reference and the range of meanings employed by experts from different disciplinary backgrounds.

Thinking through the implications of these multi-layered meanings leads to the recognition that environment as a concept, like poverty, is dynamic, multi-faceted and locally specific. This point takes us back to addressing the effectiveness of PPAs in contributing to an understanding of the links between poverty and environment. But as Markandya and Galarraga (1999) note "it is important to recognise the paucity of information on the linkages between poverty and environmental policies" and how this limits policy formulation. As a policy tool, PPAs ought to be developed in such a way as to enable a clear analysis of poverty-environment links. Nevertheless, some of the received wisdom concerning these linkages often serves as a barrier to analytical rigour.

2.1 Dispelling the Myths around Poverty and Environment

Ideas and theories about the linkages between poverty and the environment have been around for many years. A range of myths have developed (see Box 4) which form something of a 'conventional narrative' around the relationship between poor people and their environment. These myths are being increasingly challenged as a greater understanding is developing about poor people's livelihoods and complex links are being unravelled. The simplistic approach of viewing poverty and environmental degradation as a mutually enforcing downward cycle - fuelled by population explosion - has given way to an argument for examining

a range of issues that help to build up a fuller picture of the reality of poverty-environment links. Nonetheless these myths remain pervasive both in policy and research arenas.

Box 4: Common Myths and Misconceptions about Poverty and Environment

1. Poverty and population growth cause environmental degradation

2. Equity, participation, and environmental sustainability go hand in hand

3. Nature seeks balance

4. High-input farming is the only way to avoid a global food crisis

5. Urbanisation and urban consumption are the biggest environmental threat[2]

6. Poverty eradication first before environmental improvement

7. Poor people are too poor to invest in the environment[3]

Numerous recent studies focus on a range of issues to examine the poverty-environment relationship[4], these include: health, natural resources, environmental degradation and its impact on livelihoods, environmental policy, conservation, agriculture, gendered division of labour with regards environmental management, property rights and institutional arrangements, social capital and its influence on natural capital, migration and disasters.

Key issues that have emerged from the current body of knowledge are:

- That poor people are disproportionately affected by living in a degraded environment.

- That actions taken by different groups of stakeholders have a much wider impact than that

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2   1-5 Taken from Neefjes K. 'Environment and Livelihoods. strategies for sustainability' Oxfam

3   6-7 Taken from 'Achieving Sustainability. Poverty elimination and the environment'. DFID 2000

4   See for example: Leach and Mearns; 1996; Joekes et al, 1996; Forsyth et al 1998; Koziell 2000; Gordon et al 2001.

in the immediate locality e.g. run off from pesticides and fertilisers in the water supply in rural areas presents health problems for downstream urban populations.

- That the relationship between poverty and environment is mediated by institutional, socio-economic factors.

This section details issues identified by poor people. It aims to identify trends, commonalities, and differences to show both the complexity of the issues as well as the diversity of contexts.

The current conceptual framework utilised by DFID in analysing the links between poverty and environment addresses issues under the headings:

- environment and health

- environment and livelihoods

- environment and vulnerability

While these headings provide an overview of the linkages between environmental and poverty issues, we propose in this report that the framework also needs to ensure an examination of:

- Social differentiation with respect to ownership, use of and control over the physical environment and natural resources.

- Distinction between rural and urban experiences.

- How distribution of power in society shapes and determines use and maintenance of natural resources and environmental services.

- Seasonality, inter-seasonal variation, long-term environmental change and their social consequences.

- Spatial understandings of environment and related differential use of the environment according to gender, age, occupational specialism.

In reviewing a range of PPAs a matrix was developed, (see Annexe 2) which would bring to the forefront the social, political and cultural context in which the poor interacted with their environment. It emphasised the importance of integrating environment throughout the analysis. By doing so, the issues of health, vulnerability and livelihoods - substantial elements of the analysis - were picked up and are consequently referred to throughout the report.

The review findings are divided into five sections:

1. **Characteristics of well being and ill being in relation to the environment.**

    - To what extent do poor people consider their interaction with the environment as important in an analysis of well being?

2. **Environmental Trends.**

    - What long-term and seasonal environmental changes are identified by the poor as having an impact on their lives?

3. **Managing livelihood activities.**

    - In what ways do poor people interact with their environment in order to maintain a stable livelihood? What influence do environmental trends have on their ability to maintain and manage their livelihood activities?

4. **Institutional Influences.**

    - How do poor people perceive formal and informal institutions to influence their ownership of, control over and use and maintenance of their environment? How do they see these influences affecting their ability to make choices that positively contribute to well being and security?

5. **Dealing with crises - environmental shocks and stresses.**

    - What are the impacts of crises on poor people's lives? In what ways do they deal with different crises?

3.1 Characteristics of Well-being and Ill-being in Relation to the Environment

The poorest 'cannot feed themselves, can barely feed their children and have no assets' (Ghana Consultations with the Poor)

Poor people's perceptions of well-being are an excellent starting point for understanding the ways in which a) poor people themselves link poverty to their environment and b) the importance attached to environmental issues in their lives. Throughout the PPAs consulted, the extent to which poor people referred to the environment when discussing well-being and ill-being was striking. These references were clearly location-specific, and also highlighted seasonal characteristics of well-being. There were differences in urban and rural characteristics, but the differences were not as distinct as is sometimes suggested.

In brief, well-being was strongly related to the environment in terms of health, security, peace of mind; pleasant and hygienic physical surroundings; safe and clean energy supplies appropriate to the climate and seasons; decent low density housing free from overcrowding and built on safe ground free from flooding and other environmental hazards. Unsurprisingly people in rural areas placed emphasis on access and control over natural resources particularly in relation to food security and agricultural production. Participants in urban areas, on the other hand, highlighted having sufficient financial assets so as to be able to purchase basic needs such as water and a clean safe environment. Gender differences surfaced particularly in relation to access and control over resources and domestic well-being. For example, women, reflecting their primary role in managing the household, highlighted safe and physically close access to potable water and abundant energy supplies as critical aspects of well-being in the majority of PPAs.

In discussing well-being and ill-being, poor people highlighted seasonal fluctuations that pushed a person into a situation of ill-being. Dry season accessibility to water near the settlement for example was a critical well-being indicator because of the impacts lack of accessibility had on health, livelihood security and peace of mind.

Interestingly poor men and women in all PPAs made very clear links between, on the one hand, the presence of tangible environmental assets (water, land etc.) plus preferred living conditions such as food security or the built environment and on the other hand their command over more intangible social and political resources. The latter, although understood in particular and distinct ways in each of the PPAs were viewed as crucial to accessing and controlling environmental entitlements. The poor were under no illusions about how power and their lack of it both underpinned well-being and shaped their relationship to the environment.

We summarise in Table 1 (overleaf) the environment criteria that were used by poor people for consideration of well-being and ill-being.

3.2 Environmental Trends

'Farming is speculation on rainfall, and in years when it doesn't rain, there are no crops at all' (South Africa 1998).

A range of environmental trends emerged in the PPAs as having significant impact on poor people's lives. These had implications for the way they sustained their livelihoods and managed their resources, particularly their natural resources. These were clearly location-specific and generalisations can not be made across the breadth of the reports. However, it is possible to point out that in many situations, poor people were living in increasingly fragile biophysical contexts. Declining conditions - e.g. salination and erosion, soil infertility, reduced tree cover, increasing industrial pollution in urban slum areas - were mentioned in many reports. Particularly stressed was the gradual loss of access to

Table 1: Summary Characteristics of Ill-being/Well-being in Relation to the Environment

Food Security and Production Activities	Natural Resource Assets	Physical Surroundings and Environmental Health	Social and Political Assets
Food Security • Key indicator of well-being. Different levels of well-being were categorised according to changes in levels of food intake over time and cross referenced with causes and effects of food insecurity. **Agriculture and Land** • Accessibility to enough land to secure or supplement food intake in both rural and urban areas • Secure tenure over land viewed as particularly important in some countries by women. • Quality and location of productive lands – poor if had access to land were dependent on marginal lands not easily accessible. • Ability to diversify farming system (eg mix of food and cash crops) an important indicator of well-being in rural areas - seen as a guard against vulnerability to seasonal food scarcity • Access to agricultural inputs (finances and availability) • Capacity to engage in agricultural and marketing activities. Indicators of ill-being commonly raised physical isolation, labour and financial constraints as major barriers to securing well-being in rural areas. **Livestock** • In rural areas owning livestock almost universally a sign of well-being. Livestock equated with status and security. The very poor often characterised as lacking potential to invest in livestock.	**Water** • Accessibility to adequate quantity and quality water for productive and domestic use. • Ease of collection (physical proximity and all weather access) • Secure ownership and control over water source. • Ability to pay for water (especially in urban areas. • Capacity to maintain water system often regarded as indicator of communal wellbeing. **Energy Supplies** • Type and quality of fuel available. • Ease of access to securing sufficient quantities of energy supplies for cooking and heating important indicator of well-being in all PPAs. • Ability to pay for fuel especially in Urban areas. • Household member engaged in fuel collection fulltime often indicator for ill-being. **Common Property Resources** • In rural areas, access to a range of CPR for consumption and sale was viewed as crucial for well-being security particularly during periods of stress. • Heavy reliance on CPR for survival indicated a sign of ill-being.	**Living Conditions** • In most PPAs unhealthy surrounding environment was perceived as an obvious sign of ill-being. • Overcrowding, and density of housing key signs of ill-being in urban areas. • Poor ventilation and in Russia inadequate heating systems linked to chronic ill health and ill-being. • Security or peace of mind often linked to surrounding physical environment. e.g. In urban areas well kept roads and presence of street lighting equated with reduction in crime and street accidents. **Sanitation** • Key indicator of well-being in most PPAs more commonly raised in urban areas but also in some rural areas. • Existence and maintenance of sanitation especially in urban areas sign of community and individual well-being. • High levels of hygiene in and around settlement indicator of wealth and well-being • In urban areas regularity of flooding of habitation and poor drainage linked to ill- being. **Physical Space** • Physical isolation because of poor transport systems (Urban squatter areas and rural), seasonal inaccessibility (rural and to a lesser degree urban), geographical remoteness (rural) often related to chronic ill-being because of restricted access to public goods and services and markets. • Location of house within settlement also equated to well-being. The better off living closer to means of production was raised in both urban (more common) and rural areas.	**Social Capital** • Social assets perceived as instrumental in securing access to environmental resources in both rural and urban areas in the majority of PPAs. **Political Capital** • Ill-being characterised by lack of power or voice at local and higher decision-making levels. Women often raised lack of control over environmental management decisions such as use of land, choice of agricultural practices as major barriers to securing well-being. Young men in urban areas commonly raised lack of political voice as an impediment to improving physical surroundings e.g. upgrading sanitation **Information flows** • Access to information equated to well-being. Poor and women commonly perceived as being marginalised from information networks relating to land management, agricultural extension, municipal upgrading and markets.

stable environmental contexts. This may be as a result of population pressure, fragmentation of land, natural disasters (eg flood, landslide), and in a significant number of reports, from poverty itself - selling land was a common coping strategy, often leaving poor people with no land or marginal, poor quality land.

Significantly for poor people, forests, lakes other water bodies and grazing lands, for example, were facing long term environmental degradation. Common property resources (CPRs) were in decline. Poor people throughout the PPAs highlighted that their dependence on CPRs as a safety net, meant that the decline in conditions and loss of access to these resources contributed to their poverty and exacerbated their vulnerability. As was stated in the Nepal PPA 'dependency on common property natural resources increases with the increase in poverty, but at the same time their access to natural resources are increasingly becoming limited' (1999:18).

Box 5: Examples of Long term Environmental Trends

- **Deforestation** - gradual loss of biodiversity, and range of CPR, also contributes to reduction in water and siltation.

- **Less predictable weather patterns** - including longer dry seasons, longer rainy seasons, more droughts, more severe storms, wind and flash flooding

- **Population pressure** - contributes to land shortage and competition for resources

- **Pollution** - air-borne and water borne pollution from industry and domestic waste.

- **Over fishing** - gradual loss of quantity and diversity of fish stocks

- **Declining levels of water tables** - drying up of water sources.

The ways in which environmental change has altered people's lives and contributed to their vulnerability will be examined in the following section. Here it is worth mentioning that long-term change in the environmental context requires a change in management of livelihood tasks. The way poor people adapt to their changing environment and the institutional arrangements that influence their ability to manage this change is clearly significant in their ability to maintain their livelihoods.

In discussing environmental change poor people referred to a range of causes - e.g. pollution, change in weather patterns, over-exploitation of resources - as well as impacts on their livelihoods. They were clear in their distinctions between long-term change and seasonal change.

Furthermore, they distinguished clearly between adapting strategies (whereby they altered their livelihood activities in order to respond to long-term changes) and mitigating strategies (whereby they prepared themselves for seasonal changes).

3.2.1 Seasonal trends

'In the monsoons there is no difference between the land in front of our house and the public drain. You can see for yourself'. (India 1999)

Seasonal change is determined by cycles of climatic differences, these in turn shape people's actions and they impact on levels of health and well-being. Nevertheless the ability for the PPAs to pick up substantially on seasonal change was often undermined by a uni-seasonal data collection process. What often appeared to be ignored by research teams was the inter-relatedness of seasonal change and social adaptation. The Uganda and Vietnam PPAs were notable exceptions. As the Ugandan PPA succinctly puts it, "climatic patterns that create seasonality in production and incidence of disease, coupled with seasonality in expenditure patterns create fluctuations in poverty levels throughout the year and over longer periods. In the

absence of surface water harvesting methods, storage facilities, accessible markets, as well as accessible and affordable financial services, preparing for the hard times during the good times can become extremely difficult for many" (Uganda 1999:pxii).

Particular manifestations of seasonality are clearly location-specific - whether it be extremely harsh winters as in regions in Russia, or excessive flooding as in many urban areas of sub Saharan African and in Brazil. In India and Ghana, some communities mentioned that they were totally isolated in the rainy season, cut off from markets and all sources of help and information. A common concern was that despite poor people's knowledge of seasonal conditions, their ability to prepare themselves for the consequences were limited by their poverty.

Seasonal vulnerability to natural disasters, hunger and to illness were mentioned almost across the board, and were reflected on as contributors to falling into a state of poverty. In Vietnam, Uganda, Ghana and Zambia local people all commented how vulnerability to illness at critical periods of the year such as the peak agricultural season could mean household hunger for the rest of the year. In a number of PPAs people also argued that seasonality affects their livestock; the ploughing season often coinciding with the time when draught animals were in the weakest condition after the dry season or the winter months.

Furthermore, seasonal changes affected different people in different ways. In urban South Africa during the winter months street children become increasingly vulnerable to hunger, cold and hardship because of bad weather and the down turn in tourism – a major source of income. The seasonal combination of ill health and high workload is particularly problematic for women as caring for sick children limits the time available for income earning activities outside the home. A long dry season in Sub Saharan Africa, for example, disproportionately affects women who reported the huge time burdens they were subjected to because of having primary responsibility for household fuel and

water collection (which took anything between three and seven hours per day).

3.3 Livelihood Management Activities

'Many households from the social poor sold out their last piece of land during the slack season, or used it as collateral for getting a loan from money-lenders and eventually lost it' (Bangladesh 1999).

Poor people's livelihoods are intricately tied to their environmental context. The strategies they employ to earn a living, maintain consumption levels and cope with crisis are usually reliant on access to environmental goods and services both in rural and urban areas.

Nevertheless poor people made clear through the PPAs that while the environment plays a crucial role in their livelihood management, the relationship between poverty and the environment is a complex one often expressed indirectly. In several PPAs poor people demonstrated a clear ability to analyse this indirect relationship. The flow diagram from South Africa PPA reproduced overleaf illustrates this clearly.

In all PPAs poor people had an awareness of the importance in protecting, and managing their environment whether it be specifically the natural resource base (mainly rural areas) or their physical environment (often but not exclusively urban areas). The physical space in which people lived was highlighted as being an important area, particularly in terms of environmental health and the ability to manage livelihood tasks. Furthermore, running throughout the PPAs was a common acknowledgement of the gradual decline in the ability of poor men and women to control and manage the natural resource base. This was often cited as a contributing factor to feelings of helplessness and lack of hope in the future.
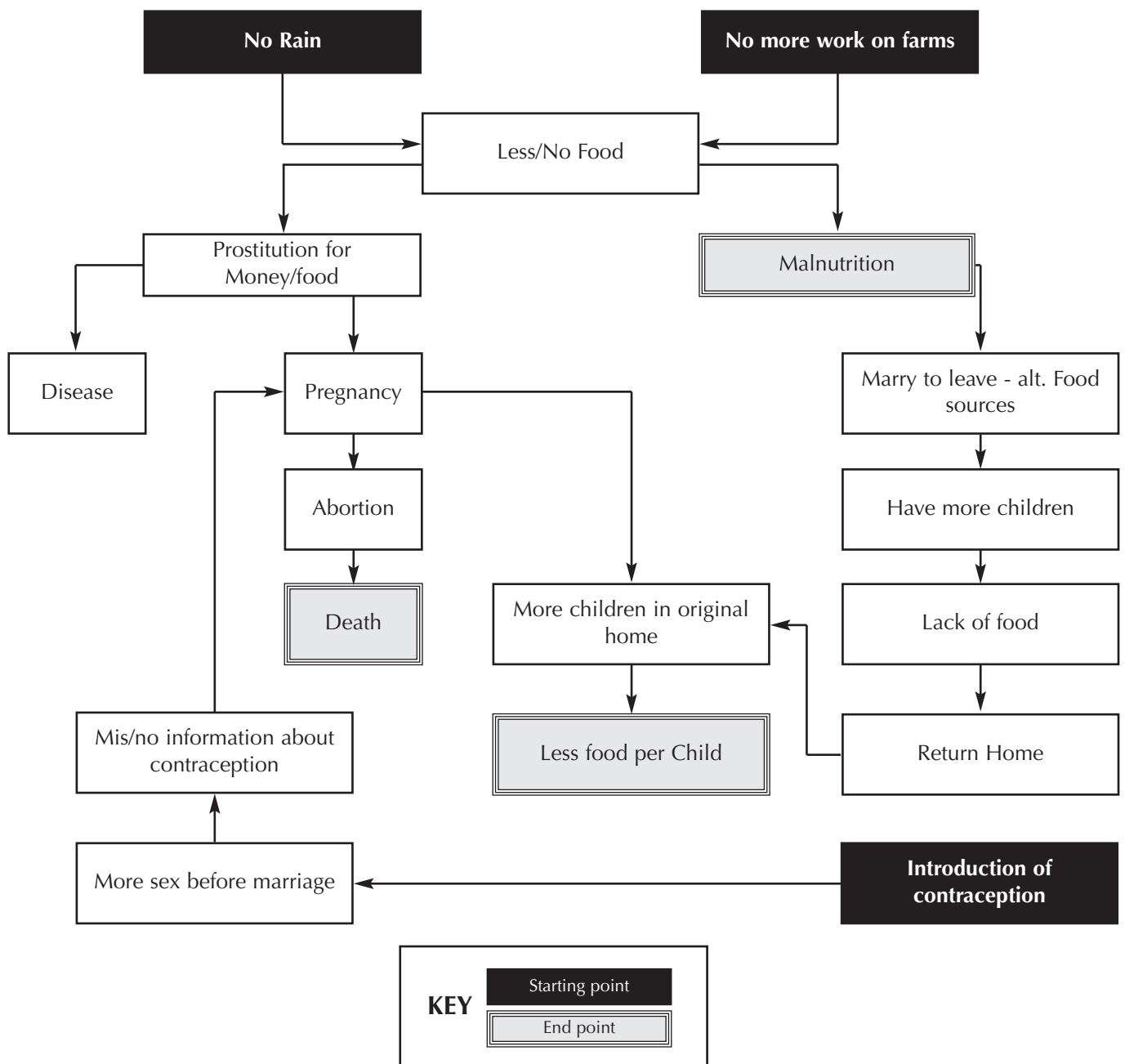
In managing their livelihoods, poor people utilised an array of actions ranging from: adapting, mitigating and coping strategies. People's actions in relation to the environment are shaped by their poverty and

vulnerability status. As such, the type of strategy adopted depends on a range of factors - environmental, social, political - and is therefore context specific. They also operate on a number of different levels - personal, household, community and beyond. Moreover, the range of strategies employed are balanced one against another within a given circumstance. We aim to document the range of strategies people use across the span of the PPAs rather than give a detailed examination of the web of strategies employed in one particular circumstance.

Figure 1: Flow Analysis from Marumofuse South Africa

The flow diagram starts from no rains and no food and carries linkages through to changing family size, malnutrition, the introduction of contraception, prostitution, STD's and death. It also relates to the impact of apartheid (no farm work), thereby drawing together shocks, long term trends and historical root causes. (Source: May et al. 1995:30)

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┌─────────────────┐                              ┌──────────────────────┐
│     No Rain     │                              │ No more work on farms│
└─────────────────┘                              └──────────────────────┘
          │                                                  │
          │            ┌──────────────────┐                  │
          └───────────▶│   Less/No Food   │◀─────────────────┘
          │            └──────────────────┘                  │
          ▼                     │                            ▼
┌─────────────────┐             │              ┌──────────────────────┐
│ Prostitution for│             │              │     Malnutrition     │
│   Money/food    │             │              └──────────────────────┘
└─────────────────┘             │                          │
     │      │                   ▼                          ▼
     ▼      ▼            ┌──────────────┐      ┌──────────────────────┐
┌─────────┐ │           │  Pregnancy   │      │ Marry to leave - alt.│
│ Disease │ │           └──────────────┘      │    Food sources      │
└─────────┘ │                  │              └──────────────────────┘
            │                  ▼                          │
            │           ┌──────────────┐      ┌──────────────────────┐
            │           │   Abortion   │      │  Have more children  │
            │           └──────────────┘      └──────────────────────┘
            │                  │                          │
            │                  ▼              ┌──────────────────────┐
            │           ┌──────────────┐      │     Lack of food     │
            │           │    Death     │      └──────────────────────┘
            │           └──────────────┘                  │
            │    ┌──────────────────────┐      ┌──────────────────────┐
            │    │ More children in     │      │     Return Home      │
            │    │   original home      │      └──────────────────────┘
            │    └──────────────────────┘
            │             │
┌──────────────────────┐  ▼
│ Mis/no information   │ ┌──────────────────────┐
│ about contraception  │ │  Less food per Child │
└──────────────────────┘ └──────────────────────┘
            ▲
┌──────────────────────┐              ┌──────────────────────┐
│ More sex before      │◀─────────────│   Introduction of    │
│ marriage             │              │   contraception      │
└──────────────────────┘              └──────────────────────┘

              ┌─────────────────────────────┐
        KEY   │  ┌───────────────────────┐  │
              │  │    Starting point     │  │
              │  ├───────────────────────┤  │
              │  │     End point         │  │
              │  └───────────────────────┘  │
              └─────────────────────────────┘
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3.2.1 Food security

The poor live 'without adequate food and cloth even when working to death' (Nepal 2000).

In all PPAs, in both urban and rural areas, the poor made it very clear that access to environmental resources was vital to food security. In urban Russia the point was made starkly: the availability of land on which to grow vegetables for sale and consumption.."virtually saves million of Russians from starvation". It was a key indicator of well-being and extreme poverty was always partly judged in terms of the length of the period of annual hunger. For the destitute this was lifelong and for all categories of poor a sophisticated array of strategies were employed to alleviate the hungry times.

Reducing food consumption and substituting less nutritional food particularly for women and often children was a common coping strategy. In Nepal's hungry period, 'red soil with water is used to keep the intestine moist'. Other strategies included migration and sending children away to relatives both of which had implications for household labour and long-term security.

In the majority of PPAs poor people argued that ensuring year round food security was becoming increasing difficult. In rural areas local people cited declining harvests linked to changing climate, water pollution, land degradation; lack of access to land itself and labour constraints brought about by chronic illness or migration as all contributing to their increased vulnerability to hunger. In urban areas, particularly in sub Saharan Africa, men and women observed that land conversion from housing to commercial use and removal from better quality land sites to more marginal areas such as on the edge of land fill sites stopped them from growing food as a safety net against hunger.

Long-term impacts were also identified as both a cause and consequence of chronic food insecurity. Long term health risks contributed to death and reproductive complications, which increased the vulnerability of the

whole household in general, and women in particular. At the same time lack of food over long periods led to a loss of energy and made it difficult to carry out basic domestic tasks or seek productive opportunities.

Common Property Resources: In the majority of PPAs, the poor drew attention to the use of CPR as a hedge against food insecurity. Levels of poverty were characterised by ever increasing dependence on CPRs such as wild foods, building materials, medicines and fuel, both for consumption and for sale.

Urban participants in the Vietnam PPA pointed out that scavenging in markets for leftovers was the urban equivalent of relying on CPR. Analysis across PPAs showed that the urban poor rely on all sorts of CPR for their survival, from scouring rubbish dumps, to growing food on scraps of roadside land.

The use of and reliance on CPR for survival was predominantly a female option, partly as a result of land tenure arrangements which usually favoured male land ownership. The insecurity of collecting CPR and the declining resources disproportionately affect women. The same applies to other very poor community members, for example 'untouchables' in Nepal or ethnic minority groups in Bangladesh.

> '**In the absence of credit, people indicated that they turned to greater exploitation of the natural environment because it was the only resource that was free'**
> Tanzania Voices of the Poor p. 74

A common theme emerging in the PPAs was the impacts on livelihoods from declining availability of CPRs. The most obvious was greater vulnerability to hunger. Also cited was, for women generally, the increased time burden and personal risk involved in having to travel further and enter into forbidden areas in order to collect essential CPRs. In South Africa the older generation observed that what was once free and abundant was now scarce and costly substitutes had to be found such as plastic buckets in place of gourds. In some PPAs local

people commented how restricted access to common land for livestock grazing, fuelwood collection and other CPRs could for the poor be a critical contributor to temporary and permanent migration.

3.3.2 Productive assets and livelihood diversification

'If you have land you have life' (Uganda 1999)
"Water is life and because we have no water, life is miserable". (Kenya PPA)

The poor, in relying on natural resources more heavily, are also more vulnerable to negative environmental change. The interrelationship between the latter two has profound implications for the range of productive assets the poor have access to and their capacity to diversify. The ability to diversify productive activities was almost unanimously considered to be a sign of well-being. Diversification implied having the investment capacity in terms of land, livestock, inputs, and labour and meant greater security in times of difficulty. Poverty and ill-being on the other hand was characterised by a reliance on a single crop or trading activity, lack of ability to invest in livestock, fruit trees, or engage in any agricultural activity at all. In a number of PPAs (Nepal, South Africa, Nigeria, Uganda) local people highlighted that decreasing access to natural assets meant that diversification into off-land activities was more than a preferred option – it was necessary for well-being.

Many poor people maintained that their situation had worsened as a result of environmental change. The PPAs were full of examples of poor people selling off their last piece of land, shortening the fallow period of their agricultural cycle and thereby increasing soil infertility, or drawing water from a polluted river. But these changes in the environment were clearly exacerbated by institutional constraints. Many felt unable to invest in their land due to a fear of eviction, or took great risks as a result of allocation of conservation land or a bias towards the wealthy in the allocation of fishing rights.

As such they are required to expend more time and energy as well as demonstrate a greater degree of ingenuity than the better off in managing their livelihood activities in tune with both short-term and longer-term environmental change. This aspect of their lives emerges most strongly with regard to natural resources.

Water: Maintaining year round access to safe abundant supplies of water was a significant problem for all, except Russia, in both urban and rural areas. In many cases social status determined regular access. In India and Nepal for example, the lowest castes reported being denied access to water points. The problems of environmental change and water availability has also meant that in some areas, poor people rely to a great extent, particularly in the dry season, on water sources that are increasingly polluted.

In arid areas and during the dry season access to water shapes the range of livelihood activities available and the capacity to manage existing assets effectively. In urban areas such as in Zambia water was available in such small quantities in the dry season that its market price severely restricted poor people's ability to access it. For some, such as children in South Africa and women in India it presented opportunities to earn money either by collecting water on behalf of better off households or by selling supplies around townships. For others it reduces livelihood opportunities. In South Africa the lack of irrigated water has contributed to reduction in agricultural activities and badly affected dry season home gardening for women – a much valued lean season occupation.

Coping strategies for the limited water availability included cutting consumption of water, washing less, using nearer, more polluted water sources (with the consequent health risks) and migration (especially among pastoralists). Limited water contributed to illness and death of livestock and crop failure. As a South African farmer put it 'farming is speculation on rainfall, and in years when it doesn't rain, there are no crops at all'.

Women throughout sub Saharan Africa and Asia detailed the knock on effects of the hours spent collecting water during periods of water shortage. Not only did they have less time for other productive and domestic activities which made the entire household more vulnerable to hunger and hardship, they also faced greater ill health. Health risks included backaches, headaches, cuts and wounds - as a result of continual extreme labour; tiredness and loss of energy as a result of less sleep and rest. For pregnant and lactating women, further health risks were implied. In Bangladesh it was stated that shortage of water led to 'intolerable mental and physical pressure'.

Land and agriculture: Land was an important productive asset in most rural areas. Landlessness or near landlessness increases vulnerability to extreme poverty. A Ugandan farmer summed up the argument: "if you have land you have life". Social assets were also perceived to help gain temporary access of land so for example in Bangladesh those who had links with a better off household were able to access a piece of their unused land for the cultivation of food crops.

As a crucial asset, people were unwilling to sell their land, but were forced to do so as a coping strategy. The knock on effects of land sale often push a household further into poverty as it reduces their asset base and also restricts their access to credit as land is a common form of collateral. (This is equally true of livestock). Women were particularly vulnerable where they lacked tenure rights over land. In South Africa, Tanzania and Kenya widows reported being stripped of their land and other productive assets by their deceased husband's relatives. In India women commented that their own assets such as jewellery and household utensils were taken first and sold by male relatives rather than resort to land sales thereby reducing their independence. In urban areas insecurity of tenure over housing was the equivalent to rural landlessness. It increased vulnerability to eviction and sudden homelessness, reduced livelihood opportunities and severely restricted access to credit and other financial services.

A key message from the poor was that the quality and accessibility of land was of equal importance to the size of land holdings. In parts of Zambia farmers reported moving to distant hilly areas in order to secure access to fertile land. If there was a greater possibility for owning and hiring land the poor were more likely to contend with marginal, difficult to farm lands some distance away from their homestead. Their inability to access appropriate inputs and information to improve production kept yields low and exacerbated vulnerability. Moreover, small land holdings, reduced fallow periods together with poor farming methods all contributed to lowered fertility and declining yields. Poor soils also meant crop diversification was a more risky option.

In many cases in rural areas, despite constraints, the poor proved adept at adapting their cropping systems in response to long-term environmental change, growing different crops and changing the pattern of production. In Ghana farmers offered examples of substituting hardier crops - if less tasty, or nutritional - to cope with unpredictability of rains, or soil exhaustion or pests.

> **In Ghana, cassava is used as a crop to mitigate against vulnerability because it can be harvested at any time.**

In the majority of PPAs the poor emphasised the critical links between financial assets and production. They are an important factor in strengthening access to natural resources. In both rural and urban areas access to money enables the hire and purchase of land as well as the purchase of inputs for primary production. In India and Malawi lack of capital made it difficult for fishing communities to obtain and maintain vital equipment. In Kenya, male farmers reported that lack of access to credit meant having to sell off their own maize seed during the hungry dry season only to have to buy it back later for planting at higher prices. Women-headed households in a number of PPAs reported that their status made it difficult to get credit, which in turn made it difficult to buy agricultural inputs (seeds, fertilisers etc.) They argued that the ultimate impact was chronic food insecurity in the household.

The inability to capitalise on harvests was also raised in rural areas. Loss of crops due to pests was commonly reported. In Uganda farmers complained that government conservation regulations stopped them from dealing properly with farm pests. Lack of ready cash also made post harvest processing difficult for poorer households. But both women and men argued that inadequate access to markets were a major barrier to optimising harvest yields. For women if allowed access to markets - in Bangladesh and parts of India this was not the case - there was the added safety risk involved in travelling in isolated areas. The poor also highlighted that being unable to store crops in safe secure facilities free from attack from pests, theft or deterioration increased their vulnerability to hunger and decreased their capacity to deal with seasonal fluctuations in income.

In sub Saharan Africa lack of labour resources often made farming difficult. Chronic illness, male migration to urban or to other rural areas and both men and women having to work as agricultural labourers meant their own production as a hedge against future insecurity was often impossible or severely constrained. In Bangladesh agriculture was increasingly loosing its elasticity to absorb a growing labour force of landless and near landless labourers but limited off-farm opportunities meant there was very high competition amongst men for waged labour. Women in Ghana highlighted that lack of decision making powers over labour allocation and cropping patterns meant they were forced to work on male cash crop plots at the expense of their own food plots. This in many cases severely undermined the household's ability to produce sufficient food.

Livestock: Livestock was considered an investment by the poor in most PPAs. Ownership of livestock can represent savings, draught power, products for consumption and sale, fertiliser for agriculture, cultural significance as well as other aspects such as bride price. Managing these valuable assets was therefore a crucial component of livelihood decision-making. Loss of

livestock through death or theft was commonly cited as increasing vulnerability to shocks and stresses.

> **Losing a large animal has implications for different aspects of people's livelihoods. It was stated in the Vietnam PPA that it would take approximately 5 years to recover from the loss of a buffalo.**

In many rural areas PPA participants highlighted that loss of grazing land through soil erosion, fragmentation of land and limited access to common land contributed to greater insecurity with respect to the health of livestock and ultimately their capacity to continue ownership. This was keenly felt by pastoralists throughout sub Saharan Africa. In urban Malawi expropriation of common grazing land by municipal authorities further undermined poor people's already insecure livelihoods.

'The cost of energy, both in terms of money and effort, is enormous for most, paralysing for some'
(South Africa 1998).

Energy supplies: Access to fuel for cooking, heating and productive activities was seen by the poor to be influenced by environmental factors. It was mentioned in several PPAs in Asia and Africa that in rural areas fuelwood supplies were in decline because of appropriation of common lands and/or land clearance in the vicinity of settlements both of which serve to restrict access. As with water, collection of fuelwood across the range of PPAs was a labour activity predominantly carried out by women and children bringing with it the same problems of lowered resistance to illness and disease, lack of time for other activities and withdrawal of children from schooling.

Many strategies were employed by poor people to deal with declining access to energy supplies for example, in Zambia, this included substitution with a different fuel. eg. maize cobs. In Nepal and parts of India travelling further often for days in order to collect food and coping with the risk of fines or violence by collecting illegally in prohibited areas. In Bangladesh for example tribal

groups mentioned the border controls in the hills denying them access to collect fuel.

In urban areas a key priority in relation to energy supplies was safety. In South Africa dependency on paraffin and candles for domestic purposes in houses made of wood and cardboard made households extremely vulnerable to sudden fire. In one research site over 90% of domestic fires were caused by their use. In India and Brazil illegal electricity hook ups were both commonplace and dangerous placing households at risk of burning, sudden fire and possible electrocution.

3.3.3 Time management

'It's difficult to catch up with the seasons'
Ugandan Villager.

Time is a valuable asset for poor people but, as articulated very clearly in the PPAs, their capacity to manage it in such a way as to protect and enhance their livelihood options was increasingly being eroded. Whist environmental factors were not the only cause, the changes in access to environmental goods and services was a major contributor to the squeezing of livelihood options available and the subsequent increased time burdens faced in merely ensuring household survival. In most cases it was women and children who bore the brunt. The starkest examples came from Kenya, where female villagers talked of walking 7 hours a day in the dry season to collect a bucket of water from a (polluted) river and, Bihar India, where women firewood sellers were reduced to 2 hours sleep per night because of the distances involved in collection and sale. Yet long hours spent in water and fuel collection was a common story in rural areas in all PPAs.

Lack of time was clearly recognised as a major constraint to improving livelihood outcomes. Inadequate rest increased vulnerability to mental stress, chronic ill health and disease. It reduced opportunities to built strong social support systems and made it difficult to access information and public support services such as agricultural extension. Landless poor

people in India and Vietnam pointed out that in searching for agricultural labour they regularly travel outside the village, thus missing agricultural extension workers. In Bangladesh male agricultural labourers pointed out that time constraints made it difficult for them to attend training, a point echoed by women in many PPAs. In India and Africa, death, disease and abandonment meant women were taking on traditional male jobs (land clearance etc.) and in women-headed households with no adult males for support the added time burdens helped to tip the poorest into extreme poverty.

Often local people talked of the appalling trade offs they were forced to make in order to save time such as knowingly taking water from an unsafe but nearer water supply rather than walking further to clean water supplies. Or, as in urban Russia reducing food consumption rather than spend valuable time queuing for food. Women in rural Vietnam told of choosing to go back to agricultural work in order to secure food supplies within days of giving birth despite the impact on their own health and on their infant's early development.

Moreover, due to the increased time required for production activities, water and fuel collection, children were increasingly involved in this labour, often removing them from school for the purpose. This disproportionately affected girls, but boys also suffered. In pastoralist communities, for example, boys were commonly removed from school to help with herding. Not only was this of considerable health risk to children's smaller bodies it also – a point well understood by the poor - blighted their opportunities for future well being and livelihood security.

3.3.4 Physical space and environmental health

'We put the older children in these classes so that when the walls or roof collapse they can run to save themselves' (Kenya 1996)

The space around settlements whether urban or rural are clearly important and in some PPAs this was brought out by a reference to the settlement's safety as opposed to the bush or forest as being unsafe. This sense of safety and security of environment emerged in several ways, although not specifically inquired about by researchers. It is however, worth touching on here as the different strands build up a picture of the importance of an anxiety-free, secure dwelling place for livelihood security.

Environmental health: Poor people were keenly aware of the effects of poor environmental health on their ability to move out of poverty. A healthy environment was for example cited in the majority of PPAs as a key indicator of well being. In Ghana older men mentioned how clearing vegetation away from around homesteads had increased the incidence of diarrhoea diseases because clearance had not been allied to improved sanitation facilities. This was echoed in a number of reports where lack of space and/or facilities was related to the occurrence of unsanitary practices. In South Africa the link was made between poverty and being exposed to poor working conditions. Chronic livelihood insecurity was raised as a critical factor in forcing poor people to work in environmentally dangerous jobs. For example, rubbish picking was cited as exposing pickers to extreme hazard and in India, poor men and women spoke of the dangers involved in having to work in limestone quarries or down the mines.

In urban areas in particular, pollution of water sources, flooding of housing, lack of drainage and stagnation of water and lack of sanitation facilities were all raised as both causes and consequences of poverty. Disease, it was said, ran rampant in crowded settlements, and rats,

mosquitoes and other pests were a significant danger to health. Urban residents also identified dangling electric cables that were hooked up illegally, the lack of lighting and the threat of fire - especially in overcrowded urban slums as environmental health risks. Respiratory diseases were mentioned in some reports (Uganda, India, Ghana) as a result of lack of ventilation within housing.

Violence: The regular incidence of violence was prevalent almost across the range of PPAs, and was stated in many cases to be on the increase in both urban and rural areas. Mostly reported was domestic violence against women, which had significant implications for their ability to manage their livelihood, not just in the collection of CPR, but in agricultural and trading activities. Areas of safety were key considerations for women when undertaking livelihood tasks. The lack of security when collecting fuel was mentioned by women in several PPAs. This made them vulnerable to physical attack and rape. Women in South Africa try as far as possible to collect in groups to ensure safety, but it is not always possible. In India women fuel wood collectors were at continual risk of harassment and violence during collection and sale from higher caste men and petty officials. In the case of Nepal where women and children were reported to have been sold, this was a particular concern.

Theft and crime: Particularly in urban areas, it was mentioned that crime was on the increase, and that theft, drugs and alcohol abuse were making areas unsafe. In South Africa the demand for electrification in townships by women was a high priority because it reduced their vulnerability to rape and physical attack when outside the home. Stealing crops and livestock in rural areas was also mentioned, in some cases as a coping strategy against hunger but often to highlight the vulnerability of poorer communities to the risks of theft.

Stigma and shame: 'The stigma of poverty encompasses a socio-spatial dimension' (Brazil 1999:28). In Brazil it was mentioned that certain urban poor areas had a stigma attached to them. This made them no go areas for

the police and branded residents unemployable in the wider job market. In India spatial segregation along the lines of ethnicity and caste especially in rural areas served to mark out the poorest and act to deny them of their rights and entitlements. Although the idea of an area being stigmatised was not discussed in other reports, the issue of shame and humiliation were common themes. For the poor the physical environment and space around a household or settlement were felt to indicate a person's poverty.

'You grow up in an environment full of diseases, of violence and drugs - you don't have the right to education, work nor leisure and you are forced to eat in the hands of the government, so you are an easy prey to the rulers. You have to accept whatever they give you'. (Brazil 1999).

3.4 Institutional Influences

Throughout the PPAs the poor recognised institutional structures and processes from micro level up to macro level were important influencing factors in how they were able to control, manage and access environmental resources. There were several themes that ran across all the PPAs.

3.4.1 Community co-operation and collective action

In many PPAs, communities detailed the importance of mutual aid and informal networks of support in improving access to and control over environmental entitlements. Examples include collecting and storing water for absent neighbours in urban Brazil, sharing energy supplies in India and South Africa, collective tree planting and well construction in Tanzania. In Uganda, rural women argued that strong social networks and community cooperation were the best way of improving livelihoods citing the pooling of land and bulk marketing as examples of self help against poverty.

More formal community based organisations (CBOs) were also identified as essential for long term sustained poverty reduction with environmental issues often sparking their development. In urban areas CBOs were instrumental in securing better living conditions, access to water and sanitation facilities. In Kampala youth associations had taken the lead in improving environmental sanitation. In Kenya, community organisation was a route to improve access to public water and sanitation facilities. In South Africa women identified communal vegetable gardening as a highly prized activity for off-setting vulnerability to ill-being and strengthening social cohesiveness.

In a number of PPAs environmental degradation provided the initial impetus for collective action. In the oil producing area of Nigeria, a youth organisation – The Ughoton Progressive Union – focused on improving environmental conditions and fighting poverty began as a direct response to oil spillage. In Mbwadzulu fishing community, Malawi, men and women mobilised to protect severely depleted fish stocks in Lake Malawi by forming a committee to monitor illegal commercial fishing during the closed season. But, the committee was never properly effective. The lack of alternative livelihood options for local fisher folk meant short term exploitation to meet basic needs ultimately took priority over the community's desire for long term protection.

This example highlights a note of caution raised in many PPAs by local people who argued against idealising the capacity of community initiatives to sustain positive change for all. The breakdown in social cohesiveness because of long term entrenched poverty was commonly cited as a key reason for the poorest and most vulnerable being left-out of or self excluding from networks of decision making. Underpinning poor people's analysis of their poverty in all the PPAs was a strong feeling of powerlessness in the face of entrenched institutional barriers to change.

3.4.2 Socio-political barriers

Access and control over natural assets and the means to better manage them (finance, markets, transport etc.) was viewed by the poor, particularly in rural areas, as a

key determinant in reducing risk. But gaining access was overwhelmingly perceived to be constrained by deep-rooted socio-political barriers. In Nigeria, for example, exclusion from community affairs and decision-making was said to be clearly linked to caste, ethnicity and gender.

Throughout the PPAs, minority groups, refugees, migrants were consistently characterised as having no voice, due to their lack of representation and political networks, isolation and exclusion. This was often exacerbated by limited knowledge of the local language and practices. Several examples were given of isolated communities such as forest dwellers or tribal peoples who lost land or were restricted access to environmental goods (see Box 6). In Uganda, for example, it was stated that the gazetting of forest land to make the Mpoka

game reserve meant the Batwa - the traditional forest dwellers - lost their land and livelihoods leaving them destitute and dependent on begging. In India the poor from lower and scheduled castes and tribal groups were systematically excluded from resources and decision-making processes at the village and district levels. This served to undermine their access to reliable water sources, better quality land, food relief and other public goods and services.

Conflicts between different social groups over water was mentioned in a number of reports as a result of dwindling supplies. An example was given in the Uganda report of a communal water site fenced off by wealthy/more powerful members and denied to some social groups.

Box 6: Those who Control Resources Control Lives

In Dalukone, Nalitabari, I heard the story of the Mandi dispossession of lands. Fifty years or so ago they cultivated jhum (berries) on the mountains and freely used the plains. After partition, officials came and told them to register their land. They did not think it was important. 'We were stupid and simple and asked "why do we have to register these huge mountains? That's crazy. there are plenty of them so who cares?". When the officials came back, we refused to see them, and some fled to the mountains. The officials forcefully recorded the homesteads with only a little land around each one.'

They have had to flee many times (1952,1964,1971, 1975) and each time, on their return they have found more and more new settlers. These Muslim settlers let their cows graze on the little land the Mandis still own. If the Mandis protest, the Muslims threaten and harass them. they even burned down their houses. As Mandi girls inherit the land from their families, there has been pressure from Muslim boys to marry them.

Now the forestry department has taken over the mountains for forestry plantations. The Mandi are not allowed to collect fuelwood and they are threatened with police action.

Many families have left for India since 1975. They flee at night to avoid the security forces. By the year 2000, they predict that most Mandis will have crossed the border into India. Others will be absorbed into the general population. Soon there will not be any tribal people living separately.

Source: Field notes of Asif Munier Feb 96; UNDP's 1996 Report on Human development in Bangladesh.

3.4.3 Government and the public sector

If 'no attempt is made by policy makers to .. provide input fertilisers through village headmen and groups, we will all one day wake up dead' (Zambia 1999).

The public sector was referred to in all PPAs, but rarely with any degree of confidence in government's actions to alleviate poverty. In the majority of the PPAs poor men and women were highly articulate about the lack of accountability of government services and the ways in which government cutbacks in service provision had served to undermine access to information, goods and services. In the majority of PPAs the poor reported little contact with government officials (both politicians and officers, for example those providing extension advice) and when it did happen it was regarded as largely unsatisfactory.

Inappropriate targeting and information in agricultural services was raised as an issue in a number of PPAs. Women farmers in sub Saharan Africa (Tanzania South Africa, Uganda and Ghana) complained of institutional bias from extension workers who rarely, if ever, made contact with them. This undermined their ability to adapt to new technologies and farming practices or to take advantage of information. Male farmers expressed anger in a few PPAs that they were not given the necessary information to deal with changing environmental conditions. In Nepal the advice was labelled irrelevant to poor farmers owning marginal holdings. In Malawi, farmers argued that extensionists were not providing information about how to cope with increasing vulnerability to flooding and drought. A point echoed by South African farmers.

The public sector role in disseminating information generally was also raised. For the poor their continual marginalisation underlined their lack of power.

The more powerful and better off had better access to information and public officials and consequently a better understanding of how to use make use of available goods and services. In Uganda government disinterest in passing on information about their policies particularly with regard to taxation and land was viewed as a restriction on their rights. In a few PPAs local people in rural areas mentioned that the government was failing in its duty to provide timely and relevant information about markets and prices which in turn undermined their food security.

The allocation of permits for commercial exploitation of natural resources such as logging or fishing was raised in a number of PPAs as being inherently biased towards the wealthy, not least because corruption was rampant. The poor also forcibly articulated how public sector biases towards commercial enterprises not only skewed local markets but also had long term impacts on the local and national resource base. In India and Ghana commercial logging was cited as a critical factor in the depletion of CPRs. In Malawi fisher folk spoke of how unregulated commercial fishing was depleting fish stocks, destroying the local markets and ruining their livelihoods.

Planning procedures and processes of consultation in both rural and urban areas were raised as major causes for concern. Throughout the PPAs urban residents complained of chronic insecurity and their vulnerability to eviction by municipal authorities often without warning and rarely with any compensation paid. In urban Brazil, Kenya and India slum dwellers reflected that even when living on government land, no effort was made by the local authorities to involve them in planning particularly with sanitation and the siting of public washing facilities. In rural areas lack of consultation between government and local people over natural resource use was a major source of hardship and conflict. In Ghana and India people mentioned how forest management regimes did not take account of their need to access CPRs and other benefits or properly involve them in planning decisions. In Uganda, Park authorities excluded local people from full access to and management of the national parks. This led to conflict, loss of livelihood and increased distrust in government .

National conservation efforts were often viewed as an attack on local livelihoods and denial of rights. In a number of PPAs people living on the edges of gazetted forests, national parks or protected areas reported open conflict and hostility with government guards brought into to protect the areas. In Nepal villagers living on the fringes of the Shivapuri protected area lost all access to CPRs when the government, without warning, declared it a conservation zone. Along with restriction came the army, increased hostility and conflict. Local people argued it was an example of the government taking rights of livelihood away from the weakest.

In some PPAs government deregulation of food prices and market was linked to the rising of food prices. In urban areas this was particularly problematic because of the greater reliance of the poor on a monetary economy. In Russia the removal of subsidies was seen as both a major contribution to poverty and a sign that the government no longer listens.

In a number of PPAs (India and Uganda, for example) the point was raised in rural areas about the effectiveness of government food relief or food for work schemes. These did not always take account of the seasonal agricultural calendar meaning that the poorest were often excluded from benefits because at the time of registration they had temporarily migrated or were tied into labour contracts that could not be broken.

3.4.4 Markets and the private sector

Poor people talked about the influence of the market on their livelihoods. This was particularly so in countries like Zambia and Malawi where market liberalisation had recently occurred. This is not to say that poor people were urging for a re-establishment of state control over markets, but in many cases the poor were acutely aware of their limited ability to compete. Male farmers in sub Saharan Africa pointed out that annual price fluctuations on world markets meant unpredictability of prices but they lacked the asset base to effectively offset the risk. Growing cash crops in such a way as to ensure food security simultaneously relied on a level of investment, unavailable to many poor people. Therefore, for many, mono-cropping a cash crop was more likely. This, however, relied on a variety of factors: availability of inputs, including labour, appropriate climatic conditions ensuring a good yield, accessibility to markets to get a good price. Without these, many poor people reflected on the consequence of harvesting little produce and thus loosing the investment and having no food crop to fall back on.

In a majority of rural areas seasonal isolation and poor infrastructure constrained access to markets and gave an advantage to middlemen in setting prices. In a few PPAs farmers suggested that lack of physical access acted as a disincentive to produce surpluses. In two PPAs people argued that markets were actively biased against the poor. In India it was argued that discriminatory land and labour markets denied access to women, tribal and low caste groups to employment opportunities and productive farm-land. In urban Russia people commonly complained that Mafia domination of the private sector effectively reduced their income earning opportunities.

3.4.5 Conflict

Conflict over environmental goods and services was a common theme throughout the PPAs. These centred around issues such as inequitable and differential access to common goods such as water bodies and grazing lands; government exclusion from land and water bodies hitherto in common ownership such as forests and community and household conflicts over natural assets. In a number of PPAs it was suggested that a degree of conflict between groups and communities was not necessarily all bad; rather it indicated the capacity to assert one's rights (see Box 7). In South Africa, for example, it was commented that as a legacy of apartheid negotiations between the powerful and those in opposition to authority was a common aspect of national polity.

Box 7: Conflict, the Environment and Rights

In India the point was made that conflict can be seen as a sign of transition away from oppressive patron-client and bonded relationships as poor people fight back against social discrimination. Poor low and scheduled caste women were perceived to be at the forefront of social justice movements. It was argued that particularly in rural areas environmental issues provide an entry point for the poor to contest their rights and entitlements. Issues contested included access to land and common property resources, equitable distribution of water sources and irrigation channels.

Source: Voices of the Poor: Poverty in People's Perceptions 1999:9

Conflicts over land in urban and rural areas were widespread. Population pressure, land fragmentation, forced migration and overcrowding were all mentioned as common causes of open conflict. Poor people's lack of access to formal channels of arbitration as well as, in some cases the gradual breakdown in traditional forms of mediation was highlighted as exacerbating vulnerability and undermining the potential for peaceful and just conflict resolution. In urban Brazil, residents of squatter camps noted that support from religious institutions was an important avenue for resolving land conflicts between neighbours and between communities and municipal authorities.

In a few PPAs young men raised the issue of inter-generational conflicts with their elders (South Africa, Uganda and Malawi for example), particularly over land. Age based marginalisation from community level decision-making and informal institutions exacerbated their frustration and increased their vulnerability to poverty.

3.5 Shocks and Stresses Related to Poverty and the Environment

'We live in paraffin and we burn in it'
(South Africa 1998)

The PPAs brought out countless examples of poor people's concern for and feeling of vulnerability in the face of environmental shocks such as natural disasters, fire and total crop failure. In many instances the poor identified those living in areas prone to natural disasters such as earthquakes, cyclones landslides and annual flooding or drought (for example, South Africa Nigeria, Uganda, Malawi, Bangladesh and India) as being a special category of poor. The level of impact on poor people of these kinds of shocks was graphically described and was clearly a contributory factor to falling into poverty or of moving down to a lower state of well-being.

How environmental shocks and stresses are experienced by poor people is linked to the ways in which they deal with environmental change and develop their management strategies. The obvious impact on the poor of such disasters is the effect of a sudden loss of resources or access to resources. But poor people emphasised throughout the PPAs that the institutional context influences the extent to which they can mitigate against and recover from disaster. Their already limited assets and limited social networks made it difficult for them to access financial support, demand public attention and aid or call on friends and relatives to give temporary shelter, food and other support. In Vietnam PPA participants pointed out that there is a price to ensuring community and social support during periods of crisis and one the poorest were often unable to pay. Thus, wherever possible, poor people in Vietnam invested in social capital by contributing to community social events as insurance against future crisis.

In South Africa where people have stake in multiple households in rural and urban areas it was pointed out the impacts of an environmental shock can be felt some distance away from the sight of actual occurrence. For example, the impact of rural drought or agricultural collapse has important indirect impacts on non-rural families who may be called upon to underwrite losses in the rural home.

3.5.1 Natural disaster

The type and therefore impact of disaster depends on the ecological context. However, the poor analysed their situations demonstrating a pattern of consequences of natural disasters that cut across the PPAs:

- **Food insecurity:** many natural disasters, such as floods, typhoons, landslides, drought etc. destroyed crops and killed livestock and therefore set off a chain of food insecurity.

- **Land loss and long-term food insecurity:** Some natural disasters are so destructive that they entirely destroy whole areas, washing away land and homesteads. In these situations poor people, with no other land to fall back on are suddenly left to cope with immense loss and to rebuild their lives with very little resources. Sale of livestock was also a common strategy but also depleted the asset base and in many cases further restricted access to credit.

- **Migration:** This was seen as a strategy of last resort. In South Africa where drought was a critical and recurrent shock to rural livelihoods a common response was migration to urban areas leading to an increase in the numbers of urban poor

3.5.2 Man-made disaster

In urban areas in particular the poor highlighted the high cost of induced disasters on their lives. For example, the devastation caused by fire - itself linked to poor housing, overcrowding and risky energy supplies was often cited as a cause of destitution. In South Africa it was suggested that tensions and cleavages within households and communities became more intense in the face of sudden fire. In Brazil it was mentioned how chemical pollution can destroy a whole community's water resources and increase vulnerability to death and disease.

3.6 Overview of Key Messages From The Poor

As section three demonstrates, poor people are able to elucidate clear links between poverty and environment. Their livelihood strategies are intricately tied to their environmental context. While these links are location-specific, participants referred to processes and trends that influenced their interaction with their environment and affected their well-being. These were not only bio-physical changes in their surroundings, but social and political processes as well. It was made clear that this relationship between poverty and the environment is a complex one, often expressed indirectly.

In brief, well-being was related to the environment in terms of health, security, hygienic physical surroundings; safe and clean energy supplies; decent low density housing on hazard-free ground; access to and control over resources particularly regarding food security and agricultural production. While there were differences in urban and rural characteristics, the poverty-environment links were less distinct than is sometimes suggested.

Poor people demonstrated that the environment was a crucial 'card' in the balance of livelihood management. Although just one element in a complex livelihood strategy, if environmental resources were threatened, damaged or withdrawn, it had substantial impact on poor people's well-being. Some poverty-environment links were straightforward to dissect. However, more complex poverty-environment links were knitted into PPAs which showed how a change in access to environmental resources can trigger a series of livelihood problems. The way poor people were able to use, maintain and control their environmental resources and services influenced their well-being. The PPAs demonstrated that three main factors determined how well they could do this:

3.6.1 Local environmental context

Across the breadth of PPAs, rural and urban poor people talked of living in increasingly fragile biophysical

contexts. Natural hazards, changing climatic conditions and unpredictable seasons were common. Equally important though were references to pollution, deforestation, soil exhaustion, and other trends resulting from intervention. On the one hand, the impact of these environmental changes were felt in terms of decreasing access to natural resources making livelihood management more difficult. On the other hand, disasters such as flooding, fire, chemical pollution were characterised as situations that could suddenly push a person into extreme poverty.

The poor, in relying on natural resources more heavily, felt themselves to be more vulnerable to environmental change. Particularly stressed was the gradual loss of access to stable environmental contexts. This, it was apparent, made people increasingly vulnerable as livelihood tasks became more time-consuming, more dangerous, more costly and often requiring more inputs. As a consequence, poor people talked of having to take unfavourable decisions and greater risks in order to balance the range of livelihood tasks. Levels of poverty were characterised by ever increasing dependence on CPRs and a common concern was that despite poor people's knowledge of seasonal conditions, their ability to prepare themselves for the consequences were limited by their poverty.

Poor people were keenly aware of the affects of poor environmental health on their ability to move out of poverty. Unsanitary conditions and a poor working environment were identified as contributors to poor health. Chronic livelihood insecurity was raised as a critical factor in forcing poor people to work in environmentally dangerous jobs. In urban areas in particular, pollution of water sources, flooding of housing, lack of drainage and stagnation of water and lack of sanitation facilities were all raised as both causes and consequences of poverty.

How environmental shocks and stresses are experienced by poor people is linked to the ways in which they deal with environmental change and develop their management strategies. The PPAs demonstrated the commitment of poor people to adapt to their changing surroundings in order to maintain their livelihood strategies. But other factors play a key part in determining how well people can use, maintain and control their environmental resources.

3.6.2 Political and institutional context

Throughout the PPAs the poor recognised that institutional structures and processes from micro level up to macro level were important influencing factors in how they were able to control, manage and access environmental resources. They were under no illusions about how power and their lack of it both underpinned well-being and shaped their relationship to the environment.

Several aspects were of particular concern. Firstly, the lack of accountability of government services and the ways in which government cutbacks in service provision had served to undermine access to information, goods and services regarding the environmental context. For the poor, their continual marginalisation restricted their access to information and public officials and consequently they had less understanding of how to make use of available goods and services.

Secondly, it was felt in several PPAs that markets were actively biased against the poor and that the allocation of permits for commercial exploitation of natural resources such as logging or fishing were inherently biased towards the wealthy. This, it was felt, not only skewed local markets but also had long term impacts on the local and national resource base. Governments' priorities were considered by some to override poor people's reliance on CPRs, and to threaten poor people's urban and rural security. Planning procedures and processes of consultation were raised as major causes for concern.

Thirdly, the point was raised in a number of PPAs that the institutional context influences the extent to which poor people can mitigate against and recover from disaster. The poorest were often excluded from benefits.

It was argued that strong social networks and community co-operation were the best way of improving livelihoods, and yet the breakdown in social cohesiveness because of long term entrenched poverty was commonly cited as a key reason for the poorest and most vulnerable being left-out.

3.6.3 Social differentiation

Throughout the PPAs it was apparent that social differences were clear mediating factors in people's interaction with their environment. This was particularly apparent in terms of gender relations, but clear references were made to age, caste, ethnicity and social status. Given the specific remit of the PPAs to address gender relations, it is unclear to what extent other social differentiation influenced environmental entitlements.

Gender differences surfaced particularly in relation to access and control over resources. The use of and reliance on CPR for survival was predominantly a female option, partly as a result of land tenure arrangements. The insecurity of collecting CPR and the declining resources therefore disproportionately affected women. Not only did they have less time for other production and domestic activities, they also faced greater risk and ill health. The same applied to other very poor community members, for example 'untouchables' in Nepal or ethnic minority groups in Bangladesh.

It was also stressed that seasonal changes affected different people in different ways. A long dry season in Sub Saharan Africa, for example, disproportionately affected women who reported the huge time burdens required for household fuel and water collection. Furthermore, as a result of environmental changes, children were increasingly involved in household tasks, often removing them from school for the purpose. This disproportionately affected girls, but boys also suffered.

Coping strategies also had consequences for certain household members. For example, reducing food consumption and substituting less nutritional food for women and often children was a way of dealing with food shortage in many areas. In many PPAs, women stressed that in managing an increasingly complex set of livelihood activities they were forced into particular risk of ill-health and assault.

Lack of power and status of certain groups was attributed by many to be a contributory factor in their limited access to environmental resources. In a number of PPAs, women-headed households, for example, reported that their status made it difficult to get credit. This in turn made it difficult to buy agricultural inputs (seeds, fertilisers etc.) leading to chronic food insecurity. Minority groups, refugees, and migrants were consistently characterised as having no voice, due to their lack of representation and political networks, isolation and exclusion. This served to undermine their access to environmental goods and services.

The examination of PPAs demonstrated the resilience and resourcefulness of poor people. The way poor people adapt to their changing environment and the institutional arrangements that influence their ability to manage this change is clearly significant in their ability to maintain their livelihoods. Poor people utilised an array of actions ranging from adapting, mitigating and coping strategies. The type of strategy adopted depends on a range of factors - environmental, social, political. Moreover the range of strategies employed are balanced one against another within a given circumstance.

In all PPAs poor people had an awareness of the importance in protecting, and managing their environment whether it be specifically the natural resource base (mainly rural areas) or their physical environment (often but not exclusively urban areas). However, running throughout the PPAs was a common acknowledgement of the gradual decline in the ability of poor men and women to control and manage the natural resource base.

4.1 Identifying Gaps and Partial Analysis

The preceding account of poor people's own assessment of poverty confirms the complex realities they face in dealing with vulnerability and processes of moving in and out of poverty. Poor people made it clear, in all PPAs, that the environment and allied goods and services play a crucial role in their lives. In doing so, they amply demonstrated their capacity to analyse their situation with respect to the environment. Furthermore, they referred to specific constraints that limit their potential to manage their environmental resources in such a way as to secure a sustainable livelihood.

At the same time, there were a number of notable omissions with regard to the environment in the collection, analysis and reporting of the data. As we indicated in section one, this was largely due to: a) the structure and methodology used and b) the absence in many PPAs of a thorough examination by researchers of the poverty-environment links. In many reports, allusions were made to these types of links without demonstrating the full cause and effect. In other cases interesting comments were made about environmental issues but were not followed through with further investigations. The nature of indirect linkages between poverty and environment meant therefore that often the analysis was obscured or could not be verified with evidence from poor people. As such, it is instructive for future participatory assessments to examine in some detail, the analytical gaps that have been identified. We also highlight examples of good practice which could easily be incorporated into future assessment methodologies.

4.1.1 Definition of environment

Terminology: The term environment was not always subject to the same rigour as the term poverty. The problem raised in Section 1 of the differing viewpoints regarding the term environment was not addressed to any great extent by many of the PPAs. In other words, assumptions were sometimes made based on external paradigmatic models. Consequently, the limited contextual analysis of the environment restricted a fuller understanding of the local poverty-environment linkages. This was not the case in all reports studied. The Ghana (1995) report does offer an example of good practice. A background report looking at the conceptual linkages between poverty and the environment was commissioned to inform the methodology and analysis. Poverty and environment linkages were therefore made explicit at the start of the research process and gave methodological room for continued analysis.

Local perceptions of environment: Poor people's perceptions of the environment were rarely questioned. In tandem with inexact use of terms it undermined consistency in approach and allowed for unexplored assumptions about how local people understood and valued the environment in their own lives. This may allow researchers to unduly influence the shape of discussions and prescribe the type of linkages between participatory poverty analysis and policy formulation. For example, the division of natural resources into sectors such as fisheries, forestry or agriculture does not reflect the way many poor people perceive their livelihoods or their environment. When given the opportunity to explore, holistically, resource management (in the Ugandan and South African PPAs for example) poor people demonstrated careful management practices combining land for agriculture, protection of forests for resources, grazing for livestock, water conservation and so on. Without understanding local perceptions it is difficult to avoid making assumptions about local poverty-environment links based on external - for example, conservationist or government - discourses. The fact that the poor do not determine their lives sectorally is now well understood in public sector delivery but also needs to be picked up and explored more precisely in the way environmental goods and services are harnessed by the poor. Moreover, some effort is needed to capture the way locally specific definitions are mediated over time and space as the physical environment/landscape changes seasonally and in the longer term.

4.1.2 Selection of research sites

Not all PPAs selected research sites incorporating ecological indicators into their criteria. This meant that comparisons could not necessarily be carried out between poor people's livelihoods in different environmental conditions. The PPAs from Uganda, Ghana, Vietnam and Tanzania Shinyanga region are worth highlighting because of the conscious linkage made between the poverty and environment status in site selection. This enabled a full contextual analysis of the biophysical, ecological, historical and spatial issues underpinning livelihood choices and changes over time in poverty and vulnerability. It also allowed for the emergence of contextually specific perceptions of environment and equally importantly illuminated linkages between social trends such as migration with environmental trends.

4.1.3 Spatial dimension of environment

The spatial dimension of environment and its link to poverty was often alluded to but rarely developed. Most reports recognised a macro spatial dimension to the occurrence of poverty and clearly identified national geographical differences in poverty. Very few looked at meso or micro level spatial dimensions of poverty. The PPAs of Brazil and India however linked structural discrimination against groups of poor people with where they lived, why they lived there and not elsewhere and how the location shaped their access to resources. Other studies referred to distinctions between safe and unsafe areas or prohibited and accessible areas which have an impact on people's livelihoods. Importantly these usually have clear social dimensions, in that what is safe for one person is unsafe for another. In several African PPAs it was pointed out that there are gendered relationships to the space around a village which determines where men and women can go for social or productive purposes and what they do or do not have access to.

4.1.4 Socially differentiated interactions with the environment

Socially differentiated perceptions and values about the

environment and the role, if any, it played in the understanding of poverty was the exception rather than the norm. Poor people's perceptions and values were not necessarily uniform in a given location. However this was often left implicit rather that examined in detail. One example is CPR: an issue examined in almost all PPAs. A heavy reliance on CPRs was perceived as an indication of the very poor. But an implication in some PPAs (e.g. Malawi, Zambia) that population increase had led to greater CPR decline was not explored in terms of who actually had access and control and how this access was mediated. In some PPAs, links were also made to commercial exploitation of CPRs but the opportunity to examine whether or not the impacts were differentiated (by gender or ethnicity for example) was not exploited. Given the overwhelming importance attached to CPRs, it presented a missed opportunity to explore more fully poverty-environment links.

4.1.5 The bigger environmental picture

Macro issues: In the majority of PPAs there was an absence of contextual analysis about government legislation, and customary law with regard to environment issues. Issues such as land use planning, food price controls, agriculture for domestic and export market, urban waste disposal and sanitation regulations, emerged sporadically and were not necessarily followed through. In some PPAs an overall context was provided in the form of an introduction, which was a useful addition for the reader, but the issues raised were not always brought up with respondents. For example, in the Bangladesh PPA (1999) the introduction observed that current irrigation practice and chemical input employed in HYV cultivation has depleted capture fisheries. However, neither HYV cultivation nor its impact was discussed with respondents.

Policies, institutions, and processes: In very few PPAs were policies, institutions and processes examined in relation to environmental goods and services beyond extension services. While the PPA methodology included a section on institutional analysis, the indirect nature of links between poverty and the environment

meant that careful probing and on the spot analysis would be required to unravel some of the socio-political influences on poor people's environmental entitlements. Where this was done it added substantially to the depth of understanding. For example, the Tanzanian and Kenyan PPAs explore the issue of women's property rights under customary law. Such an analysis demonstrated how in those specific contexts, divorce or widowhood can affect a woman's entitlement to not only land, livestock and homestead but also her harvest and her labour power - her children.

Historical context: Historical context with regard to use of, ownership and control over environmental goods and services was discussed to some extent. However in the Voices of the Poor reports it was confined to a comparative analysis between current experiences of poverty and those of ten years ago. This is an understandable but somewhat arbitrary cut off point. What was missing was the development of an historical trajectory defined and shaped by local people themselves. It also undermined the systematic integration of environmental trends and changes into the overall picture. The South Africa PPA was an exception in that an histio-ecological analysis was consciously included in the assessment.

4.1.6 Urban environment

There was a sense of frustration in analysis of urban poverty. In most cases the linkages between poverty and environment were alluded to but not expanded on. There appeared to be an assumption that environment equals natural resources and consequently this was primarily a rural issue. There is compelling evidence that this is not the case. The concept of environment is multidimensional and natural resources can and do play a role in urban livelihoods[5]. In some PPAs, for example Ghana, there was the astonishing omission of the role urban agriculture plays in the lives of the poor. More attention could also be paid to health, environmental aspects of social safety nets, and spatial impacts on urban poverty.

4.1.7 Livelihood tasks

In the majority of PPAs reviewed the livelihood analysis was rudimentary. The PPAs of Uganda, Vietnam and Bangladesh are notable exceptions because they appreciated and examined the importance of multiple asset bases and socially diverse livelihood strategies. The ways in which people interact with their environment - on an everyday basis as well as during periods of crisis - goes a long way towards establishing an understanding of poverty and environment linkages. In a significant number of PPAs it was somewhat difficult to get a sense of what people's everyday practices were and how they vary their practices from season to season. Where these were examined - and we would highlight Uganda and South Africa - it substantially supported a deepened understanding of constraints faced in maintaining a secure livelihood and the strategies employed by different social groups during periods of crisis.

4.1.8 Environmental health

Little attention was paid to environmental health. South Africa and Tanzania PPAs were the only ones to explicitly raise work place issues and few explored domestic health and safety in either urban or rural areas aside from sanitation. Interestingly the Vietnam PPA discussed women's heavy work burden in relation to women's health referring to the impact on their back, their feet, their energy and their pregnancies. The seasonal effects on health were referred to in some instances, such as being ill at a certain time of year means being hungry the rest of the year. These types of comments demonstrate the importance of understanding the impact of seasonal diseases.

4.1.9 Biodiversity

The terminology of 'biodiversity' was rarely used, but issues of loss of diversity and the impacts on livelihoods has been shown to be of profound importance to poor people.[6] Biodiversity is integral to many of the topics covered, for example:

- deforestation (e.g. loss of source of diverse 'free' local goods and services)

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5   See for example Gordon at al (2001) The Role of Natural Resources in the Livelihoods of the Urban Poor.

6   See Kozel et al:2000

- food security (e.g. importance of CPR and wild foods)

- agriculture (e.g. balance between high yielding varieties and a range of local varieties which provide resilience in times of stress)

- population pressure (e.g. the poor are pushed to even more marginal lands)

- livelihood diversification (e.g. the role of diverse natural resources in providing for the different needs of subsistence and sale)

However, when these issues where raised, the opportunity to explore the wider implications were rarely taken up.

4.2 Recommendations

These recommendations emerge directly from the review and present a synthesis of lessons learnt. They are based on three premises:

- in cases where a country PPA is on-going, it is more effective to build on existing strategies than recommend major changes to the methodology and process;

- in newly initiated PPAs especially those directly linked to policy formulation, opportunities are available to shape both research methodology and the review process and,

- a holistic approach is required to integrating environmental issues that takes account of stakeholder involvement, linkages with other research studies and findings, sequencing of inputs and reviewing of progress.

1.   Define a clear framework through which to examine poverty-environment linkages

In order to undertake an examination of the range and types of issues identified in the foregoing review, the 'environment' needs to be fully integrated into PPA

design and methodology. By establishing a clear framework, poverty-environment links can be addressed strategically through ensuring that the issues are picked up at the design stage, during fieldwork and in the analyses of data. In particular the following points are highlighted:

PPA design

As has been demonstrated in several of the PPAs, a thorough analysis can be made given the use of appropriate methodology and approach. Lessons learnt suggest that integration of poverty-environment links into the PPA will need to take into consideration:

- **Timing of data collection:** Seasonal changes have a clear impact on poverty and it is recommended that data be collected over a range of seasons. Where this is not possible, systematically drawing on existing data and triangulating information with follow-up participatory methods is essential.

- **Site selection and sampling:** Criteria for site selection will need to incorporate environmental concerns for example: eco-logical contexts; areas prone to natural disasters; areas of environmental degradation. Different options will need to be explored and will vary from country to country. However, given the desirability of maximising analytical links between survey results and integrated PPA poverty/environment themes and findings, this will be a critical consideration.

- **Research teams:** Inclusion of social and biological scientists with a environmental/natural resource background will strengthen both design and implementation

- **Literature review:** Prior to research, a review of current environmental literature ought to inform the team regarding poverty-environment debates as well as the regional environmental context.

- **Methods:** Methods selected will need to have the capacity to explore a range of issues regarding the environment. This will require an iterative process at the design stage and where appropriate, the

commissioning of background overview papers aimed at providing the country specific context of poverty-environment linkages.

PPA implementation/fieldwork

- **Capacity of field teams:** Some of the gaps identified appear to be attributed to limited capacity of field workers to probe effectively the social, political and cultural influences on poor people's interactions with their environment. In particular there appears a need to develop the capacity of field researchers to follow through issues as they emerge in order to a) comprehend fully the knock on effects of changes in the environment and livelihood management strategies and b) build up a comprehensive picture of how poor people interact with the space around them. Strengthening their capacity is obviously a process and includes: making time in implementation workshops to discuss linkages and research approaches; field supervision picking up on environment issues or gaps and a review process designed to pick up on their inputs.

- **Support and external inputs:** Good practice lessons from Uganda, South Africa and Vietnam suggest that:

  - *Provision of modest technical assistance inputs at key stages in the PPA can have a powerful influence on strengthening attention to poverty-environment linkages.*

  - *Building of linkages and dialogue with environment-focused stakeholders in the private sector, across ministries and civil society especially specialist research institutions (e.g. energy private sectors/research institutes in countries where declining fuelwood supplies is recognised as a problem), will increase research-policy linkages and broaden ownership of results. This will be particularly important in integrating environment into poverty*

reduction strategies.

- *Some issues identified at field level will be better addressed through the commissioning of supplementary studies as an addition or amendment to the main PPA. For example the impacts of agricultural modernisation or clarification of property rights/tenure arrangements in rural, peri-urban and urban areas.*

- *It is critical to the overall focus of the PPA to strengthen the review process in relation to poverty and environment linkages. The already well-established review process in the Pakistan PPA for example offers opportunities for enhancing attention given to integrating an environmental focus without placing undue strain on resources/capacity.*

2. Incorporate an understanding of the poverty-environment context

As demonstrated in the review, the context - environmental, political and social - are key factors in influencing poor people's relationship with their environment. An examination of these factors is crucial in an analysis of poverty-environment links. Of particular interest:

- **Greater attention given to defining 'environment':** In the same way that poverty is unravelled in PPAs, local definitions of environment also need to be addressed in order to facilitate a fuller understanding of the complexities underpinning poverty-environment linkages. Breaking down people's perceptions of the environment at a local level and how their perceptions change over time support a process of understanding poverty-environment linkages.

However, given the plethora of meanings surrounding the term environment and the consequent preconceptions about the links between poverty and environment, it is recommended that greater rigour be given to:

- *Clarifying terminology among researchers prior to the start of the research process. In this way assumptions/preconceptions can be made overt and methodologies developed with clarify rather than obscure local perspectives.*

- *It will also be useful to develop theme areas aimed at unravelling socially differentiated local definitions of environment. This in turn feeds into understanding local perceptions, values and terms for the environment.*

- **Examine socially differentiated values and uses of the environment:** The impact of socio-political influences on the way poor people are able to interact with their environment is a key issue to be incorporated into an analysis of poverty-environment links. This requires rigorous analysis because in effect these influences blur the links between poverty and environment. While the issue of gender relations was addressed to varying degrees in all PPAs, other social divisions were less rigorously analysed. Different social groups (e.g. caste, ethnicity, age etc) need to be analysed in terms of their:

  - *knowledge of, access to and control over resources including property rights;*

  - *livelihood strategies and division of labour within their environment;*

  - *understanding of environmental legislation and its impact on them;*

  - *perceived threats to and opportunities from their environment and,*

  - *impacts of environmental change on their livelihoods*

- **Facilitate an examination of the broader context:** A clearer examination of institutional influences on environmental goods and services, and local institutional responses to resource changes (e.g.

tracking these over time) would support a more detailed understanding of poverty-environment links. Examining the broader context helps to identify the social actors and interfaces that cause the main pressures on local environmental resources. An analysis aimed at examining how macro-policy relates to change in local livelihoods and environments requires overt attention to:

- *Government policies, legislation and their implementation with regards environmental issues from the perspective of poor people. For example, the establishment of conservation areas, or issuing of fishing permits.*

- *Institutions and customs and their impact on people's access to environmental goods and services.*

- *Historical context and its influence on current livelihood sustainability.*

- **Examine the urban and peri-urban environment:** The importance of the environment on the urban poor emerged as an important but relatively unexplored issue. Examples referred to in the PPAs were the physical space in which they live, the scarcity of environmental resources on which they rely (e.g. fuelwood and water), dependence on scraps of land for urban agriculture and the impact of climate on livelihoods. These issues were discussed to a greater or lesser degree in the PPAs, some not touching on urban environment at all. In future PPAs the design, survey implementation and review process will all need to integrate and differentiate systematically urban and peri-urban perspectives in relation to the environment.

- **Incorporate a fuller analysis of livelihood management activities:** It is recommended that future PPAs address how people interact with their environment and what their practices are.

There will be a difference between everyday practices and those they adopt during periods of crisis – shocks and stresses. In particular key areas of interest include:

- *How they use and interact with the environment, including natural resources;*

- *The constraints they face in ensuring a stable livelihood and,*

- *How they adapt across seasons and cope with environmental change.*

3. Develop a handbook to ensure adequate treatment of environmental issues in PPAs

It is suggested that a separate handbook be produced that could summarise the main poverty-environment issues and provide guidance for integrating them into the design and implementation of PPAs. In particular, it is suggested that the handbook would:

- Relate closely to the PPA protocol, dividing guidance into sections appropriate to design, implementation and analysis.

- Identify key poverty-environment themes, and suggest approaches to integrating these themes into the existing PPA approach.

- Identify questions appropriate to an understanding of poverty-environment links, for example:

  - *Do different sorts of poor people degrade or improve various components of the environment to different degrees?*

  - *Do particular environmental shocks and stresses impose different kinds of costs or different levels of cost on different sorts of poor people?*

  - *In what ways do formal and informal institutions influence the relationship of poor people to environmental goods and services?*

  - *To what extent do poor people draw on environmental goods and services in order to maintain their livelihood security?*

- Suggest appropriate participatory methods for the examination of suggested themes.

- Incorporate a matrix to aid the analysis of PPAs from an environmental perspective.

In conclusion, the findings of this review make clear that the relationship between poverty and the environment is rarely simple or direct. An observation well-understood by poor people when given the opportunity to engage in analysis. In particular, understanding the local social, cultural and political context of environmental issues is essential. Moreover, explicit recognition of the diverse factors shaping people-environment relations is paramount if the messages of the poor are to be heard, understood and incorporated into policy formulation.

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EACH REPORT WAS ANALYSED WITH THE USE OF THIS PRO-FORMA

Environmental Issue   **Link to poverty**

Natural resources (wild)

Common Property Resources   _____

Water security   _____

Fuel   _____

Deforestation   _____

Environmentally fragile areas   _____

Fisheries & Coastal areas   _____

Local/global climate change   _____

Bio-diversity   _____

Pollution: chemical   _____

Customary rights   _____

Regulations & legislation   _____

Agriculture   _____

Soil degradation/infertility   _____

Crops   _____

Livestock   _____

Food security and land ownership   _____

Traditional practices   _____

Pest infestation   _____

Diversification   _____

Inputs - pesticides/fertilisers   _____

Property regimes and tenure   _____

Information   _____

Govt programmes for agriculture - export; subsidies   _____

Migration & labour mobility

Patterns of migration   _____

Impact   _____

Health

Sanitation   _____

Potable water   _____

Disease   _____

Environmental health - occupational: chemical, air,
   space, machinery   _____

Environmental health, eg Pollution: respiratory disease   _____

Substandard housing   _____

Food security   _____

ANNEXE TWO: MATRIX OF ISSUES

EACH REPORT WAS ANALYSED WITH THE USE OF THIS PRO-FORMA

Environmental Issue	Link to poverty
Access to health care	
Health awareness	
Policies & regulations	

Disasters
Natural disasters
Industrial disasters
Conflict
Support and relief
Disaster-preparedness and support; access to information and resources

Population
Pressure and density
Changes

Seasonality
Climatic changes

Economic and monetary frameworks

Markets and trade
Global trade
Regulatory frameworks (policies, subsidies, incentives)
Access to markets (restrictions, transport)
Food prices

Social networks & actions
Kinship
Collective action around environment
Linkages - horizontal & vertical
NGOs, CBOs

Social differentiation (age, gender, location, ethnicity, religion, caste, class)
Access & control – power
Authority
Perception of environment
Access to information
Categorisation of poverty

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