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Studies in Social Deprivation in Myanmar MYA/98/004

**Final Consolidated Report
Revised**

by

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Acronyms and Abbreviations

FMR	Female-Male Ratio
FRHS	Fertility and Reproductive Health Survey (1997)
HDI	Human Development Initiative
HDIBS	Human Development Initiative Baseline Survey
HDI-E	Human Development Initiative Extension (1996-present)
IMR	Infant Mortality Rate
MICS	Multiple Indicator Cluster Surveys (1985, 1987)
MLFS	Myanmar Labour Force Survey (1990)
NRS	Northern Rakhine State
PCFS	Population Changes and Fertility Survey (1991)
PPA	Participatory Poverty Assessment
SDD	Shan, Delta, Dry Zone
SEL	Selectivity
SEN	Sensitivity
SPE	Specificity

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Executive Summary

This report presents findings of the Studies in Social Deprivation (SSD) project, (MYA/98/004), undertaken by the United Nations Department for Economic and Social Affairs and the United Nations Development Program. The SSD project has two main objectives: first, to select a number of indicators/proxies of social deprivation to facilitate, *inter alia*, targeting and monitoring; second, to examine how communities or individuals respond (coping and enabling strategies) to positive or negative forces of change (i.e. upward or downward pressures).

The first objective falls under the heading of **identification** issues. Identification issues attempt to answer two basic questions: *Who are the 'poor/socially-deprived' and what are their characteristics?* These issues are addressed in Section 2 of the report.

The second objective falls under the heading of **process** issues. Process issues attempt to answer two different questions: *How do people enter into and/or escape from poverty/social deprivation* or alternatively, *how do people become better off or worse off?* These issues are addressed in Section 3 of the report.

Section 2 - Identification Issues: Characteristics of Social Deprivation

Section 2 has two main parts. Section 2.1 examines the interrelationship among indicators of social deprivation with a view to select 'best' indicators for targeting purposes (Section 2.1.1). Section 2.2 addresses 'gendered' aspects of social deprivation with a view to assess whether gender is a good proxy of social deprivation.

Selection of 'best indicators' relied on three types of selection criteria. First-order selection criteria were based on practical considerations which required that the conception/dimension of social deprivation be household-based and correspond to income-based HDI project intervention. Second-order criteria added the requirements that indicators be intersubjectively observable and elsewhere used as indicators/proxies of social deprivation. Third-order criteria proposed a number of requirements which best indicators must satisfy, based on the interrelationship between social deprivation variables.

This three-stage process led to the selection of landholding and livestock ownership (either singularly or conjointly) as two 'best' indicators of social deprivation for rural areas across all townships included in the data set (the Human Development Initiative Baseline Survey). These variables 'overlap' significantly with one another, they are closely related to other social deprivation indicators and they comprise a manageable population share. *The landless and/or those without livestock are groups which may be good candidates for targeting purposes.*

Section 2.2 presented data on the comparative position of males and females with respect to the following aspects of social deprivation: education; health, nutrition, other.

For education, the most recent gender-disaggregated data on primary enrolment and retention rates reveal no gender differences at the national level. For health, the most recent national data on gender-disaggregated infant mortality rates (adjusted to account for gender-based biological differences) suggest that girls fare better than boys and the aggregate female-male ratio (AFMR) paints a favourable picture of the position of females by comparative standards. For nutrition,

gender-disaggregated anthropometric data on malnutrition (severe and moderate wasting or weight for height) shows higher malnutrition (both severe and moderate) for boys than girls at the national level. Finally, the 'other' category presented results of well-being rankings conducted by groups of village women who were asked to rank the comparative position of individual men and women according to their criteria of well-being and social deprivation. The main finding is that in all but one village, a sizeable minority of women (15-35%) was ranked by groups of women as worse-off than *all* male household heads.

These findings suggest that females (women and girls) *as a group* are not worse-off than males (men and boys) with respect to education, health and nutrition in the Union of Myanmar. This implies that gender on its own is not a good proxy of social deprivation. They also suggest that a sizeable minority of women are among the very worse-off social groups (according to village women). *The main implication is that it may be desirable to identify characteristics of these sub-groups of women facing severe hardship, rather than to target women as a group for program/project assistance.*

Section 3 - Process Issues: Dynamics of Social Deprivation

Section 3 relied on a conceptual framework, presented in Section 3.1, which distinguishes between coping and enabling strategies. The former are responses to downward pressures (stresses and shocks). The latter are responses to upward pressures (opportunities). This conceptual framework is operationalised *primarily* by means of a range of techniques collectively grouped under the rubric of a Participatory Poverty Assessment (PPA).¹ The primary methods used to gain a better understanding of the dynamics of social deprivation are focus group discussions and semi-structured interviews as well as an assortment of ranking, mapping and diagramming techniques.

PPA methods were applied by two separate teams over a period of approximately eight weeks (from December 1998 to February 1999). One team covered six villages in three townships (Maungdaw, Buthidaung and Rathedaung) in Northern Rakhine State (NRS team). A second team covered six villages (in total) in townships in Shan State, Delta and Dry Zone Regions (SDD team).² These Village Studies were organised around three main thematic concerns: social change and seasonality, gender, and environment. The main findings appear in Sections 3.2, 3.3 and 3.4 respectively. The detailed Village Reports are contained in a companion two-volume set and should be read in conjunction with these Sections.

A final Section (Section 3.5) concludes by drawing a number of operational implications from the preceding analysis. The main implications are:

Re. Social Change and Seasonality

- 1. The coping and enabling strategies used by worse-off households are highly variegated and extremely diversified. One common theme which is oft-repeated in the semi-structured interviews is that villagers cope with illness, death, crop failure, drought, etc. by selling off assets such as livestock and land. This provides support for promoting income-generating activities which also create assets, such as livestock breeding.*
- 2. There are important seasonal dimensions to the (downward and upward) pressures which households face. It may be prudent to tailor project intervention to respond to the most*

¹ Appendix B provides detailed information on the PPA methodology used in this study.

² Information on site selection is presented in Appendix D.

pressing types of stresses which households face at particular times in a year. Thus, for example, credit provision to make up for seasonal shortfalls of income (for consumption or productive purposes) may be appropriate.

- 3. In over half of the villages, population pressures were cited as major forms of downward pressures. This finding attaches urgency to the imperative of increasing factor productivity in agriculture, and/or non/off-farm activities, if increased rates of rural-urban migration are deemed undesirable.*
- 4. Concerning methodology, there are systematic differences between better-off and worse-off households in their perception of most pressing problems and needs. This finding strongly suggests that results of 'participatory' meetings or assemblies with better-off village representatives should be treated with caution if the objective is to get the views of worse-off villagers.*

Re. Gender

- 1. Life-cycle pressures associated with the childbearing years, coupled with high fertility rates, are probably the most frequently cited factor precipitating a deterioration in living standards of worse-off women. This underscores the need for an effective population policy which does not exclude worse-off women.*
- 2. In a significant number of villages, processes leading to female headship (e.g. death, separation, abandonment or illness of a spouse) were instrumental in precipitating a decline in living standards. It appears likely that there are sub-groups of female-headed households who face severe social deprivation and who may be good candidates for targeting.*
- 3. There are important seasonal dimensions to social deprivation with gendered implications. Project intervention should be timed to coincide with periods of relative labour abundance and avoid putting demands on women's labour time in periods of stress. Further, activities which do not require year round commitments, but may be conducted seasonally (petty manufacturing, handicrafts), may be particularly beneficial.*
- 4. Many women face mobility restrictions due to domestic and child care responsibilities and security considerations. In light of this, some home-based income earning activities, such as livestock breeding, and improvement of transportation links, in particular construction of all-weather roads, may be particularly appropriate (livestock breeding ranked highly in many priority rankings done with worse-off women).*
- 5. The situation of Muslim women in those parts of Northern Rakhine State where purdah norms are strictly enforced, requires special attention. Here the sine qua non of any positive change will be based on educating, organising and mobilising (i.e. empowering) women. The work of Bangladeshi NGOs with experience in this area, such as Nijeri Kori, may be particularly relevant.*

Re. Environment

- 1. The village studies provide evidence from different regions that worse-off households do degrade natural resources as do better-off households. In almost all cases, villagers are well aware of what is going on, though unaware of obvious solutions to remedy the problem. This*

is one area where further research is required to suss out successful local strategies of natural resource management which may be replicated elsewhere (as discussed below).

- 2. In some, but not all, situations, villagers have adopted strategies to deal with various environmental stresses including thatch cultivation in denuded forests, reforestation of mango and rain trees on individual plots, use of traditional water conservation methods such as checkdams and gully plugs, use of substitute fuels (pigeon pea, coconut frond, toddy palm leaf), etc. Supplying needed inputs in support of existing 'best practises' should be examined with a view to determine if it is more cost-effective than embarking upon programmes anew.*
- 3. It is noteworthy that all the successful cases of reforestation uncovered in the village studies involved planting on individual plots of land. This finding provides some support for the view that one way of regenerating fuelwood resources is to confer title or long-term use-rights to individuals or households for common (state) lands. It also implies that further research is required on successful examples of collective action to manage fuelwood extraction with implications say, for design of community forestry projects.*
- 4. Water shortages disproportionately affect worse-off households, and in almost all cases, worse-off women who have primary responsibility for water collection. Improving village access to drinking water is one intervention-type which is likely to fare well on both equity and gender-equity grounds.*

Section 1 - Introduction

Section 1.1 Context and Overview of the Study

The present study is a follow-up to the Human Development Initiative Baseline Survey (HDIBS) conducted in 1995-96 within the ambit of UNDP's Human Development Initiative (HDI). The HDIBS was a fixed response household questionnaire survey administered to over twenty thousand households, comprising over one hundred thousand individuals, in twenty-three townships throughout the Union of Myanmar. It is representative at the township level. The questionnaire contained sections on: household and household member characteristics; education; economic activity; agriculture; cooking fuels; drinking water; sanitation and health. Significantly, it did not collect data on income or consumption expenditure.

Results from the HDIBS were presented at a workshop held in October 1996.³ Workshop participants recommended that further research be conducted on two distinct issue-types which figure in poverty analysis: *identification issues* and *process issues* (Shaffer 1998a).

Identification issues attempt to answer two basic questions: *Who are the 'poor/socially-deprived' and what are their characteristics?* Workshop participants felt that HDIBS should be further analysed with a view to: 1) isolate poverty sensitive indicators; 2) disaggregate data by gender and 3) identify cross-correlations to establish significant linkages/relationships between variables. These recommendations are translated into the three objectives of the project document, namely: to study the characteristics of poverty (objective 1); to mainstream the gender perspective (objective 2) and to select a few measurable indicators of poverty (objective 3). They also figure prominently as the first objective in the terms of reference namely, to 'select a limited number of indicators or proxies of poverty and/or deprivation to facilitate, *inter alia*, poverty targeting and monitoring'.⁴ Section 1.2 below provides an overview of how identification issues are addressed in Section 2 of this report.

Process issues attempt to answer two different questions: *How do people enter into and/or escape from poverty/social deprivation* or alternatively, *how do people become better off or worse off*. Workshops participants noted that the HDIBS did not provide information on the dynamics of poverty/social deprivation. Specifically, they suggested supplementary analysis on: 1) the dynamics of poverty, coping strategies and household behavioural response and 2) women's role and position in economic and social family/household activities. These recommendations are translated into the first objective of the project document: 'to identify the causes of poverty and the coping strategies at the household level'. They also figure prominently as the second objective in the terms of reference namely to 'examine those forces which constrain or impel processes of impoverishment and escape from poverty'.⁵ Section 1.3 below provides an overview of how process issues are addressed in Section 3 of this report.

³ This discussion is based on UNDP 1997b and UNDP/UNDESA 1997.

⁴ See Appendix A.

⁵ See Appendix A.

Section 1.2 Identification Issues: Characteristics of Social Deprivation

Section 2 seeks answers to the following questions: *Who are the 'poor/deprived' and what are their characteristics?* One of the objectives of this study, specified in the project document and terms of reference, is to propose poverty/social deprivation-sensitive indicators for use in programme targeting and monitoring. The underlying idea is to select, among a range of indicators, those which 'best' identify the 'poor/socially deprived'.

Section 2.1 proposes a three-stage process for selecting 'best' indicators for targeting purposes.⁶ The third stage involves analysis of HDIBS data. Section 2.1.1 presents results of this analysis for rural areas across all townships while Section 2.1.2 presents results at the township level.

Section 2.2 injects a gender component into the analysis of characteristics of social deprivation. It seeks to determine whether gender is a good proxy of social deprivation. Specifically, it analyses the comparative position of females and males with respect to education (Section 2.2.1), health (Section 2.2.2) and nutrition (Section 2.2.3). It does so on the basis of results of existing household surveys. Next (Section 2.2.4), it reviews results of a 'gender well-being ranking' exercise conducted by groups of village women as part of the Village Studies (see Section 1.3 below). The 'gender well-being ranking exercise' seeks to assess the comparative position of individual men and women based on villager women's own criteria of well-being and social deprivation.

Section 1.3 Process Issues: Dynamics of Social Deprivation

Section 3 seeks answers to the following questions: *How do people enter into and/or escape from poverty/social deprivation* or alternatively, *how do people become better off or worse off?* The conceptual framework used to address this question is presented in Section 3.1. It distinguishes between coping and enabling strategies. The former are responses to downward pressures (stresses and shocks). The latter are responses to upward pressures (opportunities). Coping strategies may be successful, fending off downward pressures, or unsuccessful, precipitating entry into poverty/social deprivation (or descent into greater poverty/ social deprivation). Likewise, enabling strategies may be successful, precipitating escape from poverty/social deprivation, and/or unsuccessful, culminating in a steady state of poverty/social deprivation.

This conceptual framework is operationalised *primarily* by means of a range of techniques collectively grouped under the rubric of a Participatory Poverty Assessment (PPA).⁷ The primary methods used to gain a better understanding of the dynamics of social deprivation are focus group discussions and semi-structured interviews as well as an assortment of ranking, mapping and diagramming techniques. The primary reliance on PPA techniques is a function of two main considerations: 1) time constraints precluded usage of 'traditional' anthropological or ethnographic methods which entail prolonged village stays; 2) traditional household surveys are arguably ill-

⁶ It is beyond the scope of the present project to propose indicators for monitoring because this would entail a review of the existing monitoring and evaluation systems of all nine HDI projects as well an analysis of project outputs, expected outcomes and desired impacts. Some preliminary thoughts on monitoring issues are presented in Appendix E.

⁷ Appendix B provides detailed information on the PPA methodology used in this study.

equipped to capture dynamic issues of social change (coping and enabling strategies) which are the focus of the present study.⁸

Section 3 also draws on secondary source materials including published works, project reports, government documents, etc., which will appear under the sub-heading 'Literature Review'. These Sections serve to situate the village study results within the context of other research findings in Myanmar and within the broader context of ongoing debates on related issues. They also respond to the requirement in the terms of reference that a review of existing poverty studies be conducted. The format of Section 3 follows the main thematic concerns of the Village Studies, namely: social change and seasonality (Section 3.2); gender (Section 3.3) and environment (Section 3.4). Operational implications of the analysis are discussed in a concluding section (Section 3.5). Section 3 should be read in conjunction with the companion two-volume Village Reports which provide much more detail on issues addressed.

Section 1.4 A Note on the Division of Labour

This report is a collaborative effort. Section 2 on identification was written primarily by the present consultant based on existing primary and secondary data (excepting Section 2.2.4). Section 3 is based primarily on written reports of the Village Study team members. A brief note on the organisation of the Myanmar Village Studies, and the subsequent process of report drafting, is in order.

The Village Studies were conducted by two separate teams over a period of approximately eight weeks (from December 1998 to February 1999). One team, comprised of four members⁹, covered six villages in three townships (Maungdaw, Buthidaung and Rathedaung) in Northern Rakhine State (NRS team). A second team, comprised of five members¹⁰, covered six villages (in total) in townships in Shan State, Delta and Dry Zone Regions (SDD team).¹¹

Following the completion of primary data collection, the two teams assembled in Yangon with the present consultant over a period of approximately three weeks. Each team member was responsible for drafting at least one village report which reviewed main research results in individual villages. The village reports responded to the questions posed in the Village Study methodology (Appendix B) and paralleled the format of the present report.¹² Though individual team members were responsible for individual village reports, reporting drafting was a collaborative process. In most cases, drafts of Sections were submitted 1-2 times to the present consultant and other team members for review. Towards the end of the process, the near-final versions were presented by NRS and SDD team members to one another in a group setting, for final comment and revisions. This process of mutual critique and review greatly improved the quality of reports and the reliability of the data contained therein.

⁸ Standard household survey (HHS) data, including the HDIBS, generate data on correlates/characteristics of poverty/social deprivation which may point (in more or less direct fashion) to processes of social change but which do not report *actual* processes of change. Even panel data, i.e. HHS data at two points in time for the same population, only provides data on correlates of entry into/ escape from poverty and not on actual processes of change.

⁹ Team members were Tun Aung Prue (Team Leader), Khin Khin Aye, Ronald Wai, Yee Yee Than.

¹⁰ Team members were Tin Win (Team Leader), Wah Wah Thein, Ohmar Lwin, Win Tun and Hiroki Kajifusa. The latter participated in only two villages in the Dry Zone.

¹¹ Information on site selection is presented in Appendix D.

¹² The Village Report format is presented in Appendix C.

Sections 3.2-3.5 below were drafted by the present consultant on the basis of these village reports after extensive consultation with team members.

Section 2 - Identification Issues: Characteristics of Social Deprivation

The present Section seeks answers to the following questions: *Who are the 'poor/socially-deprived' and what are their characteristics?* As such, it corresponds to the first objective of the terms of reference namely, to 'select a limited number of indicators or proxies of poverty and/or deprivation to facilitate, *inter alia*, poverty targeting and monitoring'.¹³

The format is as follows. Section 2.1 explains the three-stage selection process used to identify 'best' indicators of social deprivation for targeting purposes¹⁴. Section 2.2 addresses 'gendered' aspects of social deprivation with a view to assess whether gender is a good proxy of social deprivation.

Section 2.1 Targeting Social Deprivation: Indicator Selection

This Section presents the three-stage selection process used to identify 'best' indicators of social deprivation. The third stage requires analysis of the interrelationship among indicators drawing on the HDIBS data. Sections 2.1.1 presents results of the third-stage analysis from rural areas across all townships whereas Section 2.1.2 presents results at the township level.

First and foremost, indicator selection depends on the underlying *conception/dimension* of social deprivation which the indicator in question is supposed to represent. This poses immediate problems for two reasons: 1) social deprivation is an extremely broad concept which comprises many different dimensions; 2) UNDP's HDI itself comprises a range of projects which address different dimensions of social deprivation. As a consequence, a first-order criteria is required to select the underlying *conception/dimension* of social deprivation.

The first-order selection criteria is based on two practical considerations. The underlying conception of social deprivation must be: 1) household-based (vs. community-based) and 2) income-based (vs. sector-specific). The first consideration is driven by data imperatives. The HDIBS collects household-level data representative at the township level, and does not allow for village-level comparisons within or between townships. The second criterion is a function of the practical imperative that sector-specific projects should rely on indicators of the aspect of social deprivation which they intend to address (e.g. health, education, water/sanitation).¹⁵ The first-order selection criteria, then, requires that the conception/dimension of social deprivation be **household-based** and that it correspond to **income-based** HDI-project intervention.

¹³ See Appendix A.

¹⁴ See Appendix E for a discussion of monitoring issues.

¹⁵ In practice, they do. The Watson project (MYA/96/002) has based village selection on a merit point system whereby villages are ranked according to the following criteria: distance from village to water source; water shortage duration; quality of existing water source; population; fetching and collecting time for water; percentage of households with fly proof latrines (Toe 1998, Appendix 10.1). The Primary Education project (MYA/98/004) has relied almost exclusively on education-related variables to select villages for new school approval and for renovation as well as to rank village tracts for inter-sectoral co-ordination. The only non-education-related variable, percentage of income-poor households, was one of five used in the selection of villages for new school approval (Chitrakar 1997).

In practice, these criteria serve to rule out the *conceptions/dimensions* of social deprivation underlying the Primary Health Care project (MYA/96/001), the Water and Sanitation project (MYA/96/002) and the Primary Education project (MYA/96/004). These projects are sector-specific *and/or* primarily community-based (e.g. primary school construction/renovation, health centre construction, etc.). The projects which meet the above criteria are the Micro-Enterprise and Credit project (MYA/98/005), the three Environment and Food Security Projects (MYA/96/006-008) and, in part, the Community Development in Remote Townships (MYA/96/009). All of these projects place emphasis on targeting or reaching 'poor' **households** and are **income-based** (in large part) in terms of project objectives (sustainable income generation) and targeting principle (income-poor households or women).

This first-order criteria then, requires indicators of income-poor households. There are two additional **second-order** criteria: 1) the chosen indicators should be intersubjectively observable (a desirable property of a poverty/social deprivation indicator); 2) the chosen indicators are elsewhere used as indicators or proxies of income poverty.¹⁶ These first and second-order criteria lead to the preliminary selection of the following five indicators: roof type, land-holding, livestock, toilet facilities and (female or male) headship.¹⁷

Roof type is often used as an indicator of household income (current and/or saved).¹⁸ Landlessness and livestock are productive assets which are indicative of household income (current and saved) and household vulnerability/insecurity, as assets may be sold in times of crisis to stave off shocks or stresses (McKinley 1997). Toilet facilities may also be indicative of household income (current and saved) in addition to household health and sanitation conditions. Female headship is one further variable which is sometimes used as correlate of income poverty, though the empirical evidence on this relationship is mixed (see note 25).

Finally, **third-order criteria** is based on an analysis of the interrelationship between chosen variables. The critical issues is to determine the extent of 'overlap' between indicators, i.e. the extent that different (same) indicators of social deprivation identify the same (different) groups of people as socially deprived. Two pieces of information are critical when addressing this question: the number of people who are 'incorrectly' included and the number who are 'incorrectly' excluded when using different indicators (Khan and Riely 1995).¹⁹ Heretofore, these two scenarios will be referred to as *Inclusion (I)* and *Exclusion (E)* errors.

The method used to assess the extent of *I* and *E* errors is drawn from the nutrition literature and has recently been used in a major study of food security indicators in India (Chung et. al. 1997). It requires first, the specification of a benchmark indicator which is assumed to be a good

¹⁶ One further consideration bearing on indicator selection criteria was that HDIBS questionnaire design and survey timetable precluded use of other potentially relevant indicators. The questionnaire did not collect data on income or consumption (which would allow an actual analysis of income poverty correlates), nor did it have a category which corresponded to a casual or day labourer. Further, results from an interesting section on food security and nutritional intake are likely to be affected by seasonality bias, given that the survey was administered in different seasons.

¹⁷ See Section 2.1.1 for an explanation of how these variables are specified.

¹⁸ According to Grameen Bank founder, Muhammad Yunus, roof-type is the key criterion distinguishing the poor and very poor in Bangladesh (Yunus in CGAP 1996). It is often used as a key targeting criteria by micro finance institutions (Hatch and Frederick 1998).

¹⁹ These two scenarios are alternatively referred to as Type II and Type I errors of targeting (following statistical terminology), *F-mistakes* and *E-mistakes* or false positives and false negatives respectively (Cornia and Stewart 1995).

representation of the chosen conception/dimension of social deprivation. It then assesses the magnitude of *I* and *E* errors generated when an alternative indicator is compared with the benchmark.

The method relies on two-by-two contingency tables.²⁰ The relationship between the alternative indicator and the benchmark is evaluated according to three basic criteria: sensitivity (SEN), specificity (SPE) and selectivity (SEL).²¹ Sensitivity may be defined as the proportion of the benchmark deprived population which the alternative indicator correctly includes. As such, it gauges the extent of *E* errors, (1-(SEN)). Specificity may be defined as the proportion of the benchmark non-deprived population which the alternative indicator correctly excludes. As such, it gauges the extent of *I* errors (1-(SPE)). Selectivity may be defined as the proportion of the total population which the alternative indicator correctly identifies. As such, it gives an indicator of the combined magnitude of *I* and *E* errors.²² Table 1 below gives a schematic representation of the three criteria.

Table 1 Two-by-Two Contingency Tables		
	Benchmark Indicator	
	Include	Exclude
Alternative Indicator		
Include	True Positive (a)	False Positive - <i>I</i> Error (b)
Exclude	False Negative- <i>E</i> Error (c)	True Negative (d)
Sensitivity (SEN) = $a/(a+c)$ Specificity (SPE) = $d/(b+d)$ Selectivity (SEL) = $(a+d)/(a+b+c+d)$		

Three are three specific third-order criteria based on this analysis: 1) the ideal cluster of social deprivation indicators should have very high scores for both sensitivity and specificity (and by consequence selectivity), reflective of low errors of Inclusion (I) and Exclusion (E) respectively;²³ 2) the chosen benchmark indicators will have high SEN values when cross-tabulated with other social deprivation indicators, significantly higher than the prevalence of these indicators in the general population; 3) the chosen benchmark indicators, arguably, should not exceed 30-50% of the total population if they are to delineate a group of manageable size for targeting purposes.

²⁰ This is based on Chung et. al. (1997) and Habicht et. al. (1982).

²¹ Selectivity doesn't figure in the nutrition literature, but is relevant for the present purposes.

²² Selectivity is equivalent to the *weighted* mean of specificity and sensitivity.

²³ The relative importance assigned low SEN or SPE values depends on the policy objective at hand. If the primary concern is to ensure maximal coverage to the poor/socially deprived (low *E* errors) then high SEN values are critical. If, on the other hand, the primary concern is to minimise leakages to the non-poor/socially deprived (low *I* errors) then high SPE values are critical.

Table 2 provides an overview of the three stage indicator selection process.

Table 2 Criteria for Indicator Selection					
	Chosen Variables				
Selection Process	Roof	Landless	Livestock	Toilet	FHH
First-order Criteria					
i. Household-based	✓	✓	✓	✓	✓
ii. Income-based	✓	✓	✓	✓	✓
Second-order Criteria					
i. Inter-subjectively observable	✓	✓	✓	✓	✓
ii. Income poverty proxy	✓	✓	✓	✓	✓
Third-Order Criteria					
i. High SEN, SPE and SEL for benchmark cluster					
ii. High SEN for alternative indicators					
iii. Manageable population share					

Section 2.1.1 HDIBS: All Townships (Rural)

As discussed in Section 1.1, the HDIBS is a fixed response questionnaire survey which was administered to over twenty thousand households in twenty-three townships throughout the Union of Myanmar between April 1996 and January 1997. It is representative at the township level.

As discussed above, the five variables selected for the analysis are: roof type, landholding, livestock, toilet facility and headship. The above analysis requires the specification of all of these indicators in dichotomous form, i.e. representable as say, 0 and 1. The precise specification is as follows:

- **Roof type** distinguishes between thatch and palm/bamboo roofing on the one hand and tiles, corrugated metal, wood shingles and cement roofing on the other;
- **Landholding** distinguishes between landless households²⁴ and households with (any) land;
- **Livestock** distinguishes between no livestock on the one hand and any of water buffalo, oxen, cows, sheep, goats and pigs on the other hand;
- **Toilet facility** distinguishes between a pit toilet or no facility/bush/field on the one hand and a flush toilet or pan latrine on the other;
- **Headship** distinguishes between self-declared female and male headship.

The tables below present data on the interrelationship of these variables across all 23 townships. Tables 5-27 in Section 2.1.2 below, present the said data disaggregated by township. It should be noted that the data below refers only to **rural** areas. This is justified on two grounds: 1) many of the above indicators are less relevant in urban areas (e.g. land-holding, livestock); 2) HDI project activities are almost exclusively focused on rural areas.

²⁴ The questionnaire (#54) asked whether household members 'operated' farm land (and if so, how much).

Table 3 Performance of Alternative Indicators - All Townships (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.93	0.26	0.50	0.86	0.23	0.49	0.85	0.34	0.72	0.80	0.19	0.28
Denom ^g				5459	10046	15505	6709	9286	15995	11241	4139	15380	2248	13749	15997
• Landless	0.41	0.88	0.50				0.60	0.84	0.74	0.39	0.79	0.50	0.44	0.67	0.64
Denom ^g	12507	2998	15505				6750	9819	16569	11548	4400	15948	2274	14296	16570
• Livestock	0.45	0.69	0.49	0.72	0.75	0.74				0.46	0.72	0.53	0.55	0.61	0.60
Denom ^g	12893	3102	15995	5659	10910	16569				11942	4516	16458	2371	14731	17102
• Toilet	0.78	0.46	0.72	0.83	0.33	0.50	0.81	0.34	0.53				0.70	0.27	0.33
Denom ^g	12319	3061	15380	5364	10584	15948	6732	9726	16458				2288	14200	16488
• FHH	0.14	0.85	0.28	0.18	0.88	0.64	0.18	0.89	0.60	0.13	0.85	0.33			
Denom ^g	12895	3102	15997	5659	10911	16570	7038	10064	17102	11959	4529	16488			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

There are two general points about these data which are relevant.

First, the two-by-two comparison reveal big differences with respect to the interrelationship between the five variables. The percentage of the total population which the indicators correctly include (SEN) and exclude (SEL) ranges from 28 to 72 percent.

Second, few of the two-by-two comparisons reveal high values for both SEN and SPE. Most indicators which correctly include most of the benchmark socially deprived (low *E* error/high SEN) also incorrectly include those who are not socially deprived (high *I* error/low SPE). Likewise most of the indicators which correctly exclude most of the benchmark population that is not socially deprived (low *I* error, high SPE) also incorrectly exclude the benchmark socially deprived (high *E* error, low SEN).

There are three points about specific comparisons which are particularly relevant.

1. The social deprivation cluster which does well according to all three third-order selection criteria combines landlessness and no livestock. First, SEN and SPE values are high (ranging from 0.6 to 0.84) and the SEL value of 74% is the highest obtained. Second, SEN values of alternative indicators are high: 1) the percentage of landless and no livestock households with 'poor' roofing is very high at 93 and 86 per cent respectively (SEN values) and in excess of the share of 'poor' roof households in the population (80 %); 2) the percentage of landless and no livestock households with 'poor' toilet facilities is also high at 83 and 81 per cent respectively (SEN values) and in excess of the share of 'poor' toilet households in the population (75 %). Third, population shares without land, without livestock or without land and livestock amount to approximately 35, 40, and

24 percent of total rural households respectively (in the sample), all of which are manageable population shares.

2. A second deprivation cluster, comprising toilet facility and roof, fares less well. First, a high SEL value of 72% reflects high SEN values (0.78-0.85) but masks low SPE values (0.34 to 0.46). Exclusion errors are low but that there is significant leakage to the non-socially deprived (high *I* errors). Second, SEN values of alternative indicators are low: 1) the percentage of 'poor toilet' and 'poor roof' households without land is low at 41 and 45 per cent respectively (SEN values) though in excess of the share of landless households in the population (35%); 2) the percentage of 'poor toilet' and 'poor roof' households without livestock is also low at 46 and 39 per cent respectively (SEN values), and equals or slightly exceeds the share of 'no livestock' households in the population (40 %). Third, and more decisively, 'poor' toilet and 'poor' roof categories comprise very large shares of the total population (75-80% respectively).

3. A final cluster, comprising headship and landlessness, also fares less well. First, SEL values for headship and landlessness are reasonable (0.65) but they mask very low SEN values (0.18-0.44). This reveals that less than half of FHHs are landless and less than 20% of landless households are female-headed. Second, if female headship is used on its own, SEN values for alternative indicators are low (landless 0.44, livestock 0.55) and/or not in excess of the prevalence of alternative indicators in the general population. The percentage of FHHs with 'poor' roofing (80%) is roughly equal to that of the total rural population whereas the percentage of FHHs with 'poor' toilet facilities (70%) falls below that of the total rural population (75%). Third FHHs do constitute a manageable targeting population, comprising 15% of rural households (though this criterion is only relevant to variables which fare well according to the first two criteria).²⁵

In summary, the deprivation cluster which fares the best according to the third-order selection criteria comprises landless and/or 'no livestock' households. These variables may be used either singularly or conjointly as social deprivation indicators. Table 4 schematically summarises results of the process of applying third-order selection criteria to the variables.

Table 4 Third Order Selection Criteria: Assessing the Variables					
	Chosen Variables				
Selection Process	Roof	Landless	Livestock	Toilet	FHH
Third-Order Criteria					
i. High SEN, SPE and SEL for benchmark cluster	✓/X	✓	✓	✓/X	✓/X
ii. High SEN for alternative indicators	X	✓	✓	X	X
iii. Manageable population share	X	✓	✓	X	✓

Section 2.1.2 HDIBS: Township-level Data (Rural)

The following subsections present SEN, SPE and SEL values for all twenty three townships covered by the HDIBS. The same sort of analysis as above may be replicated per township if a primary objective is to select township-specific targeting indicators.

²⁵ There is increasing evidence in the developing world that the relationship between female headship and income or consumption poverty is quite mixed and dependent on a range of factors (Haddad et. al. 1995).

Section 2.1.2a Dry Zone

Table 5 Performance of Alternative Indicators - Chaung U Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.95	0.14	0.44	0.94	0.13	0.39	0.96	0.13	0.38	0.87	0.10	0.23
Denom ^g				251	429	680	222	469	691	205	481	686	118	573	691
• Landless	0.39	0.84	0.44				0.72	0.80	0.78	0.50	0.69	0.63	0.48	0.66	0.63
Denom ^g	607	73	680				220	464	684	201	478	679	118	566	684
• Livestock	0.34	0.82	0.39	0.63	0.86	0.78				0.34	0.69	0.59	0.45	0.70	0.66
Denom ^g	618	73	691	251	433	684				205	485	690	119	576	695
• Toilet	0.32	0.88	0.38	0.40	0.77	0.63	0.32	0.71	0.59				0.32	0.71	0.64
Denom ^g	613	73	686	248	431	679	220	470	690				119	571	690
• FHH	0.17	0.79	0.23	0.23	0.86	0.63	0.22	0.86	0.22	0.19	0.83	0.64			
Denom ^g	618	73	691	251	433	684	223	472	695	205	485	690			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 6 Performance of Alternative Indicators - Kyaukpadaung Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.92	0.34	0.53	0.87	0.32	0.50	0.89	0.27	0.33	0.79	0.27	0.38
Denom ^g				227	464	691	234	467	701	57	641	698	143	560	703
• Landless	0.41	0.89	0.53				0.71	0.84	0.80	0.53	0.68	0.67	0.50	0.70	0.66
Denom ^g	513	178	691				251	504	755	77	674	751	158	598	756
• Livestock	0.39	0.83	0.50	0.69	0.85	0.80				0.40	0.68	0.65	0.50	0.71	0.66
Denom ^g	519	182	701	260	495	755				78	686	764	161	608	769
• Toilet	0.10	0.97	0.33	0.16	0.93	0.67	0.12	0.91	0.65				0.15	0.91	0.75
Denom ^g	516	182	698	255	496	751	252	512	764				161	607	768
• FHH	0.22	0.84	0.38	0.30	0.84	0.66	0.31	0.84	0.66	0.31	0.80	0.75			
Denom ^g	521	182	703	260	496	756	257	512	769	78	690	768			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 7 Performance of Alternative Indicators - Magway Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.97	0.13	0.51	0.97	0.12	0.50	0.93	0.15	0.83	0.89	0.08	0.23
Denom ^g				296	352	648	289	362	651	567	80	647	120	531	651
• Landless	0.48	0.83	0.51				0.80	0.82	0.81	0.48	0.70	0.51	0.51	0.56	0.55
Denom ^g	594	54	648				294	371	665	580	81	661	123	542	665
• Livestock	0.47	0.81	0.50	0.78	0.84	0.81				0.45	0.64	0.48	0.58	0.59	0.59
Denom ^g	597	54	651	303	362	665				583	81	664	124	544	668
• Toilet	0.89	0.22	0.83	0.92	0.16	0.51	0.90	0.14	0.48				0.87	0.12	0.26
Denom ^g	593	54	647	301	360	661	293	371	664				124	544	668
• FHH	0.18	0.76	0.23	0.21	0.83	0.55	0.24	0.86	0.59	0.18	0.80	0.26			
Denom ^g	597	54	651	303	362	665	296	372	668	587	81	668			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Section 2.1.2b Delta Zone

Table 8 Performance of Alternative Indicators - Bogalay Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.97	0.09	0.54	0.97	0.08	0.49	0.94	0.11	0.81	0.94	0.06	0.16
Denom ^g				395	374	769	357	417	774	551	101	652	88	686	774
• Landless	0.53	0.75	0.54				0.87	0.79	0.82	0.55	0.54	0.55	0.61	0.50	0.51
Denom ^g	725	44	769				357	421	778	556	103	659	88	690	778
• Livestock	0.48	0.77	0.49	0.77	0.87	0.82				0.48	0.59	0.50	0.56	0.55	0.55
Denom ^g	730	44	774	399	379	778				558	103	661	88	695	783
• Toilet	0.85	0.26	0.81	0.87	0.18	0.55	0.86	0.17	0.50				0.77	0.15	0.21
Denom ^g	610	42	652	353	306	659	311	350	661				71	590	661
• FHH	0.11	0.89	0.16	0.14	0.91	0.51	0.14	0.91	0.55	0.10	0.84	0.21			
Denom ^g	730	44	774	399	379	778	361	422	783	558	103	661			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 9 Performance of Alternative Indicators - Labutta Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.99	0.00	0.53	0.99	0.01	0.49	1.00	0.04	0.88	0.98	0.01	0.12
Denom ^g				412	361	773	387	391	778	671	95	766	88	690	778
• Landless	0.53	0.17	0.53				0.79	0.73	0.76	0.53	0.49	0.53	0.49	0.47	0.47
Denom ^g	767	6	773				387	392	779	674	93	767	87	692	779
• Livestock	0.50	0.33	0.49	0.74	0.78	0.76				0.49	0.49	0.49	0.58	0.51	0.52
Denom ^g	772	6	778	413	366	779				677	95	772	88	696	784
• Toilet	0.88	0.67	0.88	0.88	0.13	0.53	0.87	0.12	0.49				0.86	0.12	0.21
Denom ^g	760	6	766	406	361	767	383	389	772				88	684	772
• FHH	0.11	0.67	0.12	0.10	0.88	0.47	0.13	0.91	0.52	0.11	0.87	0.21			
Denom ^g	772	6	778	413	366	779	390	394	784	677	95	772			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 10 Performance of Alternative Indicators - Mawlamyinegyun Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.96	0.17	0.52	0.96	0.16	0.50	0.91	0.19	0.75	0.82	0.10	0.20
Denom ^g				334	431	765	324	445	769	497	148	645	101	668	769
• Landless	0.47	0.85	0.52				0.73	0.77	0.75	0.48	0.65	0.52	0.46	0.56	0.55
Denom ^g	679	86	765				326	453	779	500	150	650	103	676	779
• Livestock	0.45	0.84	0.50	0.69	0.80	0.75				0.46	0.71	0.52	0.51	0.59	0.58
Denom ^g	683	86	769	342	437	779				504	150	654	103	680	783
• Toilet	0.79	0.39	0.75	0.82	0.27	0.52	0.84	0.28	0.52				0.78	0.23	0.30
Denom ^g	574	71	645	292	358	650	278	376	654				87	131	654
• FHH	0.12	0.79	0.20	0.14	0.87	0.55	0.16	0.89	0.58	0.13	0.87	0.30			
Denom ^g	683	86	769	342	437	779	329	454	783	504	150	654			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Section 2.1.2c Shan State

Table 11 Performance of Alternative Indicators - Nyaungshwe Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.76	0.49	0.61	0.63	0.38	0.57	0.64	0.63	0.64	0.65	0.38	0.42
Denom ^g				271	334	605	564	157	721	658	32	690	116	605	452
• Landless	0.55	0.71	0.61				0.47	0.64	0.51	0.44	0.44	0.44	0.51	0.57	0.56
Denom ^g	375	230	605				471	137	608	548	32	580	101	507	608
• Livestock	0.78	0.22	0.57	0.82	0.26	0.51				0.78	0.28	0.75	0.83	0.23	0.32
Denom ^g	452	269	721	271	337	608				661	32	693	116	608	724
• Toilet	0.97	0.08	0.64	0.93	0.04	0.44	0.96	0.06	0.75				0.95	0.04	0.19
Denom ^g	436	254	690	259	321	580	537	156	693				112	581	693
• FHH	0.17	0.85	0.42	0.19	0.85	0.56	0.17	0.87	0.32	0.16	0.81	0.19			
Denom ^g	452	269	721	271	337	608	566	158	724	661	32	693			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 12 Performance of Alternative Indicators - Ywan Ngan Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.95	0.32	0.37	0.81	0.38	0.57	0.78	0.36	0.56	0.66	0.29	0.35
Denom ^g				63	713	776	376	454	830	387	443	830	137	693	830
• Landless	0.11	0.99	0.37				0.14	0.96	0.61	0.10	0.94	0.54	0.10	0.92	0.79
Denom ^g	544	232	776				335	448	783	367	416	783	125	658	783
• Livestock	0.52	0.70	0.57	0.73	0.60	0.61				0.47	0.56	0.51	0.54	0.56	0.56
Denom ^g	584	246	830	63	720	783				392	445	837	138	699	837
• Toilet	0.52	0.65	0.56	0.57	0.54	0.54	0.48	0.54	0.51				0.38	0.51	0.49
Denom ^g	584	246	830	63	720	783	381	456	837				138	699	837
• FHH	0.15	0.81	0.35	0.21	0.84	0.79	0.19	0.86	0.56	0.13	0.81	0.49			
Denom ^g	584	246	830	63	720	783	381	456	837	392	445	837			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 13 Performance of Alternative Indicators - Kalaw Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.74	0.47	0.54	0.74	0.52	0.62	0.59	0.40	0.58	0.57	0.40	0.43
Denom ^g				160	444	604	280	358	638	597	40	637	82	556	638
• Landless	0.33	0.83	0.54				0.52	0.93	0.75	0.23	0.23	0.23	0.41	0.75	0.71
Denom ^g	353	251	604				266	341	607	566	40	606	79	528	607
• Livestock	0.55	0.72	0.62	0.85	0.71	0.75				0.42	0.26	0.41	0.65	0.59	0.60
Denom ^g	378	260	638	162	445	607				598	42	640	82	559	641
• Toilet	0.94	0.06	0.58	0.81	0.02	0.23	0.89	0.03	0.41				0.93	0.06	0.17
Denom ^g	378	259	637	162	444	606	282	358	640				82	559	641
• FHH	0.12	0.87	0.43	0.20	0.89	0.71	0.19	0.92	0.60	0.13	0.86	0.17			
Denom ^g	378	260	638	162	445	607	282	359	641	599	42	641			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 14 Performance of Alternative Indicators - Pindaya Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.81	0.49	0.55	0.67	0.55	0.61	0.58	0.89	0.59	0.54	0.43	0.45
Denom ^g				135	588	723	371	355	726	705	19	724	115	611	726
• Landless	0.27	0.92	0.55				0.29	0.93	0.60	0.18	0.68	0.19	0.21	0.82	0.72
Denom ^g	411	312	723				377	364	741	720	19	739	117	624	741
• Livestock	0.61	0.62	0.61	0.80	0.56	0.60				0.50	0.26	0.50	0.55	0.50	0.51
Denom ^g	411	315	726	135	606	741				723	19	742	118	626	744
• Toilet	1.00	0.05	0.59	0.96	0.02	0.19	0.96	0.01	0.50				0.99	0.03	0.18
Denom ^g	410	314	724	134	605	739	378	364	742				118	631	749
• FHH	0.15	0.83	0.45	0.18	0.85	0.72	0.17	0.85	0.51	0.16	0.95	0.18			
Denom ^g	411	315	726	135	606	741	379	365	744	730	19	749			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 15 Performance of Alternative Indicators - Pinlaung Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.75	0.54	0.57	0.57	0.56	0.57	0.52	0.70	0.52	0.58	0.50	0.51
Denom ^g				127	709	836	474	383	857	832	23	855	112	745	857
• Landless	0.23	0.92	0.57				0.24	0.96	0.56	0.15	0.70	0.16	0.29	0.87	0.79
Denom ^g	422	414	836				466	377	843	818	23	841	108	735	843
• Livestock	0.62	0.51	0.57	0.88	0.50	0.56				0.55	0.22	0.54	0.69	0.46	0.49
Denom ^g	437	420	857	128	715	843				841	23	864	113	753	866
• Toilet	0.98	0.04	0.52	0.95	0.02	0.16	0.96	0.01	0.54				0.99	0.03	0.15
Denom ^g	437	418	855	128	713	841	480	384	864				113	752	865
• FHH	0.15	0.89	0.51	0.24	0.89	0.79	0.16	0.91	0.49	0.13	0.96	0.15			
Denom ^g	437	420	857	128	715	843	481	385	866	842	23	865			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

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Table 16 Performance of Alternative Indicators - Ha-Kha Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.87	0.39	0.42	0.83	0.42	0.49	0.77	0.43	0.52	0.76	0.40	0.47
Denom ^g				23	313	336	58	285	343	91	252	343	59	284	343
• Landless	0.09	0.98	0.42				0.23	0.98	0.85	0.10	0.96	0.69	0.14	0.95	0.84
Denom ^g	211	125	336				94	451	545	172	373	545	76	469	545
• Livestock	0.22	0.92	0.49	0.67	0.86	0.85				0.23	0.84	0.65	0.38	0.86	0.78
Denom ^g	214	129	343	33	512	545				175	380	555	84	471	555
• Toilet	0.33	0.84	0.52	0.55	0.70	0.69	0.41	0.71	0.65				0.33	0.69	0.64
Denom ^g	214	129	343	33	512	545	100	455	555				84	476	560
• FHH	0.21	0.89	0.47	0.33	0.87	0.84	0.32	0.89	0.78	0.16	0.85	0.64			
Denom ^g	214	129	343	33	512	545	100	455	555	175	385	560			

^a Thatch, palm, bamboo

^b Pit latrine or no facilities/bush/field

^c Female Headed Household

^d Sensitivity

^e Specificity

^f Selectivity

^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 17 Performance of Alternative Indicators - Paletwa Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				1.00	0.01	0.05	1.00	0.02	0.23	0.99	##	0.99	1.00	0.01	0.08
Denom ^g				17	445	462	102	366	468	466	0	466	30	438	468
• Landless	0.04	1.00	0.05				0.13	0.98	0.80	0.04	###	0.04	0.21	0.96	0.92
Denom ^g	456	6	462				158	596	754	752	0	752	42	712	754
• Livestock	0.22	1.00	0.23	0.59	0.81	0.80				0.21	###	0.21	0.42	0.80	0.78
Denom ^g	462	6	468	34	720	754				781	0	781	43	740	783
• Toilet	1.00	0.00	0.99	1.00	0.00	0.04	1.00	0.00	0.21				1.00	0.00	0.06
Denom ^g	460	6	466	33	719	752	161	620	781				43	0	781
• FHH	0.06	1.00	0.08	0.26	0.95	0.92	0.11	0.96	0.78	0.06	###	0.06			
Denom ^g	462	6	468	34	720	754	163	620	783	781	0	781			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 18 Performance of Alternative Indicators - Thantland Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.88	0.15	0.24	0.93	0.16	0.29	0.93	0.19	0.46	0.88	0.15	0.26
Denom ^g				91	671	762	135	662	797	292	505	797	121	676	797
• Landless	0.12	0.90	0.24				0.21	0.90	0.78	0.15	0.90	0.62	0.31	0.91	0.82
Denom ^g	651	111	762				136	641	777	291	486	777	114	663	777
• Livestock	0.18	0.91	0.29	0.31	0.84	0.78				0.30	0.91	0.69	0.30	0.85	0.77
Denom ^g	681	116	797	93	684	777				294	518	812	124	688	812
• Toilet	0.40	0.82	0.46	0.47	0.64	0.62	0.64	0.69	0.69				0.51	0.66	0.64
Denom ^g	681	116	797	93	684	777	137	675	812				124	688	812
• FHH	0.16	0.88	0.26	0.38	0.88	0.82	0.27	0.87	0.77	0.21	0.88	0.64			
Denom ^g	681	116	797	93	684	777	137	675	812	294	518	812			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 19 Performance of Alternative Indicators - Tiddim Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.48	0.60	0.59	0.61	0.66	0.65	0.64	0.66	0.66	0.37	0.60	0.57
Denom ^g				46	591	637	137	503	640	123	514	637	71	569	640
• Landless	0.09	0.94	0.59				0.15	0.95	0.79	0.08	0.93	0.77	0.16	0.94	0.86
Denom ^g	256	381	637				154	594	748	140	605	745	79	669	748
• Livestock	0.32	0.86	0.65	0.45	0.81	0.79				0.32	0.82	0.73	0.35	0.81	0.76
Denom ^g	256	384	640	51	697	748				142	606	748	80	671	751
• Toilet	0.31	0.89	0.66	0.22	0.81	0.77	0.30	0.84	0.73				0.23	0.81	0.75
Denom ^g	254	383	637	51	694	745	155	593	748				80	669	749
• FHH	0.10	0.88	0.57	0.25	0.91	0.86	0.18	0.91	0.76	0.13	0.90	0.75			
Denom ^g	256	384	640	51	697	748	156	595	751	142	607	749			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 20 Performance of Alternative Indicators - Falam Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.69	0.40	0.42	0.65	0.41	0.47	0.82	0.51	0.62	0.67	0.41	0.46
Denom ^g				42	586	628	150	494	644	219	423	642	112	532	644
• Landless	0.08	0.95	0.42				0.17	0.97	0.80	0.09	0.96	0.69	0.12	0.95	0.81
Denom ^g	378	250	628				150	559	709	215	492	707	117	592	709
• Livestock	0.25	0.79	0.47	0.60	0.81	0.80				0.31	0.82	0.67	0.48	0.83	0.77
Denom ^g	387	257	644	43	666	709				220	505	725	124	603	727
• Toilet	0.47	0.85	0.62	0.48	0.71	0.69	0.43	0.73	0.67				0.31	0.70	0.63
Denom ^g	386	256	642	42	665	707	157	568	725				123	603	726
• FHH	0.19	0.86	0.46	0.33	0.85	0.81	0.37	0.89	0.77	0.17	0.83	0.63			
Denom ^g	387	257	644	43	666	709	159	568	727	220	506	726			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

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Table 21 Performance of Alternative Indicators - Kyauktaw Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				1.00	0.01	0.53	1.00	0.01	0.48	1.00	0.05	0.97	1.00	0.01	0.14
Denom ^g				418	378	796	380	423	803	712	22	734	106	697	803
• Landless	0.53	1.00	0.53				0.83	0.75	0.79	0.53	0.38	0.53	0.68	0.50	0.52
Denom ^g	792	4	796				384	420	804	714	21	735	107	697	804
• Livestock	0.48	1.00	0.48	0.75	0.83	0.79				0.49	0.39	0.49	0.62	0.55	0.56
Denom ^g	799	4	803	423	381	804				719	23	742	108	703	811
• Toilet	0.97	1.00	0.97	0.97	0.02	0.53	0.96	0.02	0.49				0.96	0.03	0.15
Denom ^g	733	1	734	394	341	735	366	376	742				96	647	743
• FHH	0.13	1.00	0.13	0.17	0.91	0.52	0.17	0.90	0.56	0.13	0.83	0.15			
Denom ^g	799	4	803	423	381	804	386	425	811	720	23	743			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 22 Performance of Alternative Indicators - Minbya Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.99	0.01	0.66	0.99	0.01	0.58	0.99	0.07	0.97	0.99	0.01	0.14
Denom ^g				503	260	763	445	322	767	673	14	687	102	665	767
• Landless	0.66	0.29	0.66				0.89	0.66	0.80	0.68	0.93	0.68	0.81	0.36	0.42
Denom ^g	756	7	763				451	322	773	681	14	695	103	670	773
• Livestock	0.58	0.29	0.58	0.79	0.81	0.80				0.61	0.93	0.62	0.70	0.44	0.47
Denom ^g	760	7	767	510	263	773				683	14	697	105	672	777
• Toilet	0.98	0.14	0.97	1.00	0.06	0.68	1.00	0.05	0.62				1.00	0.02	0.14
Denom ^g	680	7	687	462	233	695	419	278	697				95	602	683
• FHH	0.13	0.86	0.14	0.16	0.92	0.42	0.16	0.90	0.47	0.14	1.00	0.16			
Denom ^g	760	7	767	510	263	773	452	325	777	683	14	697			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 23 Performance of Alternative Indicators - Mrauk-U Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.99	0.04	0.62	0.97	0.01	0.51	0.99	0.22	0.94	0.97	0.02	0.14
Denom ^g				421	270	691	358	337	695	612	46	658	91	604	695
• Landless	0.62	0.79	0.62				0.85	0.65	0.75	0.61	0.44	0.60	0.77	0.42	0.46
Denom ^g	677	14	691				357	338	695	614	45	659	91	604	695
• Livestock	0.51	0.29	0.51	0.72	0.80	0.75				0.49	0.37	0.48	0.75	0.52	0.55
Denom ^g	681	14	695	422	273	695				616	46	662	91	608	699
• Toilet	0.94	0.71	0.94	0.94	0.08	0.60	0.91	0.05	0.48				0.91	0.07	0.17
Denom ^g	644	14	658	402	257	659	332	330	662				84	579	663
• FHH	0.13	0.79	0.14	0.17	0.92	0.46	0.19	0.93	0.55	0.12	0.85	0.17			
Denom ^g	695	14	695	422	273	695	359	340	699	617	46	663			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 24 Performance of Alternative Indicators - Buthidaung Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				1.00	0.00	0.47	1.00	0.00	0.45	1.00	0.00	0.98	1.00	0.00	0.10
Denom ^g				287	323	610	286	343	629	514	9	523	64	564	629
• Landless	0.47	###	0.47				0.77	0.78	0.78	0.47	0.40	0.47	0.72	0.54	0.56
Denom ^g	610	0	610				379	405	784	659	10	669	83	701	784
• Livestock	0.45	###	0.45	0.77	0.78	0.78				0.49	0.60	0.49	0.74	0.54	0.56
Denom ^g	6229	0	629	379	405	784				675	10	685	89	723	812
• Toilet	0.98	###	0.98	0.98	0.01	0.47	0.99	0.02	0.49				0.97	0.01	0.12
Denom ^g	523	0	523	318	351	669	332	353	685				74	611	685
• FHH	0.10	###	0.10	0.16	0.94	0.56	0.17	0.94	0.56	0.11	0.80	0.12			
Denom ^g	629	0	629	379	405	784	397	415	812	675	10	685			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 25 Performance of Alternative Indicators - Maungdaw Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				1.00	0.00	0.62	1.00	0.00	0.52	1.00	0.00	0.94	1.00	0.00	0.10
Denom ^g				456	281	737	414	383	797	738	51	789	81	716	797
• Landless	0.62	###	0.62				0.88	0.69	0.79	0.61	0.35	0.60	0.74	0.39	0.43
Denom ^g	737	0	737				401	341	742	683	51	734	77	665	742
• Livestock	0.52	###	0.52	0.77	0.83	0.79				0.52	0.43	0.51	0.60	0.49	0.50
Denom ^g	797	0	797	460	282	742				742	51	793	82	720	802
• Toilet	0.94	###	0.94	0.93	0.06	0.60	0.93	0.06	0.51				0.95	0.07	0.16
Denom ^g	789	0	789	453	281	734	412	381	793				81	716	797
• FHH	0.10	###	0.10	0.12	0.93	0.43	0.12	0.91	0.50	0.10	0.92	0.16			
Denom ^g	797	0	797	460	282	742	418	384	802	744	53	797			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Section 2.1.2f Kachin State

Table 26 Performance of Alternative Indicators - Myitkyina Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.76	0.23	0.46	0.83	0.26	0.46	0.91	0.57	0.81	0.79	0.23	0.34
Denom ^g				239	310	549	207	375	582	414	166	580	108	474	582
• Landless	0.43	0.55	0.46				0.67	0.69	0.68	0.40	0.49	0.43	0.49	0.58	0.56
Denom ^g	422	127	549				187	364	551	388	161	549	99	452	551
• Livestock	0.38	0.73	0.46	0.53	0.80	0.68				0.37	0.69	0.46	0.44	0.67	0.63
Denom ^g	449	133	582	239	312	551				415	167	582	108	476	584
• Toilet	0.84	0.71	0.81	0.65	0.25	0.43	0.75	0.31	0.46				0.78	0.30	0.39
Denom ^g	447	133	580	237	312	549	207	375	582				108	474	582
• FHH	0.19	0.83	0.34	0.21	0.84	0.56	0.23	0.84	0.63	0.20	0.86	0.39			
Denom ^g	449	133	582	239	312	551	207	377	584	415	167	582			

^a Thatch, palm, bamboo

^b Pit latrine or no facilities/bush/field

^c Female Headed Household

^d Sensitivity

^e Specificity

^f Selectivity

^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Table 27 Performance of Alternative Indicators - Waingmaw Township (Rural)

Alternative Indicator	Benchmark Indicator														
	Roof ^a			Landless			Livestock			Toilet ^b			FHH ^c		
	SEN ^d	SPE ^e	SEL ^f	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL	SEN	SPE	SEL
• Roof				0.94	0.19	0.46	0.94	0.16	0.34	0.88	0.59	0.87	0.84	0.14	0.22
Denom ^g				245	419	664	159	535	694	660	34	694	83	611	694
• Landless	0.40	0.84	0.46				0.77	0.75	0.75	0.37	0.73	0.39	0.56	0.66	0.65
Denom ^g	571	93	664				149	516	665	632	33	665	79	586	665
• Livestock	0.25	0.91	0.34	0.47	0.92	0.75				0.24	0.91	0.27	0.30	0.78	0.72
Denom ^g	597	97	694	245	420	665				660	35	695	83	612	695
• Toilet	0.98	0.21	0.87	0.96	0.06	0.39	0.98	0.06	0.27				0.95	0.05	0.16
Denom ^g	597	97	694	245	420	665	159	536	695				83	612	695
• FHH	0.12	0.87	0.22	0.18	0.92	0.65	0.16	0.89	0.72	0.12	0.89	0.16			
Denom ^g	597	97	694	245	420	665	159	536	695	660	35	695			

^a Thatch, palm, bamboo^b Pit latrine or no facilities/bush/field^c Female Headed Household^d Sensitivity^e Specificity^f Selectivity^g Denominators used in respective calculations.

Source: Calculated from HDIBS

Section 2.2 Gender and Social Deprivation

This Section presents data on the comparative position of males and females with respect to the following aspects of social deprivation: education; health, nutrition, other. The objective is to determine whether gender is a good proxy of social deprivation.

Section 2.2.1 Education

The Section presents gender-disaggregated data on two commonly used indicators of the 'present-state' of 'educational' deprivation: primary net enrolment and primary retention rates (Saith and Harris-White 1997, 24).²⁶ Regionally disaggregated data on both of these variables, from UNICEF's 1995 and 1997 MIC surveys, are presented in Table 28 below.²⁷

²⁶ These flow variables contrast with stock variables including literacy rates and mean years of schooling, which are indicators of past investment in education.

²⁷ The 1997 MIC survey included greater coverage of border areas than the 1995 survey and as a consequence some of the categories in Table 28 differ over the two years.

Table 28 Education and Social Deprivation: Gender Differences

State/ Division	Primary Net Enrolment Rate ^a				Primary Retention Rate ^b			
	1995 ^c		1997 ^d		1995 ^c		1997 ^e	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Kachin	90	90	89	84	38	41	48	55
Kayah	84	82	76	73	24	29	43	53
Kayin	87	88	65	68	33	31	46	54
Chin	83	82	80	76	42	42	32	36
Mon	92	90	80	81	34	33	61	60
Rakhine	61	58	56	58	27	30	46	33
Shan (North)	84	84	74	81	36	43	35	38
Shan (East)	50	52	51	46	29	33	49	51
Shan (South)	76	76	83	86	31	29	40	47
Ayeyarwady	82	84	88	83	33	30	39	36
Bago	88	89	81	79	33	30	49	43
Magway	87	85	80	81	28	28	40	43
Mandalay	91	90	83	82	41	36	30	37
Sagaing	87	88	89	93	42	29	37	38
Tanintharyi	90	90	86	85	29	32	76	79
Yangon	90	91	87	85	39	35	60	57
New Settlement	86	84			31	30		
Border Area Regions								
Kachin 1&2			83	80			46	62
Kokang, Wa			50	45			43	62
Pa-O			69	68			49	54
Kabaw & Naga			62	62			36	36
Chin			70	74			50	46
Mon, Taninthayi			80	85			56	53
UNION ^e	85	85	80	80	35	32	44	44

^a Percentage of Children of Primary School Age Enrolled in Primary School

^b Percentage of Children of Entering Kindergarten who Eventually Reach Fourth Grade

^c Some of these values are rounded.

Source: ^c GoM 1995b, 27-28

^d UNICEF 1998, 44-45

^e UNICEF mimeo

(N.B. Primary Retention Rates for 1995 and 1997 appear to have been calculated differently and are thus not strictly comparable. This should not affect the boy/girl comparison in each year.)

Table 28 reveals that *nationally*, there are no gender differences in net primary enrolment rates. The national data does mask some regional variation as there are six cases which feature a swing of 5 percentage points. With respect to primary retention rates, the data reveal small gender differences *nationally* favouring males in 1995 but no gender differences in 1997. The national data do mask some large regional variation favouring boys in Rakhine State and girls in Kachin State and Kokang. The most recent data suggest, then, that there are not significant gender differences in primary net enrolment or primary retention rates.

Section 2.2.2 Health

The Section presents gender-disaggregated data on two indicators of 'health-related' deprivation: 1) the gender-disaggregated infant (<1) mortality rate (IMR); 2) the Aggregate Female-Male Ratio (AFMR)). Data on the former is provided by the 1991 Population Changes and Fertility Survey (PCFS) and the 1997 Fertility and Reproductive Health Survey (FRHS). Data on the latter may be culled from the 1973 and 1983 population censuses as well as from the nationally representative²⁸ PCFS and FRHS.

The main problem when using mortality data to infer gender-based discrimination in health care is that males tend to have higher mortality rates than females for biological reasons.²⁹ As a consequence, observed gender disparities must be adjusted to take into account 'natural' (i.e. biological) differences. Usually, data is adjusted using reference populations where gender disparities in mortality are supposed to reflect only natural differences (and not discrimination).

Table 29 presents data on infant mortality rates and excess female mortality (EFM) in Myanmar. EFM tries to assess whether gender disparities in mortality are *in excess of* what one would expect given 'natural' (i.e. biological) differences. It is calculated using three different reference populations: *relative* differences in male and female mortality rates from Sweden between 1983-1987 (SWEDREL), Model Life tables for Northern Europe (North) and Europe, Asia, Australasia and South Africa (West).³⁰ *EFM* exceeds one in situations of excess female mortality. *EFM* is less than one where there is excess male mortality.

Table 29 Infant Mortality Rates (IMF) and Excess Female Mortality (EFM)					
	IMF		EFM ^c		
	Boys	Girls	SWEDREL	WEST	NORTH
1991 ^a	98	89	1.07	1.11	1.09
1997 ^b	84	65	0.92	0.94	0.93
Source: ^a PCFS ^b FRHS ^c Calculated from Coale et. al. (1983, 50, 164) and Klasen (1996, 920)					

²⁸ The FRHS excluded from the sample frame twenty-four townships whose total population amount to approximately one percent of the population of Myanmar.

²⁹ Specifically, male infants have higher rates of respiratory distress syndrome due to the greater immaturity of males lungs at birth and greater susceptibility to infectious disease given the lower levels of X-linked immunoregulatory genes in males (Waldron 1983, 147-48).

³⁰ Following Klasen (1996, 919) *EFM* is expressed as $EFM = [AFMR/AMMR]/[SFMR/SMMR]$ where *AFMR* is the Actual Female Mortality Rate; *AMMR* is the Actual Male Mortality Rate; *SFMR* is the Standard (Expected) Female Mortality Rate and *SMMR* is the Standard (Expected) Male Mortality Rate. The reference level of female life expectancy corresponding to the mortality data presented is 60 which reflects that prevailing in Myanmar (UNDP 1997a, 151).

Table 29 reveals big differences between the findings of the 1991 PCFS and the 1997 FRHS. Results from the former suggest excess female mortality in the range of 7-11 percent while results from the latter suggest excess male mortality between 6-8 percent. It is unclear if these discrepant results reflect an improvement in the mortality situation of girls vis a vis boys between 1991 and 1997, or are attributable to other factors.³¹ In any event, the most recent data do not suggest discrimination against females in health care access and treatment (though this finding should be treated with caution until the discrepancy between results is resolved).

The second indicator of gender differences in health care access or nutritional intake is the Aggregate female-male ratio (AFMR). Low AFMRs are likely evidence of gender discrimination in health and nutrition because females have 'naturally' higher survival rates than males. As with mortality data, the key issue is the determination of the 'natural' ratio of females to males. One solution is to take the AFMR of sub-Saharan Africa which is a low life expectancy population where gender-based mortality differences are relatively small (Sen 1992, 587-588).

Table 30 presents data on the AFMR in Sub-Saharan Africa and Myanmar. The latter figure is based on data from the population censuses of 1973 and 1983 as well as the 1991 PCFS and the 1997 FRHS. The census data reveal a AFMR slightly below the SSA norm while the PCFS and FRHS data is significantly in excess of this norm and increasing over time. As above, it is unclear whether this increasing trend reflects sampling and non-sampling errors or other factors.³² In any event, all values of the FMR in Myanmar are significantly in excess of those in neighbouring countries where gender discrimination is known to occur including Bangladesh (0.94), China (0.94) and India (0.93). These data then, do not suggest significant gender differences in health care access or nutritional intake in the Union of Myanmar.

Table 30 The Aggregate Female-Male Ratio (AFMR)					
	SSA	Census 1973	Census 1983	PCFS 1991	FRHS 1997
FMR	1.022	1.011	1.014	1.053	1.072
Sources: (GoM 1998, 9; Sen 1992, 587)					

Section 2.2.3 Nutrition

The ideal way to assess intrahousehold food distribution is to collect data on *individual* caloric intake or food consumption within the household. In Myanmar, no reliable data of this type

³¹ Perhaps sampling or non-sampling error differentially affected the two surveys, which were very similar in design.

³² The 1990 Myanmar Labour Force Survey (MLFS), representative of 83% of the population, also found increasing trends in the AFMR attributed to a fall in the maternal mortality rate and/or sex-selective migration (GoM 1993, 23).

exists.³³ Consequently, evidence on gender differences in intrahousehold allocation must be inferred from data on nutritional outcomes.

UNICEF has collected anthropometric data for children in its 1995 and 1997 Multiple Indicator Cluster Surveys (MICS). It has calculated gender-disaggregated measures of wasting, or weight for height, representative at the State, Division and border area levels. Two measures of wasting are presented in Table 31 below. Severe malnutrition occurs when weight for age is three standard deviations below the National Centre for Health Studies (NCHS)/ World Health Organisation (WHO) norms. Severe and moderate malnutrition occurs when weight for age is two standard deviations below this norm.

Table 31 reveals higher malnutrition (both severe and moderate) for boys than girls in 1995 and 1997, for the country as a whole. The regional decomposition comes to very similar results. Only 6 of 78 cases deviate from this pattern (highlighted in Table 31), and none in both years of the surveys. These data do not suggest that girls fare worse than boys with respect to nutritional intake.³⁴

³³ The National Nutrition Centre conducted National Nutrition Surveys in 1991, 1994 and 1997 which appear to have collected data on individual food consumption though questions have been raised about sampling procedures and data reliability (UNWG 1998, 45).

³⁴ The 1994 National Nutrition Survey (Thwin 1995) presents gender-disaggregated results on wasting, weight for height, stunting, weight for age, and weight for age for children (<3) two standard deviations below the NCHS/WHO population norms. As above, it found higher malnutrition for boys than girls in all categories (8% vs. 7.5%; 34% vs. 28.5%; 47% vs. 42%). As discussed in note 33, these findings should be treated with caution, given concerns about data quality and because the absolute values of the data differ markedly from UNICEF's MIC data.

Table 31 Wasting (Weight for Height) of Children Under Five: Gender Differences

State/ Division	1995 ^a				1997 ^b			
	-2SD (%)		-3SD (%)		-2SD (%)		-3SD (%)	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Kachin	37	37	15	16	22	18	4	3
Kayah	30	27	11	10	53	40	15	10
Kayin	44	49	13	18	39	33	14	14
Chin	55	49	28	26	45	41	20	11
Mon	41	42	13	16	40	37	15	15
Rakhine	57	54	29	29	59	45	24	18
Shan (North)	45	29	15	8	35	28	12	12
Shan (East)	52	43	24	22	43	38	23	18
Shan (South)	37	32	12	12	39	28	11	10
Ayeyarwady	45	43	17	17	34	33	12	9
Bago	42	45	17	17	41	39	15	13
Magway	53	49	21	18	41	41	15	17
Mandalay	44	40	16	15	31	34	11	10
Sagaing	47	37	16	12	32	29	10	7
Tanintharyi	44	40	16	15	46	36	21	12
Yangon	37	33	9	10	34	24	8	6
New Settlement	42	39	13	13				
Border Area Regions								
Kachin 1&2					19	20	7	6
Kokang, Wa					35	41	17	19
Pa-O					38	34	16	16
Kabaw & Naga					22	24	9	8
Chin					37	35	16	14
Mon, Taninthayi					36	38	16	17
UNION	44	41	16	15	37	34	13	11

Source: ^a GoM 1995b, 22-23^b UNICEF 1998, 25-26

Section 2.2.4 Other

In addition to education, health and nutrition, there are many other aspects of social deprivation which may differentially affect males and females. A short list may include: excessive work time; domestic violence; lack of decision-making authority; restrictions on mobility, etc.³⁵ The problem when attempting to assess the comparative position of males and females with respect to social deprivation *tout court* is that there is no obvious way to determine the relative importance of all of its constituent elements.

One way to address this issue is to rely on the perception of participants in a well-being ranking exercise. This method was used in six villages in the Dry Zone, Delta Region and Shan State

³⁵ Many of these issues are discussed in Section 3.3.

during the Myanmar PPA. The method is described in detail in Appendix B (Section B.2.7), but a brief explanation is in order.

Following the ranking of *households* into the categories ‘worse off’ (WO), medium (MID) and best off’ (BO), the groups were asked to imagine that the household ranking actually represented the ranking of *household heads*. Female household heads were removed from the ranking so that all remaining household heads were male. Participants were then asked to comparatively rank all individual household heads and their wives. It should be emphasised that the ranking was done across all households and not within particular households. The selection of wives of household heads was based on the assumption that they would serve as an adequate proxy for village women in general. The categories for the second ranking were the same as the first excepting the addition of two categories: one entitled ‘Worse-Worse Off’ (WWO) representing greater social deprivation and one entitled ‘Best-Best Off’ (BBO) representing greater well-being. The spatial configuration of the ranking exercise is presented in Table B.34 (p. 87).

Figure 1 below presents the results of the ranking exercise of individual men and women conducted by *groups of women* in the six villages in question. The ranking results conducted by *groups of men* is not presented because, in most cases, individual women were ranked in the same category as the household to which they belonged. There are two points about the ranking results which are particularly germane.

First, in all villages except one (Pa Wein), the percentage of women in the ‘Worse-worse Off’ category ranges from 15-35% of all women. This represents a sizeable minority of women who appear to be in conditions of great hardship (ranked below all ‘worse-off’ men).

Second, the results do not show stark differences between men and women across all ranking categories.³⁶ In all villages, the percentage of men and women in the two ‘best-off’ categories is similar. In four of six villages, the percentage of men and women in the middle category is similar as well. In most cases, the main difference between men and women occurs in the two worse-off categories, as some women are placed in the WWO category and fewer in the WO category. The one big exception is Pa Wein Village (Delta Region) where almost no women are in the WWO category and almost three times the percentage of men than women are in the two worse-off categories (60 to 20%).

The reasons offered for the ranking of Worse-worse Off (WWO) women differ per village.³⁷ As a general rule, many of the aspects of social deprivation affecting women in particular, appear similar to those affecting households in general. The two exceptions are physical (spousal) abuse and heavy work burdens due to absent, sick or ill spouses. In Kulai Village, Dry Zone, which recorded the highest percentage of WWO women, emphasis was placed on lack of assets (particularly land) poor health and physical isolation (as women are obliged to work abroad). In Kyaukkhwet Village, Dry Zone, attention focused on insufficient food, poor clothing and low quality housing, old age and physical abuse. In Taung Paw Gyi Village, Shan State, the principle characteristics of WWO women included: lack of assets and inadequate/variable income (from casual work), poor health, heavy work burdens due to the large number of young children (high dependency ratios) and the lack of support from spouses who are old, absent or in poor health. In

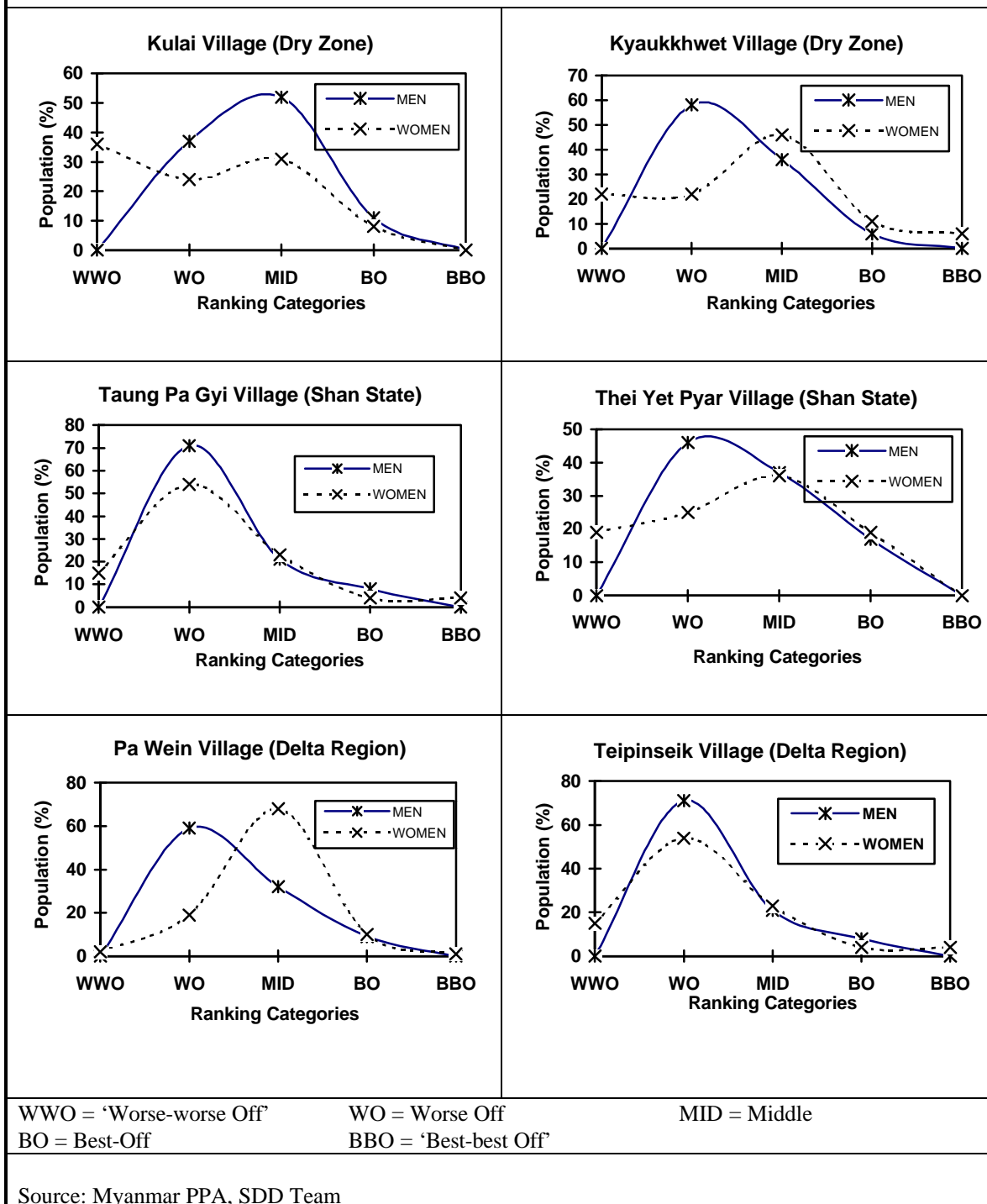
³⁶ This differs from West Africa, where a similar exercise found all but two village women in the WWO category (Shaffer 1998b).

³⁷ See the village case studies for greater detail.

Thei Yet Pyar Village, Shan State, worse-off women were characterised as mainly day labourers, without adult children and/or a spouse to support them financially. In Teipinseik Village, Delta Region, characteristics of 'Worse worse Off' women included, lack of assets and income, old age, sickness, heavy labour burdens due to sick or absent spouses, and psychological stress caused by physical abuse.

Figure 1 below presents the distribution of individual men and women across all five ranking categories. The values represent men and women within each category as a percentage of all men and women respectively.

Figure 1 Well-being Rankings of Individual Men and Women by Groups of Women



Section 2.3 Main Findings and Operational Implications

Section 2.3.1 Indicators and Proxies of Social Deprivation

Section 2.1 proposed a three-stage selection process to identify 'best' indicators of social deprivation for targeting purposes. First-order selection criteria were based on practical considerations which required that the conception/dimension of social deprivation be household-based and correspond to income-based HDI project intervention. Second-order criteria added the requirements that indicators be intersubjectively observable and elsewhere used as indicators/proxies of social deprivation. On the basis of these criteria, five indicators were chosen for further analysis: roof type, landholding, livestock, toilet facility and headship. Third-order criteria proposed a number of requirements which 'best' indicators must satisfy, based on the interrelationship among social deprivation variables.

This three-stage process led to the selection of landholding and livestock ownership (either singularly or conjointly) as two 'best' indicators of social deprivation for rural areas across all townships included in the HDIBS. These variables 'overlap' significantly with one another, they are closely related to other social deprivation indicators and they comprise a manageable population share. *The landless and/or those without livestock are groups which may be good candidates for targeting.*

Section 2.3.2 Gender and Social Deprivation

Section 2.2 presented data on the comparative position of males and females with respect to the following aspects of social deprivation: education; health, nutrition, other.

For education, gender-disaggregated data on net primary enrolment and primary retention rates, at national and regional levels for 1995 and 1997, were examined. The most recent data, from UNICEF's MIC surveys, suggest that primarily enrolment and retention rates for boys and girls are virtually identical at the national level.

For health, two indicators of gender differences in access or treatment at the national level were examined: gender-disaggregated infant mortality rates (adjusted to account for gender-based biological differences) and the Aggregate Female-Male Ratio (AFMR). The most recent data on infant mortality, from the 1997 Fertility and Reproductive Health Survey, suggest that boys fare worse than girls but conflicts with results of the 1991 Population Change and Fertility Survey which came to the opposite conclusion. The AFMR, based on census or survey data from 1973, 1983, 1991 and 1997, revealed favourable ratios for females by comparative standards.

For nutrition, gender-disaggregated anthropometric data on malnutrition (severe and moderate wasting or weight for height), at national and regional levels for 1995 and 1997, were examined. These data, from UNICEF's MIC surveys, shows higher malnutrition (both severe and moderate) for boys than girls in both years at the national level. This pattern holds in almost all regions.

The 'other' category is based on results of a well-being ranking conducted by groups of women in six villages in the Dry Zone, Delta Region and Shan State. They were asked to rank the comparative position of individual men and women in the village according to their criteria of well-being and social deprivation. The main finding is that in all but one village a sizeable minority of

women (15-35%) were ranked by groups of women as worse-off than *all* male household heads in the village.

These findings suggest that females (women and girls) *as a group* are not worse-off than males (men and boys) with respect to education, health and nutrition in the Union of Myanmar (though infant mortality data is conflicting). This implies that gender on its own is not a good proxy of social deprivation. They also suggest that a sizeable minority of women are among the very worse-off social groups (according to village women). *The main implication is that it may be desirable to identify characteristics of these sub-groups of women facing severe hardship³⁸, rather than to target women as a group for program/project assistance.*

³⁸ As argued in Section 2.1.1, female-headship *per se* is not a good characteristic for targeting purposes as it is too broad.

Section 3 Process Issues: Dynamics of Social Deprivation

The present Section seeks answers to the following questions: *How do people enter into and/or escape from poverty/social deprivation* or alternatively, *how do people become better off or worse off*. As such, it corresponds to the second objective of the terms of reference namely, to ‘examine those forces which constrain or impel processes of impoverishment and escape from poverty’.³⁹

The format is as follows. Sections 3.2-3.4 below present results of the village studies conducted in Northern Rakhine State, Dry Zone, Shan State and Delta Region. These three Sections address issues of social change and seasonality, gender and environment respectively. Section 3.1 prefaces the presentation of research results by explaining the conceptual framework which guided the village studies. Section 3.5 draws a number of operational implications from the analysis presented in Sections 3.2-3.4.

It should be emphasised that the present Section is based on findings of the Village Studies, which are synthesised and abbreviated. For more information on issues broached below, the companion two-volume collection of Village Reports should be consulted.

Section 3.1 Conceptualising the Dynamics of Social Deprivation

The study is an analysis of processes of social change which relate closely to social deprivation. It is based on the distinction between four processes of social change (see below):⁴⁰

- Downward pressures (stresses and shocks)
- Upwards pressures (opportunities)
- Responses to downward pressures (coping strategies)
- Responses to upward pressures (enabling strategies)

Downward pressures comprise stresses and shocks. Stresses are predictable, continuous and cumulative pressures which afflict groups or individuals, whereas shocks are typically sudden and unpredictable. Examples of the former include: declining employment availability; declining real wages; declining yields on soils which degrade; declining common property resources; declining water tables; declining rainfalls; population pressures; declining returns to labour; lower bio-economic activity; indebtedness; life-cycle pressures, funeral/dowry/wedding expenses, etc.. Examples of the latter include: wars, persecutions, civil violence, droughts, storms, floods, fires, famines, landslips, epidemics, sudden illness, etc.

Upward pressures are changes which provide opportunities for escape from poverty. Some examples may include increasing producer prices for smallholders, increasing employment opportunities, increasing wage rates, increasing real incomes, increasing access to productive

³⁹ See Appendix A.

⁴⁰ This framework is an adaptation of models of social change in the ‘sustainable livelihoods’ and ‘entitlement’ literatures. Important contributions (on which the present framework draws) include: Chambers and Conway (1992), Leach et. al. (1997), Scoones (1998) and Swift (1989).

assets (land, physical capital, credit), positive technological change, favourable climactic changes, increased provision of resources (state, UN, etc.), conflict resolution, cessation of wars, strife, resumption of law and order, etc.

Coping and enabling strategies are the responses of individuals, households or communities to downward and upward pressures, respectively. Coping and enabling strategies are closely related and frequently overlap. Because they do not always overlap, however, it is important to mention both for the purposes of this study (so no important real-world processes of change will be left out).

Coping and enabling strategies may be conceptualised as processes of ‘drawing down’ on different types of ‘capital’. Four types of ‘capital’ are particularly germane: **Economic, Social/Political, Environmental and Physiological.**

Economic Capital corresponds to those factors of production (land, labour, physical capital) which generate income flows as well as credit, and assets (savings, land, livestock, jewellery). Coping strategies which draw on economic capital may include: selling off assets; accessing short-term credit at market rates; diversification of land or labour use; migration in search of employment, etc.. Enabling strategies which rely on economic capital may include: using physical assets as collateral to access credit, more intensive use of land assets, or increased purchase of land from savings in response to favourable technological change (e.g. high yielding seed varieties), increased labour use to benefit from higher wages or increased employment opportunities.

Social/Political Capital refers to those social organisations, relationships and networks (family, self-help groups, charity, international organisation, government, etc.) which provide critical support in times of crisis. Coping strategies which draw on social/political capital include: making claims on relatives, neighbours, patrons, etc.; acquiring access to resources and services (public works projects, emergency aid, health, education, water.), migration in search of public relief, etc. Enabling strategies which draw on social/political capital include: reliance on political ties to secure access to improved state resources (irrigation, seed, fertiliser); use of informal labour sharing arrangements to increase cultivation in response to increased producer prices, etc.

Environmental Capital refers to the natural resource base, including common property resources (CPRs), and its management. Coping and enabling strategies which draw on environmental capital may include: adoption of unsustainable agricultural practices; overuse of CPRs, changes in natural resource management strategies, etc., in response to downward and upward pressures respectively.

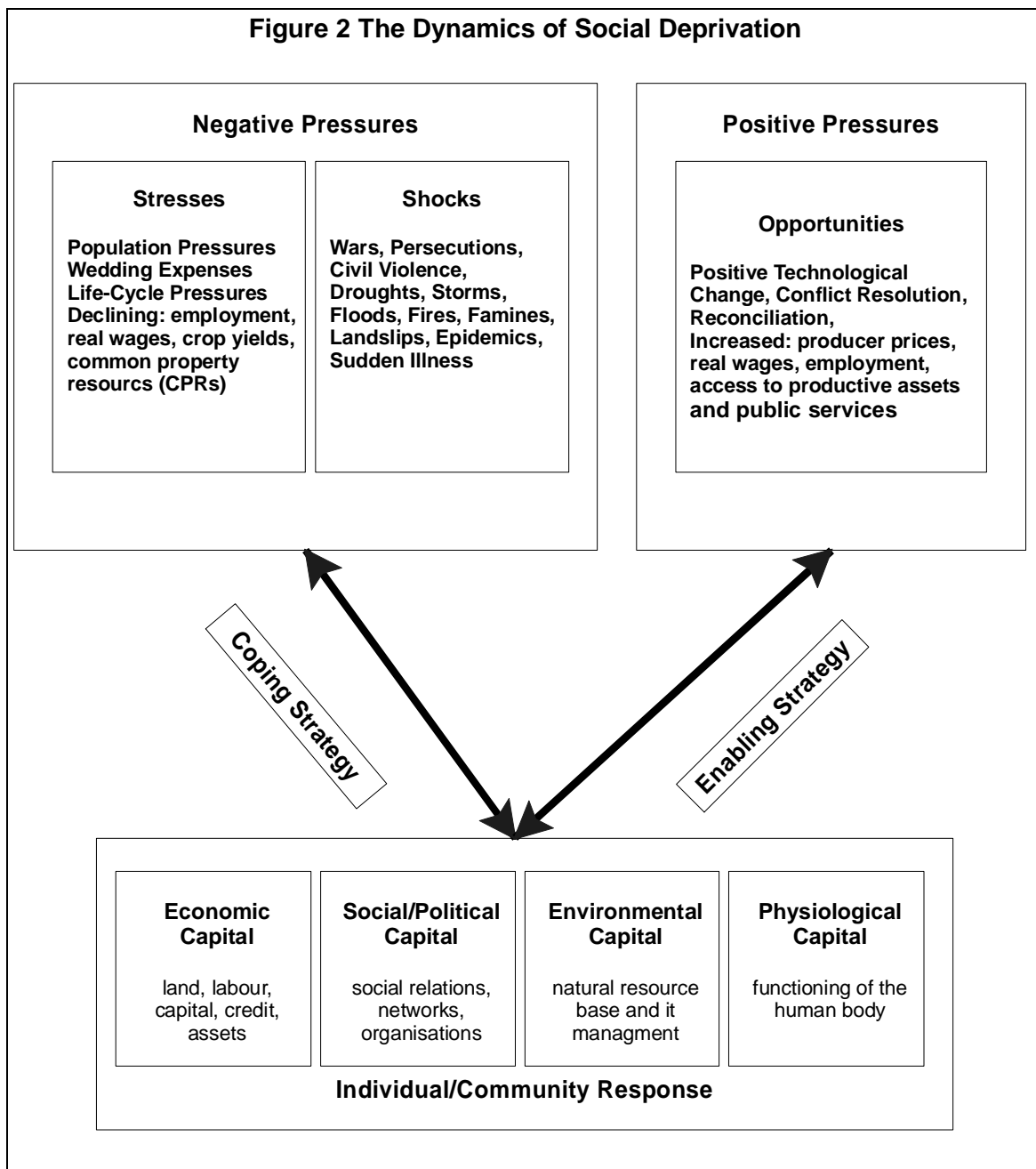
Physiological Capital refers to the physiological functioning of the human body. Coping strategies which draw on physiological capital include: reducing food consumption, shifting to lower quality foods, lowering physical activity levels, etc. Enabling strategies may include: reliance on a healthy body to increase activity level in response to increased employment returns, use of physical strength in response to increased employment activities, etc.

Upward and downward pressures and peoples’ responses to them (coping/enabling strategies) are mediated through **institutions**.⁴¹ Institutions have been defined differently in different contexts. For

⁴¹ Institutional issues were examined in the village studies and results presented in Section 3.4 of the individual Village Reports. This Section was the weakest of all in terms of methodology and data collection and results are not synthesised in the present report.

the present purposes they include both formal and informal rules, norms and mechanisms which mediate between pressures and responses. They include both formal and informal organisations as well as, more generally, established social practices and patterns of behaviour. Institutions are important for the present analysis because they have implications for the nature and effect of different types of pressures and responses to them.

One final point should be noted. Coping strategies may be successful and forestall the negative consequences of stresses and shocks or unsuccessful culminating in a process of greater impoverishment. Likewise, enabling strategies may be successful and culminate in escape from poverty or unsuccessful and result in a steady state of social deprivation.



Section 3.2 Social Change and Seasonality

Section 3.2.1 Literature Review

There are two points about the existing literature on processes of social change which should be noted. First, most of the literature examines the effects of policy change (macroeconomic and sectoral) and/or technical developments (fertiliser use, mechanisation, etc.) on agricultural output, incomes and, to a lesser extent, assets. Second, a good portion of the aforementioned discussion is based more on conjecture and hypothesis than detailed empirical data (which is non-existent for the most part).

Probably the most important policy changes affecting agriculture are the economic reform measures undertaken by successive regimes since September 1997. Some of the most important include: removing restrictions on the procurement and domestic trade of most important crops; conferring decision-making authority concerning cropping decisions to cultivators (with some exceptions); easing restrictions on private involvement in agricultural exports (excepting rice); reducing price controls and subsidies (Thein 1998a, 8-9; Thein and Soe 1998, 15).⁴²

There are conflicting views on the impact of these measures on living standards, which reflects the lack of empirical data on processes of change (i.e. *how* individuals/communities respond to policy reform) and ensuing outcomes (e.g. data on rural wages or household income). Many argue that the reform measures are likely to have increased income inequality in rural areas given that those most likely to benefit from reform measures are relatively better-off farmers⁴³ (i.e. those with a marketable surplus and the ability to intensify or extend production).⁴⁴ There is debate, however, about whether the living conditions of smaller farmers and landless labourer fell absolutely, stagnated or improved slightly. Much hinges on *trends* in real agricultural wage rates⁴⁵, rural employment (both farm, non-farm and off-farm), agricultural output, prices received by smallholders, traders margins, asset ownership, etc. for which data is exceedingly sparse.

A major 'technical' change affecting agricultural production was the introduction of summer paddy in 1992. As a consequence, paddy production increased by 31% between 1987/88 and 1996/97. Once again it is argued that better-off farmers benefited disproportionately, but that the benefits are likely to have been widespread in paddy growing regions.⁴⁶ Many small-scale paddy cultivators are likely to have benefited (assuming that time and financial constraints did not preclude summer paddy cultivation) as are (landless or land poor) casual labourers given increased employment opportunities which may have bid up wage rates. There is some evidence, however, of growing

⁴² Apparently, some of these reform measures have not been applied at the local level. Thus, Dapice (1996, 5-6) notes the continuation, in some areas, of forced growing and quota sales of paddy at low prices. Further, the farm gate price of paddy remains considerably below world price levels, approximately one-half in January 1998 (Taylor 1998, 5), due primarily to restrictions on rice exports.

⁴³ There is no consensus about the demarcation line distinguishing the 'better-off' (who benefit from policy reform) from those whose benefits are marginal or non-existent. Different estimates are presented in Dapice (1995b, 3-4), Taylor (1996, 10) and Thein (1995, 238) and, with specific reference to the Dry Zone, Cools (1995, A1.24-26).

⁴⁴ This point is made by Thein (1995, 238-239; 1997, 128; 1998a, 38; 1998b, 28, 36).

⁴⁵ There is conflicting evidence presented on trends in real wages which reflects the paucity of good data and the absence of regional price deflators for rural areas. Thein (1995, 239) argues that nominal wages have just kept pace with inflation while Oo (1996, 121) implies real gains for agricultural labourers.

⁴⁶ Three Divisions, Ayeyarwady, Bago and Yangon, account for approximately 70% of paddy production (Thein 1998a, 15 and Appendix 1).

land concentration as those unable to afford the investments required for increased paddy production have been pressured to sell their land-use rights (Thein 1997, 128).

Other technical developments concern the provision of subsidised credit, fertiliser and machinery. There are two opposing trends. First, provision of these items has increased markedly over the last decade. Credit provision by the Myanmar Agricultural Development Bank (MADB) expanded seven-fold between 1987/88 and 1996/97 (Thein 1998a, 35-36), fertiliser distribution more than doubled⁴⁷ between 1988/89 and 1996/97 (Thein 1998a, 32-33) and the total cultivated land area using the Agricultural Mechanisation Department's (AMD) subsidised tractors increased by almost 50% between 1983-84 and 1993-94 (Oo 1996, 30). The opposing trend involves the progressive reduction of the fertiliser subsidy, which increased the nominal price of fertiliser by almost 50% between 1996 and 1998 (Taylor 1998, 3). It is plausibly argued that the aforementioned subsidies tend to disproportionately benefit better-off farmers who are better connected politically, may better satisfy eligibility requirements and who may be eligible for larger allotments.⁴⁸ It does not follow, however, that better-off households are disproportionately hurt by the reduction in the above subsidies. The reason is that there may be threshold or ratchet effects, the 'last straw', which propels poorer households into severe poverty. Taylor (1996, 10) presents evidence of just such downward spirals culminating in distress sales of land and assets in the Delta region (though there is no data on the magnitude of this effect).

Section 3.2.2 The Village Studies

Three components of the methodology of the village studies dealt specifically with issues related to social change, seasonality and the dynamics of social deprivation: the History/Social Change Focus Group Discussion (Day 2), semi-structured interviews with 'worse-off' households (Days 6-7) and the priority ranking with 'worse-off' households (Day 8).⁴⁹ These exercises sought answers to the following questions:

- What are the major events (positive and negative) in village history and how has life changed?
- Has the village and/or worse-off households become better-off or worse-off and why?
- Do villagers and/or worse-off households become better-off or worse-off over the course of a year and why (seasonality)?
- What are the major problems of the village and/or worse-off households?
- What are the major needs of the village and/or worse-off households?

This methodology allows for comparison of views of better-off households, who presumably dominated the History/Social Change Focus Group Discussion, and households identified as 'worse-off' in the well-being ranking, who participated in the semi-structured interviews and the priority ranking.

The data presented in the following subsections summarises results of Section 3.1 of the Village Reports on Social Change and Seasonality.

⁴⁷ Though, it is oft-reported, that fertiliser use is still very low by Asian standards.

⁴⁸ Taylor (1996, 9-11; 1998, 5, 7-8) and Thein (1998a) make this argument generally and Cools (1995, A1.54) with specific reference to the Dry Zone.

⁴⁹ See Appendix B.

Section 3.2.2a Northern Rakhine State

1. West Oo Daung Village, Maungdaw Township

West Oo Daung is a salty coastal, Muslim village located between the Bay of Bengal and the Mayu Mountains. Major livelihood sources include: prawn breeding, fishing, paddy cultivation, winter crop cultivation (chillies, potatoes, eggplant, beans, watermelon, groundnuts) and livestock raising (primarily chickens).

By far and away, most of the pressures facing villagers are downward. Major downward pressures include: the occurrence of frequent cyclones, decreasing land fertility and increasing population, exacerbated by the religious prohibition on contraception and the prevalence of polygamy. Other downward pressures which have proved particularly onerous for worse-off villagers include: forced procurement of paddy by the government at below market prices; appropriation of Muslim land for the construction of model villages; taxes levied by licensed 'representatives' for the past five years on the transport and sale of forest or agricultural products; mobility restrictions imposed on Muslims preventing them from travelling to other townships without written permission from the township authorities. Coping and enabling strategies have been severely constrained by the following factors: scarcity of water, fertiliser and quality seeds which has precipitated food deficits; the religious prohibition on borrowing with interest which rules out credit provision; purdah norms which require that Muslim women stay within their family compounds; poor access to markets, health and education facilities.

With respect to seasonality, conditions are at their worse during the rainy season which lasts from June to September. Food, income and employment deficits are at their peak. During this period, malarial outbreaks are common. Conditions are at their best in the winter months of November, December and January when paddy is harvested and winter crops, consisting of various vegetables, are grown in the fields. The summer months of February, March and April are very hot and humid and villagers collect firewood to store for the rainy season and repair their thatch roofs.

Coping and enabling strategies used by villagers have had limited success. A few better-off villagers have established prawn farms (with funds remitted from relatives working in the Gulf states) which has generated income and employment opportunities for some worse-off villagers but has deprived other worse-off villagers of water access. Worse-off villagers typically use a range of diversified coping strategies to cope with the aforementioned pressures including foraging for common property resources (fuelwood, roots, herbs), chicken breeding, working as casual labourers, cultivating home gardens, etc. There has been some continued migration to Bangladesh, but apparently this has slowed in recent years.

2. Kapagaung Village, Maungdaw Township

Kapagaung is a Rakhine Buddhist, island village surrounded by the salt water Sabai Pin Yin creek and located between the Naaf river and the Mayu Mountains. Major livelihood sources include: paddy cultivation, winter crop cultivation (chillies, beans and vegetables), tamarind, mango and coconut cultivation, livestock raising, border trade with Bangladesh and fishing in the Naaf river.

Major downward pressures are decreasing land fertility, falling crop yields and increased water scarcity due to soil salination following cyclones in 1975, 1991 and 1994. Major constraints on enabling strategies include the limited varieties of winter crops grown, poor infrastructure and poor transportation links to markets and facilities in villages across the Sabai Pin Yin creek. One

positive development is the establishment of the Border Immigration Headquarters which has reduced the incidence of theft and robbery.

With respect to seasonality, the best months of the year are January to April following harvest time, when household food and income is at its peak. This is also the slack season. The worse time of year is from July to September when labour demand for cultivation is at its peak and household food and income are at their lowest levels. October to December is the harvest time, when labour demands are also very high.

The primary coping mechanism in face of the soil salination problem is the intensification of non-agricultural activities. Villagers rent out their land, catch/sell crabs and fish. Some better-off villagers have begun prawn breeding. Other have entered new occupations including trading, jewellery production and some have found work as sailors.

3. Maung Hla Ma Village, Buthidaung Township

Maung Hla Ma is a predominantly Muslim village located in a valley surrounded by hills close to a small stream. Major livelihood sources include: paddy cultivation, winter crop cultivation, gardening, livestock raising, sugarcane and betel leaf cultivation and agricultural trade.

The village as a whole has suffered more downward than upward pressures. Major downward pressures include a cluster of factors associated with increasing population including fragmentation of landholdings, declining soil fertility (as land is farmed more intensively without commensurate increases in fertiliser application or fallow periods) and falling crop yields. Other important downward pressures include price inflation of basic consumption goods, illness (there is no clinic or health care centre in the village) and depletion of fuelwood resources.

Successful enabling strategies include the introduction of summer paddy, cultivation of mustard seed, gardening in the hills, as well as syrup and sugar production. One apparently successful coping strategy to offset deforestation is the cultivation of fuelwood gardens on individual plots on the hills primarily by better-off villagers. Worse-off villagers rely heavily on common property resources found in the hills as a coping strategy. Some go to the mountain in search of leaves, barks and roots for use in traditional medicine, others grow temaric or sweet potato in the hills, whereas others cut firewood, wood and bamboo. Although there is a school, worse-off households cannot send their children because they cannot afford to buy school books and clothes.

4. Kin Chaung Village, Buthidaung Township

Kin Chaung is a low-land Rakhine Buddhist village located close to the Mayu river and the Mayu mountains. Major livelihood sources include: paddy cultivation, winter crop cultivation (groundnuts, sesame, mustard, chillies, potatoes, watermelon, cucumber, corn, tobacco, radish), livestock raising and trade (primarily toddy palm leaves).

Important downward pressures include climactic conditions (in particular, incidence of cyclones) disease and illness (there is no resident health assistant or nurse) and price inflation of basic consumption items. The fairly recent restoration of peace and security in the village, following the Rakhine-Muslim conflict and related insurgencies, has been an important upward pressure. Other upward pressures include increased availability of education (though the primary school was destroyed three year ago) and the cultivation of recently introduced summer paddy which was organised by the Village Peace and Development Council.

Worse-off villagers cope with these pressures in a variety of ways: they sell off assets (land) to pay for medical expenses; they borrow from friends/relatives and from moneylenders to meet present consumption needs and to finance productive activities; they have widely diversified sources of income, engaging in a range of seasonal activities such as farming, foraging for wood/bamboo, fishing, vending, etc. Access to education and summer paddy cultivation, however, is closely related to socio-economic status, as many worse-off villagers cannot afford to send their children to school, nor can they afford the required inputs for summer paddy (though they may benefit as labourers as employment opportunities have increased).

5. Kyauk Chaung Village, Rathedaung

Kyauk Chaung is a Rakhine Buddhist, salty coastal island village located between the Mayu river and the Mazay hills. Major livelihoods sources include: prawn breeding, salt making, paddy cultivation, winter crop cultivation (groundnuts and watermelon) and livestock raising (mainly buffaloes, pigs and goats).

Major downward pressures include declining land fertility (due to soil salination and increases in the price of fertiliser), escalating prices of consumer goods and the depletion of forests. Major downward pressures for worse-off households are population/life cycle pressures (associated with the childbearing years) and divorce. Probably the most cited factor precipitating a decline in living standards for worse-off villagers is illness. Lack of access to markets, health, education and credit are significant constraints on enabling strategies. The establishment of law and order is an important upward pressure, as are the introduction of video shows (which depict themes encouraging education and discouraging drug use) and prawn breeding farms. Cultivating winter crops and raising livestock also contribute to the enabling strategies of mainly better-off villagers.

With respect to seasonality, times are at their worse in the rainy season (June, July and August), when there are heavy labour demands (cultivating paddy and foraging in the forest) and high incidence of waterborne disease and malaria. Times are also difficult in April and May when villagers work long hours collecting fuelwood and fishing despite high temperatures and illness (diarrhoea).

Villagers have coped in a variety of ways with these downward pressures. Better-off households have engaged in breeding pigs, goats and chickens, collecting forest products, selling vegetables and prawn breeding. Worse-off villagers weave baskets and mats, gather common property resources to sell, and engage in a range of activities as casual labourers including: clearing forests for paddy cultivation, digging soil for making embankments, bamboo cutting, paddy transplanting, etc. Also, food consumption often declines during periods of stress. Furthermore, worse-off households are much less likely to benefit from educational and health services because of costs associated with their use.

6. Aung Ma Village, Rathedaung Township

Aung Ma is a Rakhine Buddhist low land village located at the foot of the Mayu mountains and close to the Mayu river. Major livelihood sources include: paddy cultivation, winter crop cultivation (groundnuts, watermelon), prawn breeding, fishing in the Mayu river and firewood collection from the nearby hills and mangrove forests.

Aung Ma is comparatively better-off than most of the other villages and has benefited as a hub for business and commercial transactions. There are modern facilities, a high school, a rural health

centre and daily transportation to major towns. Recently, two rice mills, one brick making furnace, several prawn storage facilities and four video parlours opened in the adjacent town of Laung Chaung. The number of launches to nearby townships has increased from 1 to 6, thereby boosting communication and trade. Some of the upward pressures which have contributed to (and benefited from) these developments include: the introduction of new varieties of winter crops like chilli, groundnuts and watermelon; the rapid growth of prawn breeding; the planting of dog-fruit orchards on the slopes of the Mayu Mountains and the introduction of bigger boats and nets for fishing in the Mayu River.

There have been a series of important downward pressures, however, including price inflation on basic consumption items, growing scarcity of firewood and bamboo as well as water shortages in the hot season. In addition, many of the aforementioned upward pressures have had decidedly negative effects for the 'worse off'. For example, prawn-breeding has negatively impacted upon worse-off households in four ways: 1) it has deprived them of their traditional grazing lands and forced some to sell their cattle; 2) it has deprived them of fuelwood sources as they no longer have access to parts of the mangrove forest; 3) it has deprived them of their normal access route to the main river forcing them to take a much longer route; 4) it has reduced the catch of shrimp in the river.

Furthermore, worse-off households have not been able to take advantage of some of the emerging opportunities in the village for the following reasons: 1) they cannot afford to attend video shows because they do not even have enough rice to eat; 2) they cannot afford the fares of boats going to Rathedaung and Sittwe; 3) they do not use the modern rice mills, though quality is higher, because milling charges are high and transporting paddy to the mill is a burden; 4) they cannot afford the expenses of sending their children to high school, so they are satisfied if a few of their children attend the village primary school; 5) they cannot afford modern health care, but rely on pills from the village shop or traditional medicine.

With respect to seasonality, times are at their worst in the rainy season lasting from May to August. Malaria is prevalent and streams run down swiftly from the Mayu Mountains sweeping away domestic animals and small trees. During the winter, the worse-off find jobs like harvesting and transporting paddy, doing odd jobs in growing winter crops, fishing in the river or digging earth at the prawn breeding farms. However, their lack of proper clothing renders them vulnerable to the cold weather and they are susceptible to lung and throat infections. In the rainy season, they are susceptible to malaria because they have no protection from mosquitoes in the forests where they forage for bamboo shoots and fruits. In the hot season, they usually suffer from gastritis or dysentery.

Section 3.2.2b Dry Zone

7. Kulai Village, Kyaukpadaung Township

Kulai is a dry, non-irrigated Burmese Buddhist village faces severe water shortages and major environmental stresses (soil erosion and infertility). Major livelihood sources include: maize, millet, paddy, sunflower, sesame and tomato cultivation, livestock breeding, jaggery production from toddy palm juice and gypsum digging.

The major downward pressures facing this village are a function of the severe drought conditions which have persisted over the last 2 years. Because of the drought, water is scarce, crop yields have declined markedly, livestock have perished, on-farm employment prospects have deteriorated

and consumption of basic items, including food, has decreased. Another cluster of downward pressures results from population increase, land fragmentation and consequent declines in production per household to the point where holdings are no longer viable. On smaller holdings, demand for casual labourer has fallen, depressing on-farm employment opportunities even further.

With respect to seasonality, the slack season occurs in the summer months of March and April following the harvesting season and prior to sowing next season's crop. The busiest months for villagers are May-June, when they plough the land and sow the crops and December-January, during harvest time. July-August are the months when household money and food are at their lowest levels. December, January and February are the months when illness such as colds and coughs peak because of the changing weather following the cool season.

Coping strategies have been varied. Given the severity of drought conditions in Kulai, many have had to find off-farm jobs in other sectors including gypsum mining in a nearby quarry, manual labour in nearby towns or dam and road construction. Whole families have migrated from Kulai. Charcoal production was taken up before it was banned recently by the government because of its effect on forest depletion. Changes in consumption patterns are another coping strategy as villagers eat less food, or cheaper/inferior food items such as maize mixed with millet.

8. Kyaukkhwet Village, Kyaukpadaung Township

Kyaukkhwet is a partly irrigated Burmese Buddhist village with moderate rainfall in proximity to Mt. Popa. Major livelihood sources include: banana, maize, millet, corn, paddy and sunflower cultivation

As with Kulai, Kyaukkhwet has faced a series of downward pressures resulting from population increase, land fragmentation and consequent declines in production per household to the point where some holdings are no longer viable. The effect of population pressure coupled with the effect of drought (though less severe than Kulai), and a recent infestation of pests, has significantly reduced crop yields and reduced employment opportunities for labourers. Price inflation of some basic consumption goods, have negatively impacted upon living standards as well. Positive developments or pressures include the establishment of a primary school and the training of a Village Health Worker.

With respect to seasonality, March-April are the best months for villagers when they have the most food and money following the harvest. This is also the slack season. July, August and September seem to be the most difficult months of the year, when farmers are busiest with cultivation and food/money supplies are at their lowest. They become busy again in the harvest time, which starts around December. September is the main rainy month, but villagers are sicker with coughs and flu in the cool season around November.

In Kyaukkhwet, a range of coping strategies have been employed in face of these pressures. There has been some out-migration, usually of men, to work in nearby towns (Maingshui and Mogok) or in dam construction. In addition, intercropping is increasingly practised with say, bananas and sunflowers, to raise output per household and offset the effect of land fragmentation. Villagers have also adopted a number of water conservation techniques including tree planting and the construction of checkdams. When food is scarce, villagers consume less or mix staple grains with other crops such as tubers from the forest and unripe bananas. Access to education differs

between better and worse-off villagers, as the latter are less likely to enrol and more likely to remove children from school (given direct and indirect costs).

Section 3.2.2c Shan State

9. Taung Paw Gyi Village, Pindaya Township

Taung Paw Gyi is a hillside village of Danu ethnicity in proximity to a water source (small spring). Major livelihood sources include: tea, coffee and vegetable cultivation.

An important downward pressure results from population increase and the absence of vacant cultivable land. Landholdings have become increasingly fragmented intergenerationally and as a consequence farm size and output per farming family has declined significantly.

With respect to seasonality, the worst months for villagers are January, February and March household food and money are at their lowest levels and when labour demands are high (cultivating jue seed). They have to borrow money to buy food, seeds and fertiliser. The best months are May, June and July, which coincides with the tea harvest, when they have most food and money. In October, the harvest time of jue, income rises again. Illness is at its peak in September and November when cough and flu are prevalent.

As a coping strategy in face of downward pressures, villagers have increasingly practised intercropping with jue, sesame, green peas and kant balu on tea fields. Also, they grow beans which are used as 'green' manure to enrich soil fertility. Some villagers have become traders and brokers, selling village produce in other towns. Others (men) have departed to a mining town in Shan State for gems.

10. Thei Yet Pyar Village, Pindaya Township

Thei Yet Pyar is an ethnic Danu and Taungyoe village on the plane which faces chronic water scarcity. Major livelihood sources include: paddy, wheat, corn, sunflower and potato cultivation, broom making and trade.

There are a range of downward pressures facing villagers. Drought and an insect infestation severely damaged crop production in recent years. Price inflation of basic consumption items (the village is a net purchaser of food) has proved onerous and remuneration for casual and day labourers has not kept pace with general price increases. Debt burdens have increased as households borrow to meet (primarily) consumption needs. Crop yields have declined because of the lack of rain and the interactive effect of population pressure and declining soil fertility.

With respect to seasonality, the best months of the year are November-December when villagers have most food and money after harvesting. It is also the slack season. The worst month are in May-June when food/income deficits and labour demand are at their peaks (as villagers cultivate crops). Villagers are sick with coughs and flu in the cold season of September and October.

Individuals respond to these pressures in a host of ways. Many diversify sources of income, engaging in a range of activities in face of declining agricultural productivity (and low day wages). Broom-making, foraging, cheroot-rolling and out-migration to towns are examples. In addition, farmers have changed cropping patterns in face of the drought and insect epidemic, relying more on sunflower and tomatoes and less on potatoes and pigeon bean. Further, informal self-help networks involving neighbours and relatives, have proved vital in providing basic foodstuffs (and sometimes

cash) in times of need. This assistance takes the form of a grant or informal loan to be repaid when the recipients are able.

Section 3.2.2d Delta Region

11. Pa Wein Village, Bogalay Township

Pa Wein is a fresh-water Karen village. Major livelihood sources include paddy cultivation, pig breeding and fishing.

The most significant downward pressure is the decline in yields of summer and monsoon paddy due to declining soil fertility and declining returns on draught power use. There have been negative consequences for on-farm employment. Upward pressures include the construction of a self help joint middle school and a primary school as well as the training of two auxiliary midwives and one community health worker.

With respect to seasonality, the best time for villagers follows the harvest of monsoon paddy (January-February) and summer paddy (March-April), when food and income are at their peaks. In October and November, prior to the monsoon paddy harvest, people have the least money. The slack season occurs in September, October and February after cultivating monsoon paddy and summer paddy, respectively. Labour demand is high in March-May, when farmers protect the summer paddy from rain, and December when they harvest monsoon paddy and prepare the land for summer paddy. Illness peaks at the beginning of winter in November.

Villagers have responded to these pressures in different ways. Better-off farmers have been able to offset declining soil fertility by increasing application of commercial fertiliser, using water pumps for summer paddy production and tractors for ploughing. Worse-off farmers have not had these options. Agricultural labourers use a range of coping strategies to make up for the decline in on-farm employment opportunities including trading, fishing, duck breeding, pig breeding, foraging for rats, etc. In the slack season when there are food deficits, villagers live off the land or common property natural resources, fishing and catching frogs and rats.

12. Teipinseik Village, Bogalay Township

Teipinseik is a Burmese Buddhist village with brackish water located in a remote mangrove area. Major livelihood sources include: Dani thatching, coconut cultivation and crab trading.

The most significant downward pressure facing villagers is the scarcity of drinking water due to a hurricane and flood in 1975 which inundated the village and caused the water from the wells to become salty. In 1991, when there was an insurgency in the area, transport and communications to the village were cut and food shortages occurred. Upward pressures include: the construction of a primary school in 1947 and a self-help affiliated middle school in 1982; the construction of a health centre 1975-76 and training of an auxiliary midwife; the improvement of communication and transport to townships and the emergence of crab marketing as a profitable business in the last six years.

With respect to seasonality, hardship increases during the rainy season, which spans from May to October, when employment and income deficits are at their peak. This is because DANI thatching, the major economic activity of the village, is not done in the rainy season. After the rainy season, DANI leaf cutting and thatching start and many worse-off villagers work for wages from November to April. Villagers get sick with coughs, flu and diarrhoea in October and November.

Villagers cope with the water shortage by investing more time and energy collecting water from adjacent villages. They responded to the 1991 insurgency by changing consumption patterns (some ate brewed rice). In addition, the village authorities initiated fund raising among well-off villagers, purchased food and distributed it to villagers. Better-off villagers have been able to take advantage of the improved transport and communication networks. DANI plantation owners have contracted merchants from other towns to purchase their thatches and coconut plantation owners sell directly to the wholesale dealers in Yangon. Crab trading has apparently benefited better-off villagers, who invested in the business, and worse-off villagers, who increased family income by trapping crabs.

Section 3.3 Gender

The present section addresses the differential effects on males and females of upward and downward pressures, i.e. *gendered effects*, as well as coping and enabling strategies employed by women and girls.

Section 3.3.1 Literature Review

It has been argued that the introduction of liberal economic reforms and/or forces of modernisation more generally, may have eroded customary rights/entitlements and traditional (positive) roles of women. Specifically, it is argued that: 1) women are increasingly being pushed into low quality wage employment from their traditional roles in small business and commerce; 2) female agricultural workers are being displaced by farm mechanisation;⁵⁰ 3) the customary rights of women to property, inheritance and credit may be at risk of erosion (Eckman 1995, 9). There is no documented evidence, however, that the traditional role of women as guardians of household income, and decision makers with regard to household expenses, has eroded. With respect to the social sectors, there is some anecdotal evidence that the deteriorating quality of public health care facilities may have disproportionately affected women either directly, by restricting access (Dapice 1995a, 9), or indirectly, by increasing the burden of home care for the sick which is predominantly performed by women (Khin 1997, 15). With respect to environmental changes, some argue that increasing water and fuelwood shortages may have disproportionately affected women and girls because they have primary responsibility for water and fuelwood collection (UNICEF, 1995, 21). Empirical studies reveal, however, the division of labour for water and fuelwood collection is context-specific and not rigidly gender-differentiated.⁵¹

Other gendered effects relate to life-cycle issues. Special attention has focused on the position of women and girls in Muslim communities (mainly in Northern Rakhine State) where purdah is practised. Issues of particular concern include: 1) the forced removal of girls from school at puberty; 2) mobility restrictions on girls and women, from puberty to menopause, specifically proscriptions against leaving the family compound; 3) difficulties associated with widowhood given infrequent (or prohibited) remarriages, absence of inheritance or property rights for women and point (2) above.⁵² In addition to life-cycle changes, some evidence suggests a growing problem of abandonment of Muslim women in NRS due to the on-going male exodus (Nyunt 1998, 32).

⁵⁰ Khin (1997, 10, 15). It should be noted that no empirical evidence is presented to support these claim and the welfare effects are ambiguous (e.g. reducing female labour burden in agriculture).

⁵¹ Chandler (1998, passim), Eckman (1995, 61, 64), Evans 1997, 42-45 and Mon (1997, 22).

⁵² Chandler (1998, passim) and Nyunt (1998, passim).

Section 3.3.2 The Village Studies

Three components of the methodology of the village studies dealt specifically with issues related to gender and the dynamics of social deprivation: the Gender Focus Group Discussion (Days 3-4), semi-structured interviews with ‘worse-off’ women (Days 6-7) and the priority ranking with ‘worse-off’ women (Day 8).⁵³ These exercises sought information on the following issues:

- the present state of, and changes in, specific aspects of social deprivation of potential relevance to women and girls (time burden; control of household finances; decision-making authority; intrahousehold distribution of consumption (esp. nutritional intake); access to education; domestic violence);
- major external (downward and upward pressures) and internal (coping and enabling strategies) factors contributing to any such changes;
- institutions and organisations of particular importance to women;
- major problems facing women and proposed solutions.

The methodology allows for comparison of views of better-off women, who presumably dominated the Gender Focus Group Discussion, and women identified as ‘worse-off’ in the well-being ranking, who participated in the semi-structured interviews and the priority ranking.

The data presented in the following subsections summarises results of Section 3.2 of the Village Reports on Gender.

Section 3.3.2a Northern Rakhine State (NRS)

The most salient gender-related distinction in NRS is between Muslim villages in the predominantly Muslim Townships of Maungdaw and Buthidaung, and Rakhine villages. The one Muslim village in the predominantly Rakhine Township of Rathedaung is unlike the two in Muslim Townships and much closer in gender relationships to Rakhine Villages.

Muslim Villages

Behavioural restrictions, associated with purdah requirements, are by far and away the most important (downward) pressures with decidedly gendered effects. In the two selected villages, West Oo Daung and Maung Hla Ma, purdah norms are strictly enforced. After puberty and until menopause, women are usually not allowed to leave the family compound, nor to be seen by men. Girls are removed from school upon puberty and/or are not enrolled at all. Further, women are wholly dependent upon their spouse’s income for their sustenance. In worse-off households, where income generated by one spouse is insufficient, this restriction entails great hardship as food is insufficient and women cope by eating less, or by begging/borrowing from neighbours and friends.

Other gendered effects relate to life-cycle issues. Impoverishment is at times precipitated or aggravated by the very high fertility rates and consequent increases in expenses and domestic work time for women in the childbearing years. Contraception is not widely practised, because it contravenes religious mores and because of active opposition by many men. Upon death of a

⁵³ See Appendix B.

parent, inheritance rules stipulate that sons are entitled to twice as much as daughters. Upon death of a male spouse, in the absence of children, his property usually passes to his male kin.

Another series of downward pressures with gendered effects relate to processes leading to female headship, i.e. death or departure of a spouse. Widows in Muslim villages face great hardship both socially and economically. Socially, they are shunned because they are forced to defy purdah restrictions and leave the family compound in order to survive. Economically, income earning opportunities are severely limited and remuneration is very low.

A final downward pressure with *gendered effects* relates to the increasing water scarcity in West Oo Daung which is predominantly collected by young girls and older women. This has disproportionately increased the work burden of females. The same effect is less pronounced with respect to decreasing fuelwood availability, as its collection is less strictly gender-differentiated.

Positive developments include the recently proclaimed order prohibiting marriage of young girls (under 18) and outlawing polygamy. Women in both villages actively welcomed this development. In addition, attitudes concerning female education has begun to change in a positive direction, in Maung Hla Ma village, which may be due, in part, to UN project intervention.

There are important differences in the experience of better-off and worse-off women generally, and in their responses to these pressures, in particular. As mentioned, worse-off married women, whose spouses earn insufficient income to meet family needs, face severe hardship because they are not allowed to work outside the compound. Better-off women benefit from higher spousal incomes and may also earn their own income from raising poultry or doing gardening. Further, better-off women benefit from recently acquired knowledge on malaria prevention (using nets), the most prevalent disease in the area, whereas worse-off women do not have the means to do so. Paradoxically, mobility restrictions have the least effect on worse-off widows who are forced to leave the compound to earn a living, though equally affect worse-off and best-off married women.

Rakhine Villages

In all four Rakhine villages, the prevailing sentiment was that traditional gender relations had changed little over time. Many aspects of traditional gender relationships are quite favourable to women (by most comparative standards). Thus, household income is pooled and typically controlled/managed by women. Women actively participate in household decisions. They own property and inherit equally as do men. They do abide by a traditional practice whereby the first serving of the *best* food is given to their husbands. There is no evidence however, of gender discrimination in total food consumption relative to requirements (this differs markedly from Muslim villages in Muslim Townships).

There are three general processes of change (downward pressures) which likely have had gendered effects in some of the villages. First, in Kin Chaung, Kyauk Chaung and Aung Ma villages, the significant price inflation of basic consumption items has meant that women must now contribute to household income. Previously, they were responsible only for domestic duties. As a consequence, the time burden on women has increased as they now engage in income earning activities such as livestock raising, paddy grinding, vending, etc. in addition to their domestic work. Second, the declining availability of water and fuelwood in all four Rakhine villages have predominantly affected women given that they have primary responsibility for their collection (though fuelwood is also collected by boys). Third, life-cycle pressures associated with the childbearing years coupled with high fertility rates, disproportionately affect women given their

primary responsibility for child care (birth spacing and contraception is generally not practised, and where so, by better-off villagers only).

Positive developments (or pressures) include the growing recognition of the importance of education for girls and increasing female enrolment rates (though it was said that if faced with a trade-off, villagers would be more likely to pull a girl out of school). Improvements in reproductive health care (the presence of a midwife) was an important development in one village.

There are important differences in the experience of better-off and worse-off women generally, and in their responses to these pressures, in particular. The work burden of better-off women is comparatively less than that of worse-off women because they can hire labourers to perform some of their domestic duties such as collecting water and fuelwood, cleaning, washing clothes, etc. Income earning ability, as well, is much higher for better-off women because of greater access to required resources (e.g. start-up capital for livestock breeding, modern inputs (HYVs, chemical fertiliser) for farming, etc.). Girls from worse-off households are more likely to drop-out of school given the preference for male education *in the event of a trade-off*.

Section 3.3.2b Dry Zone

The pressures facing women and girls, as well as their responses, in the two Burmese Buddhist villages in the Dry Zone, Kulai and Kyaukkhwet, are similar. In both, it was affirmed that many aspects of traditional gender relations have remained unchanged over the years. As with the Rakhine villages, many aspects of gender relationships are quite favourable to women. Thus, women usually control household income (though in Kyaukkhwet, it appears that men have more power in household expenditure decisions), food consumption is equal (relative to requirements), there does not appear to be gender-based discrimination in educational access, etc. There were more reported cases of spousal abuse in these villages than in NRS, but it is unclear if this is a function of interpretative differences between research teams or reflective of differences on the ground.

In both villages, two gendered effects of downward pressures were accentuated. First, declining water availability, due to severe climatic and environmental stresses, has negatively impacted upon women given their primary responsibility for water collection. Second, life-cycle changes related to the childbearing years, has disproportionately impacted upon women given their primary responsibility for child care (in addition to other 'economic' activities). A further gendered effect, which is much more pronounced in Kulai than Kyaukkhwet, relates to the impact of declining seasonal employment opportunities on women due primarily to the drought. Women are worse-affected than men who can find employment in mining (gypsum) or in construction during the summer months of March and April.

Positive developments (or pressures) include increased primary enrolment rates for girls in both villages and the improvement in reproductive health care with the presence of an auxiliary midwife in Kyaukkhwet. Improved transportation links between Kulai and Kyaukpadaung township have improved income earning opportunities (in trade and vending) for some women as well.

As above, responses to these pressures are differentiated by socio-economic standing. Better-off women can afford to send their children to school, are more likely to practice contraception, and are able to take advantage of the better transportation links in Kulai. Worse-off women do not have these options. Further, worse-off women are often forced to reduce food consumption or substitute inferior foods (e.g. maize mixed with millet) with negative implications for health and nutrition.

Section 3.3.2c Shan State

Gender relations in the ethnic Danu and Taungyoe villages in Shan State differ significantly from those in Rakhine and Burmese Buddhist communities. There are at least three salient differences: first, women perform the same 'heavy' work in the fields as men including ploughing, digging and sowing; second, household income is not usually pooled and managed/controlled by women (though it is occasionally); third, men appear to have much more decision-making authority within the household (and within society, more generally).

In both villages, a number of gendered effects of downward pressures, were mentioned. Foremost are life-cycle pressures and specifically the double crunch of reduced time/income and increased expenses following childbirth. In Taung Paw Gyi, a range of processes culminating in female-headship have negatively impacted upon women including abandonment, divorce, widowhood, and caring/providing for older spouses. In Thei Yet Pyar, the decreasing availability of fuelwood and drinking water has proved particularly burdensome to women as they are primarily responsible for collecting both.

Positive developments (or pressures) include: 1) the establishment of village schools which increased female access to education and raised the status of women in the villages; 2). the establishment of a health centre and a midwife (Taung Paw Gyi) and/or Village Health Committee (Thei Yet Pyar) has improved reproductive health care for village women and increased health knowledge as well as contraceptive use/ birth spacing. In Taung Paw Gyi, water is easier to access from water taps recently installed in the village and they have a new (though unpaved) road to town which facilitates the transport and marketing of their produce.

Responses to these pressures are differentiated by socio-economic standing. Worse-off women rely on friends and neighbours for loans or gifts of cash and food. They also skip meals to maintain the consumption of other family members. Some better-off women in Taung Paw Gyi bought tea from the village and sold it at the market in Pindaya. Most worse-off women have responded by diversifying livelihood sources (including foraging for roots, cheroot rolling, broom-making, etc.).

Section 3.3.2d Delta Region

Gender relations in one Karen (Pa Wein) and one Burmese Buddhist (Teipinseik) village in Delta Regions appear to be quite similar. In both villages there is a gender division of labour with men responsible for the heavy field work and women for light work and water collection. Women typically control and manage household income. There are apparently no gender differences in food consumption nor in educational access. Men have greater decision-making authority than women with regard to household decisions.

There are a range of gendered effects of downwards pressures identified in the two villages. In both villages, there are fewer employment opportunities for women than men in the slack season, leaving many women involuntarily idle. In Pa Wein, price inflation for basic consumption items has necessitated women's involvement in income earning activities (light farm work, vending, livestock breeding) adding to their work burden. In Teipinseik, life-cycle pressures associated with the childbearing and attendant reductions in income/time and increases in expenses have negatively impacted upon women.

Positive developments or pressures include: 1) the establishment of a primary school and affiliated middle school which increased female enrolment and educational levels; 2) establishment of a

health centre and/or auxiliary midwife and 3) in Teipinseik, the improvement of transport to Bogalay township, which permits women to trade in crabs, dried fish and vegetables with other townships (as travel time decreases).

As above, women's responses to these pressures differs with socio-economic standing. In general, educational access (for female children), use of contraception, and access to income earning activities is higher for better-off than worse-off women.

Section 3.4 Environment

Section 3.4.1 Literature Review

Much of the literature on processes of environmental change has focused on processes of environmental decay. Deforestation has figured prominently. There is considerable evidence that deforestation has progressed at a high rate in Myanmar since the 1970s, though there are conflicting estimates of the exact rate.⁵⁴ The problem appears particularly acute in the Dry Zone, Shan and Delta regions, the latter characterised by declining mangrove forests. Further there are both hypothetical and empirical links between deforestation, soil erosion, the flood/drought cycle and reduced soil fertility (Bechstedt 1995, Dapice 1995a, ESCAP 1994).

There is controversy however, about the links between poverty/social deprivation and processes of environmental decay, specifically whether or not the poor actively degrade their environment in order to maintain their livelihoods.⁵⁵ This issue is particularly important for the present study. If the poor do not degrade but on the contrary, successfully fend off processes of decay (or actively regenerate), there are important policy implications. It may be more appropriate to support existing strategies of natural resource management (which are not the root cause of environmental degradation) rather than to propose behavioural modifications.

The vast majority of the literature presents either anecdotal or documented evidence of degradation by poor households. The ESCAP (1994, 14) report cites poverty as 'the fundamental cause of environmental degradation' and specifies shifting cultivation and indiscriminate tree-cutting for firewood as the primary mechanisms at work. Similar affirmations come from: UNICEF (1995, 21) which emphasises the harmful effect of 'slash and burn' cultivation and population pressure; Dapice (1995a, 6) who draws attention to tree-felling by the landless for fuelwood and income, and to shifting cultivation; FAO (1997a, 3; 1977b, 4) which focuses on traditional practices of shifting cultivation as well as declining soil fertility due to population pressure and attendant decreases in fallow periods in Shan State; Bechstedt (1995, 11-12) whose detailed empirical study of 17 villages in three watershed areas in Shan State (Phugy, Kinda and Inle Lake) attributes environmental degradation to excessive tree-felling, shortened fallow period for shifting cultivation, unsustainable land preparation practices and uncontrolled cattle grazing, all of which have been exacerbated by population pressure.

A contrasting view is expressed in the detailed empirical study of farming systems in the Dry Zone by Cools (1995, 11-12, A1.21-24) who accentuates traditional soil and water conservation

⁵⁴ Bryant (1996, 352), Dapice (1994, 2) and ESCAP (1994, 6).

⁵⁵ There is a growing body of evidence which has cast doubt on (some formulations of) the vicious cycle thesis, reciprocally linking poverty and environmental degradation (see Angelsen (1997), Duraiappah (1998) and Forsyth et. al. (1998) for recent reviews).

practices (overflow-bunds, gully plugs, trees and shrubs, etc.) which have been ‘significantly underestimated’ by the HDI programme. He does acknowledge, however, the destructive effect of excessive tree-felling which he attributes to the lack of individual ownership of watershed and wastelands and not to poverty *per se*. Bryant (1996, 351-357), as well, attributes deforestation primarily to commercial logging activities and not poverty.

Section 3.4.2 The Village Studies

Three components of the methodology of the village studies dealt specifically with issues related to environment and the dynamics of social deprivation: the Environment Focus Group Discussion (Days 3-4), semi-structured interviews with ‘worse-off’ households (Days 6-7) and the priority ranking with ‘worse-off’ households (Day 8).⁵⁶ These exercises sought answers to the following three questions:

- what are the most important environmental pressures facing the village and/or worse-off households?
- what are the coping or enabling strategies people use in response to these pressures (in particular, successful coping strategies?)
- what are the major needs of villagers to enable them to better respond to these pressures?

The methodology allows for comparison of views of better-off households, who presumably dominated the Environment Focus Group Discussion, and households identified as ‘worse-off’ in the well-being ranking, who participated in the semi-structured interviews and the priority ranking.

The data presented in the following subsections summarises results of Section 3.3 of the Village Reports on the Environment.

Section 3.4.2a Northern Rakhine State (NRS)

All villages in NRS reported declining availability of fuelwood and bamboo. The problem of deforestation is becoming increasingly severe, though it has not reached levels as say, in the Dry Zone. The causes are varied. In Aung Ma, the growth of brick manufacturing, the export trade to Bangladesh and prawn farming by better-off farmers (which entails cutting the mangrove forests) have been significant contributing factors. Other important factors include commercial logging in Kapagaung, and charcoal making in Maung Hla Ma. In all the villages, however, a major source of fuelwood depletion is the increased consumption of villagers, including worse-off villagers, who require it for cooking purposes. Equally troubling is the rapid depletion of bamboo which is used as construction material for houses, as fencing material to ward off wild animals, as an important food source for the worse-off (bamboo shoot) in the rainy season and as a tool in the casting of large fishing nets. There is considerable evidence, then, that better-off and worse-off villagers have contributed to the depletion of wood and bamboo reserves in order to meet present day needs.

It should be emphasised that villagers are acutely aware of this situation and the problems it poses for them, in terms of increased cost and/or time required to procure wood/bamboo, and for future generations. When the issue was discussed in West Oo Daung, and Kyauk Chaung villages, individual villagers affirmed that they were aware of these problems but they had no immediate solutions and they had to live. Elsewhere, however, villagers have adopted a number of strategies

⁵⁶ See Appendix B.

to combat the problem of deforestation and declining wood/bamboo availability including: thatch cultivation in denuded forests near West Oo Daung, which requires minimal time inputs and which generates a ready profit; reforestation of mango and rain trees and cultivation of forest gardens on individual plots in Maung Hla Ma village; re-plantation of dog-fruit trees on the slopes of the Mayu Hills near Aung Ma village, which contributes to reforestation, reduces land erosion and provides a popular edible fruit; use of traditional alternative fuels (dried toddy palm leaves and cow dung sticks) in Kapagaung village and the practice of cutting only branches and leaving tree trunks intact which is increasingly observed in many villages.

The problem of increasing salination of water sources and soil was observed in those villages in proximity to salt water sources, West Oo Daung, Kapagaung and Kyauk Chaung. Increased salination occurs either gradually, as river/sea banks erode over time, or results from violent shocks such as cyclones, tidal waves and floods. These latter can have dramatic long-lasting or permanent consequences for soil fertility and water availability. Responses have included construction of dikes and checkdams to stem the gradual encroachment of seawater in West Oo Daung, though they have been insufficiently fortified to be successful; construction of embankments around prawn breeding farms in Kyauk Chaung village, which prevented the flow of salt water to the fields and increasing production of table salt in West Oo Daung village. Where salination has been severe, such as in Kapagaung, some have abandoned paddy cultivation and entered new occupations including trading and jewellery production.

Declining water availability for both domestic use and for agriculture is cited in a number of villages. This is due to increasing salination of drinking water sources, soil erosion which has filled some ponds with silt and mud, population pressures and prawn farming which diverts the normal supply of water from the paddy fields in some villages (West Oo Daung, Kapagaung). The most frequent response is to increase time and/or money to procure drinking water. This burden usually falls on women in NRS (see Section 3.3.2a). A few coping strategies with limited success include drilling holes in the bottom of ponds in Kin Chaung village, and digging unfortified wells elsewhere.

Two other important downward environmental pressures were revealed in the village studies. First, land erosion is a major problem in some villages due to heavy seasonal rains and attendant flooding and the advanced process of deforestation. The village study teams did not come across effective strategies to combat this problem, though on the hillside village of Maung Hla Ma, interest was expressed in terracing (though it was not widely practised). Second, fish and crab stocks appear to have depleted rapidly in recent years in fishing villages (Maung Hla Ma, Aung Ma) with increases in the number of fisherman and in some cases, due to incursions by foreign fishermen.

Section 3.4.2b Dry Zone

The environmental pressures which the Kulai and Kyaukkhwet villages face are similar. The one major difference is that Kyaukkhwet is semi-irrigated and located in an area of greater precipitation. As a consequence, the water shortage problems which it faces are less severe (though significant in themselves) than those of Kulai.

The most important environmental pressures which both villages face are the extreme drought conditions which have persisted for close to 3 years. The severity of this drought is historically unprecedented. Water availability is a big problem in both villages. Kulai faces severe shortages of drinking water and agricultural water. In summer, villagers make 2.5 hour round trips for one yoke

(2 pails) of water. In both villages, drought conditions have severely impacted on crop yields and in Kulai some livestock have died of dehydration.

Coping strategies employed in Kulai and Kyaukkhwet are quite different. Given the severity of drought condition in Kulai, many have had to find off-farm jobs in other sectors including gypsum mining in a nearby quarry, manual labour in nearby towns or dam and road construction. Whole families have migrated from Kulai. In Kyaukkhwet, there has been some out-migration, usually of men, to work in nearby towns or in dam construction. Villagers have also adopted a number of water conservation techniques including tree planting on farm borders, some of which provide edible fruits such as custard apples. Also, better-off villagers have traditional knowledge of building checkdams, gully plugs and contour bunds, called '*none tar sei*', with local materials in order to conserve soil and water. In addition, villagers have changed their cropping mix, planting onions which can be harvested in a few months, instead of lablab and pigeon peas.

A second major downward environmental pressure is deforestation. Nearby hillsides are now almost completely denuded, though they once had abundant forest cover. Villagers attributed this phenomenon to two main factors: first, population pressures resulting in expansion of cultivable land and increased fuel consumption gradually reduced forest cover over many years; second, this process was accelerated in the last 5-10 years after the introduction of charcoal making and the intensification of jaggery production. A third relevant factor is that fuelwood was grown on common property lands (government owned) and was not cultivated on individual plots. Apparently, no collective action was undertaken in these villages to regulate fuelwood extraction on government lands prior to the official order banning tree felling on state properties in recent years. Villagers have responded to the depletion of fuelwood resources by increasing use of fuel efficient A1 stoves, using sunflower and pigeon bean stalks as substitute fuels, and investing more time and resources in fuelwood collection (which is usually done by women).

A third environmental pressure relates to the infestation of worms this year which affected cotton, gram, maize and bean crops. Most farmers did not have access to sufficient (or any) quantities of insecticides because they were prohibitively expensive (though apparently available in the markets). Cultivators picked out what they could by hand. Crop yields declined markedly as a result.

Section 3.4.2c Shan State

In both villages in Shan State, Taung Paw Gyi and Thei Yet Pyar, a significant cluster of downward environmental pressures relates to the interactive effect of population pressures and declining soil fertility. Population pressures and the absence of vacant cultivable land has resulted in landholding fragmentation, reduction in fallow periods, increased fuel use, deforestation and soil erosion. Further, in Taung Paw Gyi, the significant reduction in the cattle population due to the disappearance of grazing lands, has deprived villagers of a source of natural fertiliser. In Thei Yet Pyar, this process of deforestation was given impetus by increased cheroot leaf processing, which entails heating the Sebesten leaves on an iron sheet, and increased limestone processing, which entails heating the stones in a pit for four consecutive days.

Villagers cope with this cluster of difficulties in a variety of ways. Some better-off farmers use chemical fertilisers, though they are still rarely used. In Taung Paw Gyi, villagers make 'green' fertiliser from bean plants mixed with ashes, instead of urea fertiliser. They also have reforested on individual holdings for many years. Recently, this process has accelerated at the behest of the Village Peace and Development Committee which has been instrumental in encouraging villagers to

replant 10 trees per year. In Thei Yet Pyar, use of substitute fuels (pigeon pea stalk) is on the rise, as is the use of fuel efficient A1 stoves. In both villages, tree trunks are increasingly left intact and only branches are used for fuelwood.

Water scarcity is a problem for Thei Yet Pyar due to low levels of rainfall in recent years (Taung Paw Gyi was recently supplied with piped water from a nearby water source). Villagers (usually women) must invest more time and energy collecting drinking water from sources around the village.

Section 3.4.2d Delta Region

Environmental pressures and individual/village response are different in the two Delta villages, Pa Wein and Teipinseik. In Pa Wein, the most significant environmental pressures relates to the gradual declines in yields of monsoon paddy after the introduction approximately five years ago of summer paddy. Declining yields are due to 1) declining soil fertility (given increased intensity of land use); 2) declining returns on draught power use (as draught animals become more fatigued) 3) reliance on lower yielding 'early maturing paddy' and 4) declining water supply for summer paddy. Better-off farmers have been able to successfully address these problems by using chemical fertilising and finely ploughing their fields with small tractors. Further, better-off farmers are able to improve summer paddy yields by using water pumps to irrigate paddy fields.

Teipinseik faces severe water shortages following a storm and tidal wave in 1975 which contaminated local water sources with salt water. Now, villagers invest greater time travelling to nearby villages to collect water. Boring wells has proved impractical because water has a high saline content up to 300 feet in depth and digging beyond that is expensive.

Teipinseik also faces problems of soil erosion as over the last three years the village stream has changed its course and eroded its bank. Villagers have constructed a dam to alter the (new) course of the stream but it has not been sufficiently fortified and the process of erosion has continued.

Both villages face fuelwood shortages for broadly similar reasons, though they have responded in different ways. In both villages, declines in fuelwood availability were caused by expansion of cultivable area, increased fuel consumption and charcoal production. In Pa Wein, the primary response has been to rely on substitute fuels, primarily paddy-husks. Paddy husks are obtained freely from nearby rice mills and paddy husk stoves are now in widespread use (though worse-off women apparently make less use of them). In Teipinseik, villagers tend to invest more time and money in collecting fuelwood though some villagers substitute DANI thatch leaves and some have begun to cultivate fuelwood plants on their own plots for domestic use.

Both villages have experienced declines in stocks of fish, prawns and crabs due to increasing numbers of fishermen, without any obvious response from villagers.

Section 3.5 Main Findings and Operational Implications

The three following sections draw out some of the main operational implications from the analysis presented in the preceding sections. It will make general recommendations for future programme or project intervention but will not propose specific measures to be implemented in specific villages or regions. Information on these latter may be culled from Section 4 of the village reports which presents the results of pair-wise priority rankings of needs conducted with worse-off households and women.

It is important to preface these recommendations by making explicit the limitations of drawing operational conclusions on the basis of the type of analysis presented in the village studies.

First, there may be undetected fallacies of composition/aggregation when generalising particular intervention types across broader areas. In certain cases, success requires that relatively few engage in a particular activity. For example, cash crop promotion as an income generating strategy may fail if it is too widely adopted, thereby reducing market prices for the crop in question. Another example involves activities which draw down on the natural resource base if they are too widely practised, (e.g. fishing, crabbing, etc.).

Second, there is very little (if any) attention paid to demand-side issues. The focus is on supply-side policies to improve output (e.g. credit, agricultural inputs, etc.) and not on the structure of demand for the output in question (the assumption is usually that a ready market exists for any increased output).

Third, there is no attempt to evaluate the different intervention types based on an assessment of their benefits relative to costs. It is highly desirable however, that any resource allocation decision between intervention types should make such an assessment (either formally or back-of-the-envelope).

All of these issues should be considered before adopting operational recommendations on the basis of the data presented in the village studies.

Section 3.5.1 Social Change and Seasonality

There are four main operational implications which may be drawn from the analysis of social change and seasonality.

First, the coping and enabling strategies used by worse-off households are highly variegated and context-specific. Further, they are extremely diversified, encompassing a range of activities over the course of a year. One common theme which is oft-repeated in the semi-structured interviews, however, is the reliance on assets to cope with the effects of shocks. Villagers cope with illness, death, crop failure, drought, etc. by selling off livestock and land. Selling off assets is no guarantee of success (this will depend on the nature/severity of the shock and the capacity to respond). It does serve to buy time however and cushion the blow. This provides support for promoting income-generating activities which also create assets, such as livestock breeding.

Second, there are important seasonal dimensions to the (downward and upward) pressures which households face. Availability of food and income, labour demands and prevalence of illness are greatly affected by seasonal factors related to the agricultural cycle and climate. Coping and enabling strategies are deeply influenced by seasonal pressures as well. Project intervention should be timed to coincide with periods of relative labour abundance and avoid putting demands on labour time in periods of stress. Further, it may be prudent to tailor project intervention to respond to the most pressing types of stresses which households face at particular times in a year. Thus, for

example, credit provision to make up for seasonal shortfalls of income (for consumption or productive purposes) may be appropriate.⁵⁷

Third, in over half of the villages, in all regions except the Delta, population pressures were cited as major forms of downward pressures. Population pressures have negatively impacted upon villages by: 1) reducing farm size as land is fragmented intergenerationally in the absence of vacant cultivable land; 2) reducing soil fertility as fallow periods are reduced and/or smaller plots are farmed more intensively without commensurate increases in fallow periods or fertiliser application; 3) depleting common property resources including fuelwood as well as fish and crab stocks. This finding attaches urgency to the imperative of increasing factor productivity in agriculture and/or off/non-farm agricultural activities if increased rates of rural-urban migration are deemed undesirable.

Fourth, concerning methodology, there are systematic differences between better-off and worse-off households in their perception of most pressing problems and needs. The ranking of needs, in particular, differed systematically between the two groups. There were only two villages (Maung Hla Ma and Kin Chaung) where the rankings were identical. In all other villages the top two or three needs were either completely different or ranked in a different order. In the case of gender, the needs of better-off and worse-off women differed (either completely or in order of priority) in *all* villages for which data exists. This finding strongly suggests that results of 'participatory' meetings or assemblies with better-off village representatives should be treated with caution if the objective is to get the views of worse-off villagers.

Section 3.5.2 Gender

There are five main operational implications which follow from the analysis of gender and the dynamics of social deprivation.

First, a highly significant downward pressure which was forcefully enunciated in semi-structured interviews and group discussions relates to life-cycle pressures associated with the childbearing years coupled with very high fertility rates. These were probably the most frequently cited factor precipitating a deterioration in living standards with decidedly gendered effects, given that child care responsibilities fall mainly on women. Efforts undertaken to promote birth-spacing and contraceptive use have been positively received by women in most villages visited, though behavioural changes have been slow to come about, and especially so for worse-off women. This is one area where effective intervention may introduce a virtuous cycle reducing population pressures, improving living standards per capita, raising savings rates and expanding life opportunities of women. This finding underscores the need for an effective population policy which does not exclude worse-off women.

Second, in a significant number of villages, processes leading to female headship were instrumental in precipitating a decline in living standards. The processes included either death, separation, abandonment or illness of a spouse. As discussed in Section 2.1.1, female headship on its own is probably not a good indicator/proxy of social deprivation, but it appears likely that there are sub-groups of female headed households who face severe social deprivation (in particular, widows in

⁵⁷ Provision of credit for income or consumption smoothing differs from its typical use to finance new productive investment (see Morduch 1995, Zeller 1999).

Muslim villages in NRS as discussed below). *Some* female headed households, then, may be good candidates for targeting.

Third, there are important seasonal dimensions to social deprivation with gendered implications. In villages in the Delta Region, there are very scant income earning opportunities for women in the slack season. As a consequence they rest involuntarily idle, which is a great waste of resources. There are other times of seasonal stress when labour demands are at their peak (harvest and planting seasons) and there is no free time at all (given economic and domestic responsibilities). Project intervention should be timed to coincide with periods of relative labour abundance and avoid putting demands on female labour time in periods of stress. Further, activities which do not require year round commitments, but may be conducted seasonally (petty manufacturing, handicrafts), may be particularly beneficial.

Fourth, many women face mobility restrictions due to domestic and child care responsibilities and security considerations. As a consequence, some income-earning opportunities open to men are not an option for women, including long-distance commerce, vending in faraway markets and out-migration (unless done conjointly with other family members). In light of this, some home-based income earning activities, such as livestock breeding, and improvement of transportation links, in particular construction of all-weather roads, may be particularly appropriate (livestock breeding ranked highly in many priority rankings done with worse-off women).

Fifth, the situation of Muslim women in those parts of Northern Rakhine State where purdah norms are strictly enforced, requires special attention. Here the *sine qua non* of any positive change will be based on educating, organising and mobilising (i.e. empowering) women. Muslim women in the villages visited are aware of the restrictions they face and greatly welcomed recent measures to improve their status and social conditions, including a recent official order banning polygamy and under-aged marriage. The work of Bangladeshi NGOs with experience in this area, such as Nijeri Kori, may be particularly relevant.

Section 3.5.3 Environment

There are a number of operational implications which may be drawn from the environmental analysis of the dynamics of social deprivation.

First, the village studies provide evidence from different regions that worse-off households do degrade natural resources *as do* better-off households. Social deprivation is not the only factor contributing towards degradation, nor does it necessarily entail degradation, but there are many reported cases of natural resource degradation as worse-off households struggle to meet immediate consumption/survival needs. In almost all cases, villagers are well aware of what is going on, though unaware of obvious solutions to remedy the problem. This is one area where further research is required to suss out successful local strategies of natural resource management which may be replicated elsewhere (as discussed below).

Second, in some, *but not all*, situations, villagers have adopted strategies to deal with various environmental stresses. Some of the more promising ones include: thatch cultivation in denuded forests in West Oo Daung village, NRS; reforestation of mango and rain trees on individual plots in Maung Hla Ma village, NRS; use of traditional water conservation methods in Kyaukkhwet,

Dry Zone, including construction of checkdams and gully plugs; use of substitute fuels (pigeon pea, coconut frond, toddy palm leaf) in many villages, use of 'green' fertiliser in Taung Paw Gyi, etc. As a precursor to project interventions, it may be advisable to seriously examine existing strategies used by villagers to deal with environmental pressures with a view to sort out those which are effective and sustainable and those which are not. Supplying needed inputs in support of *existing* 'best practises' should be examined with a view to determine if it is more cost-effective than embarking upon programmes anew.

Third, it is noteworthy that all the successful cases of reforestation uncovered in the village studies involved planting on *individual* plots of land. Further, the village study teams were unable to find examples of successful, *locally-initiated*, collective action to regulate fuelwood extraction from, and organise reforestation on, common lands (despite fuelwood depletion in many areas). This finding provides some support for the view that one way of regenerating fuelwood resources is to confer title or long-term use-rights to individuals or households for common (state) lands. It also implies that further research is required on successful examples of collective action to manage fuelwood extraction with implications, say, for design of community forestry projects.

Fourth, water shortages disproportionately affect worse-off households, and in almost all cases, worse-off women who have primary responsibility for water collection. The reason is that better-off household can purchase water and/or hire labourers to collect it. The burden posed by collecting water over long distances in rough terrain was mentioned in many semi-structured interviews. Improving village access to drinking water is one intervention-type which is likely to fare well on both equity and gender-equity grounds.

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Appendix A - Terms of Reference

Post Title: Team Leader

Duration:

3.5 w/m within the period from later November 1998 to 31 March 1999

Project Description:

Background:

For the purpose of providing baseline data for the preparation of Human Development Initiative (HDI) programme of UNDP, UN/DESA conducted a Human Development Baseline Survey (HDIBS) in 1995-1996, covering 23 townships in Myanmar. UN/DESA is entrusted by UNDP to undertake follow-up studies in social deprivation. The studies are intended to provide UNDP/Yangon, Chief Technical Advisers of the HDI programme, and other relevant officials, with analytical information on poverty situation in Myanmar.

Objectives:

There are two main objectives which correspond to two aspects of poverty analysis respectively: (1) identification of the poor and (2) analysis of causes of poverty. Identification of the poor entails selecting a limited number of indicators or proxies of poverty and/or deprivation to facilitate, *inter alia*, poverty targeting and monitoring. Analysis of causes of poverty entails examination of those forces which constraint or impel processes of impoverishment and escape from poverty.

Scope:

The study will be undertaken in different ecological and spatial zones, for the purpose of clarifying comparative characteristics of poverty in the areas under the HDI-E (Human Development Initiative - Extension) programme and those in other areas. The study will also focus on poverty-environmental degradation trap for each zone, assessing their socio-economic potential for poverty alleviation. Details will be determined through consultations among the parties concerned.

Inputs:

A groups of international consultants will be recruited. They are: a team leader, a qualitative researcher for Northern Rakhine State, a qualitative researcher for regions other than Northern Rakhine State, and a qualitative research assistant for Northern Rakhine State. A group of national consultants and other local assistants, as well as a local subcontractor, will also be recruited to support the international consultants. The national experts will cover such fields as gender issues, rural energy and environment, anthropology, microeconomics with emphasis on micro-credit and small enterprises, agriculture with natural resources and environment perspective, and education, and/or

combination of these fields. The international and national consultants will carry out their assignments under the general supervision of UN/DESA, which will be supported by a field technical committee with the participation of the personnel of UNDP in Yangon and the HDI-E programme. The committee will be chaired by the UNDP Deputy Resident Representative.

Methodology:

The study will comprise three principle elements: (1) literature review; (2) quantitative analysis of existing household survey data, and if necessary and feasible, collection of additional household survey data; and (3) qualitative analysis at the village level.

The Team Leader will undertake, with the support of a local subcontractor, a review of existing poverty studies performed by the United Nations agencies, NGOs and other relevant organizations, including the HDIBS study. He/she will analyse existing HBIBS data with a view to supplement existing analyses of indicators or proxies of poverty or deprivation. He/she will work closely with the qualitative researcher in formulating a research design which adequately addresses the twin issues of identification of the poor and analysis of the causes of poverty.

With the support of national experts, two international qualitative researchers will undertake literature review and case studies, applying qualitative and participatory research techniques. Approximately 6 villages in Northern Rakhine State and 8 villages in other regions will be studied. The studies on Northern Rakhine State will involve an International Research Assistant.

Outputs/Reports:

A report will be prepared by the Team Leader on the basis of his literature review and analysis of indicators/proxies of poverty and deprivation. A report on the additional surveys will also be prepared by the team leader if such surveys are conducted. A case study report on each village will be prepared by a team of a qualitative researcher and national experts. As an alternative, however, a report covering multiple villages, or a report on specific themes, may replace case studies on single villages if such an approach proves to be advantageous to the other. Each qualitative researcher will produce a report on comparative research on the basis of individual case studies. A final consolidated report on studies on social deprivation in Myanmar will also be prepared by the team leader.

Workshop:

A workshop will be organized towards the end of the data gathering and analysis to share the research findings with stakeholders, and to solicit their comments to improve the final consolidated report preparation.

Duties:

The team leader will undertake the following duties in consultation with DESA, UNDP, the CTAs, and other project personnel,:

1. To attend a project briefing by UN/DESA staff;
2. To work out a detailed and consolidated research design and research strategy, including the defining of the research scope and methodologies, selection of research sites and a subcontractor, and formulation of a work plan, particularly for the literature review and the additional surveys, if needed;
3. To ensure that research design and strategy for the qualitative studies are in conformity with the overall research programme;
4. To participate in the selection of a subcontractor for literature review and additional surveys;
5. To brief research team members on the research project and facilitate team building;
6. To prepare a report on the basis of the literature review and analysis of poverty indicators/proxies;
7. To review and evaluate case study reports, and/or comparative case study reports, to suggest revisions and/or amendments;
8. To prepare a consolidated report;
9. To participate in the workshop as a resource person, if needed.

Qualifications:

Advanced university degrees in economics and/or development studies. Extensive experience in research on poverty concepts and measurement. Experience in multilateral technical cooperation helpful.

Languages:

Fluency in English (spoken and written) required.

Appendix B - The Village Study Methodology

Section B.1 Overview of Methodology

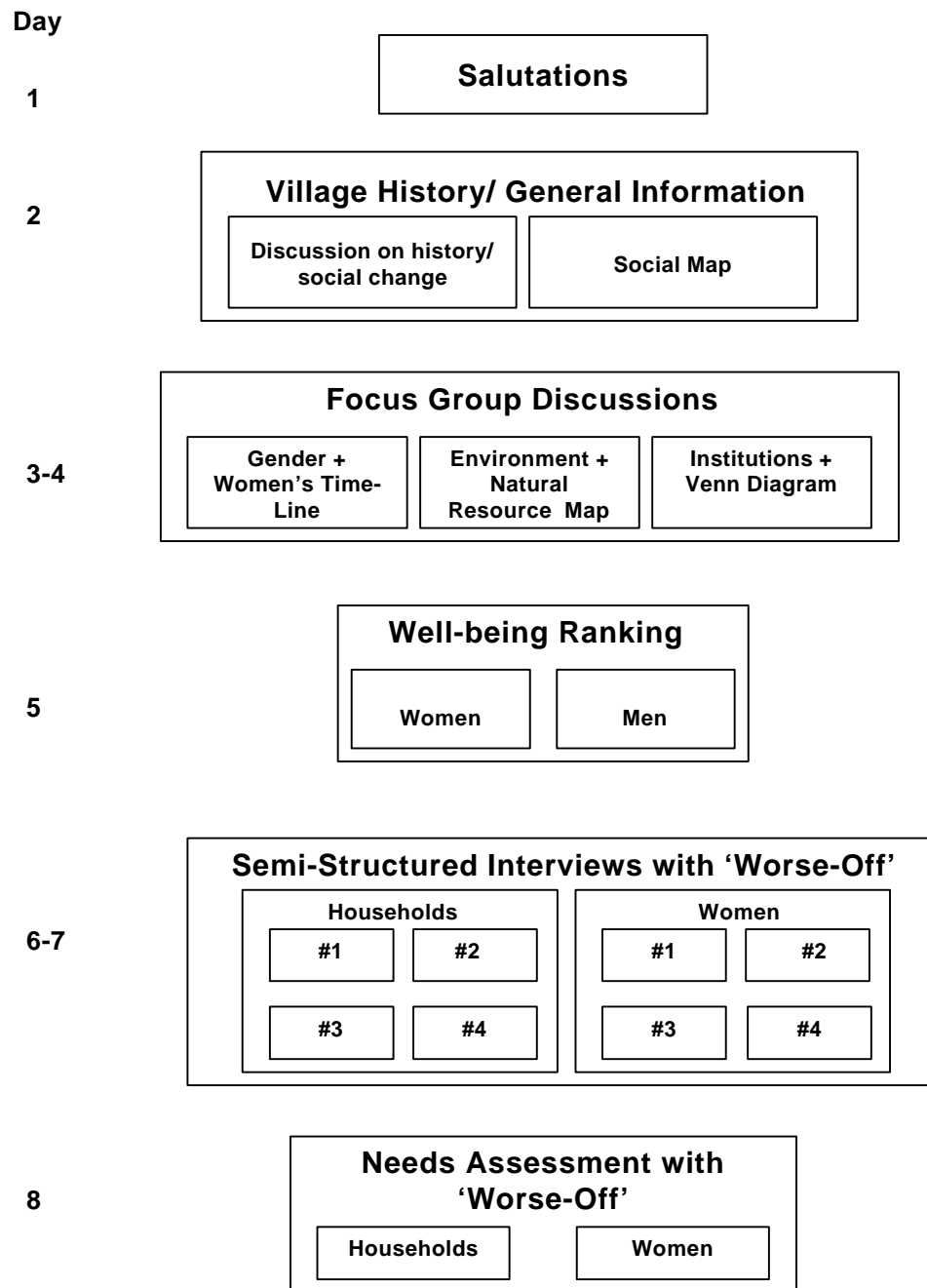
The village study will rely primarily on a range of techniques which are together grouped under the heading of Participatory Poverty Assessments (PPAs). PPAs have adapted a number of Rapid Rural Appraisal (RRA) techniques for the specific purpose of analysing poverty-related issues.

The specific methods to be used over the course of a projected 8 day village stay are explained, and schematically depicted, in table 7 below and figure 2 respectively.

Table B.32 Village Study Methods			
Day	Method	Description	Relevance/Importance
1	Salutations	Salutations, presentation and explanation of the study to villagers	Essential to clearly explain study objectives and purpose.
2	Discussion of history/social change	Focus group discussion of major events in village history, long-term changes in living conditions, changes in living conditions over a season (seasonality), major problems and greatest needs.	Relevant to: provide information on poverty-related processes of social change in the villager; compare findings on problems, needs, trends in village living standards with responses of 'worse-off' in semi-structured interviews and needs assessment (days 6-7 and 8).
2	Social Map	Map drawn by villagers of all village households accompanied by social map form to collect information on household characteristics.	Required for: 1) Well-being ranking (day 5) to provide list of households; 2) Semi-structured interviews to physically locate 'worse-off' households.
3-4	Focus Group Discussions		

Table B.32 Village Study Methods			
Day	Method	Description	Relevance/Importance
	<ul style="list-style-type: none"> Gender + Women's Time Line 	<p>Discussion with group of women of key aspects of female deprivation and gendered coping and enabling strategies.</p> <p>Diagram of women's and men's time use patterns</p>	<p>Relevant to understand 'gendered' processes of social change and compare findings with group of 'worse-off' women (days 6-7).</p> <p>To visually represent gender differences in time use.</p>
3-4	<ul style="list-style-type: none"> Environment + Natural Resource Map Institutions + Venn Diagram 	<p>Discussion of major 'environmental' stresses, shocks and responses (coping strategies)</p> <p>Discussion of most important village institutions and how they assist coping strategies and facilitate enabling strategies.</p>	<p>Relevant to: 1) understand environmental pressures and responses; 2) compare finding with worse-off groups (days 6-7)</p> <p>Relevant to: 1) understand how pressures and responses 'go through' institutions; 2) compare findings with worse-off groups (days 6-7)</p>
5	Well-being Ranking	Ranking by groups of men and women separately: 1) all village households and 2) village men and women	Required to identify 'worse-off' households and women for semi-structured interview and needs assessment with 'worse off' (days 6-8).
6-7	Semi-Structured Interviews with 'Worse-Off'	Interviews with 'worse-off' households and 'worse-off' women	Required to: 1) compile more detailed information on coping and enabling strategies and 2) compare experience of worse-off with better-off in focus group discussions (days 3-4).
8	Needs Assessment with 'Worse-Off' + Priority Ranking	Needs Assessment with 'worse-off' households and 'worse-off' women <i>in light of</i> their coping and enabling strategies.	Required to: 1) compile information on perceived needs and their relative importance; 2) compare views of 'worse-off' with 'better-off' in history/ social change discussion (day 2).
9-10	Travel Days		

Figure 2 Village Work Plan



Section B.2 Review of Methods

Section B.2.1 Salutations/Introduction (Day 1)

What?

Greetings and presentation of the study to villagers.

Why?

It is extremely important to introduce ourselves and explain the study in an appropriate way. The study will not succeed if we start off on the ‘wrong foot.’

How?

There are four stages corresponding to four issues:

1. Thank-yous to village authorities for receiving us.
2. **Who we are.** Introduction of all team members.
3. **Why we have come.** Explanation that **we are there to learn** from villagers to inform UN development interventions *in general* but not necessarily their particular village. Brief overview of methods (discussions with groups and individuals, drawing some diagrams and maps to help us understand, etc.).
4. **How the study will be used.** Explanation that the study will be part of a report sent to UN offices in Yangon and New York to better design UN development programmes.

Expected Output

1. **Understanding from villagers that we are researchers who have come to better understand village life and not to bring in a development project.**

Section B.2.2 Social Map (Day 2)

What?

A social map is a map drawn by groups of villagers of all households and important sites (monastery, health centre, etc.) in the village.

Why?

The social map serves 3 purposes for this study:

1. It provides the basic information on village households (i.e. the names of all household heads) required for the well-being ranking exercise.
2. It provides the spatial mapping of villages households required to locate the 'worse-off' households identified in the well-being ranking.
3. It provides the only quantitative information on indicators of poverty (roof type, principal economic activity, size of landholding, etc.) that will be collected in this study.

How?

1. Find people (4-5) who are interested and knowledgeable about the village
2. Choose a comfortable place (ground, table, floor in house) and lay out a large piece of paper. Start the exercise by drawing, for example, the main road and the main site (monastery, mosque). Explain that it is important to draw all the village households and write the name of the corresponding household head on the map. All households may be represented by a simple box and need not be more elaborate. Use only black markers (to allow easy reproduction of map). Stand back and let them complete the job.
3. After the map is finished, make sure to ask if any households have been left out. Mention marginal households on the outskirts of town, or 'temporary' households of migrants, refugees. Cross-check the social map with other sources to ensure its validity (other villagers, village records, etc.)
4. Ask the villagers to provide the following information on each household which will be recorded on a separate sheet of paper.
 1. Household head (this should already be on the map)
 2. Wife (wives) of household head
 3. Number of household members
 4. Number of children (<10) and aged (>60)
 5. **Two** principal economic activities of household head.
 6. Size of landholding
 7. Number of livestock
 8. Roof type

The social map should be stored in a dry place (plastic bag, cylinder). It will be reproduced (photographed) upon return to Yangon.

Expected Output

1. **One completed social map of village**
2. **One social map form with information on household characteristics (see next page).**

Table B.33 Social Map Form (Page 1)

Table B.33 Social Map Form (Page 1)											
Village:			Date:				Facilitator:				
#	HHH ⁵⁸	Wife	HH Size	<10 59	>60 60	PEAs ⁶¹ of HHH	Land Size ⁶²			Live-stock ⁶³	Roof Type ⁶⁴
							S	M	L		
1											
2											
3											
4											
5											

⁵⁸ Household Head

⁵⁹ Number of Children less than 10 years old.

⁶⁰ Number of Adults greater than 60 years old.

⁶¹ **Two** principal economic activities of household head.

⁶² Land size: Small, Medium, Large.

⁶³ Number of **large** livestock including cattle, oxen, and buffalo.

⁶⁴ Roof Type: thatch (TH) or corrugated iron (CI)

Section B.2.3 Discussion of History/Social Change (Day 2)

What?

This is the first focus group discussion held in the village to gain a better overall understanding of village life and history.

How? [See Guidelines on the following page]

1. Identify individuals to participate in the discussion (probably village elders knowledgeable about village history).
2. Explain that the objective is to hear as many different views as possible. Stress that we are here to learn that all views are important to us. Ask all to please speak out if they anything to say.
3. Begin discussion with a clear, short, open-ended question. Wait for villagers to speak out (count slowly to 15). If there is no response, rephrase the question and try again. It may be useful to end the question with 'do you agree or not?', 'is this true or not', etc.
4. Allow discussion to proceed. Intervene, at times, to get clarification, to ask questions which critically challenge certain views (in a non-combative way) and to keep discussion focused. Do not dominate but participate in the dialogue.
5. Record all discussion on tape recorder, or take detailed notes if this is not possible.
6. Following the discussion, review the tape/notes and write out a brief summary of major points (the detailed transcription may be done later).
7. The entire discussion should not exceed 2 hours (usually).

Why?

The discussion is required to: 1) provide information on poverty-related processes of social change in the villager; 2) compare findings on problems, needs, trends in village living standards with responses of 'worse-off' in semi-structured interviews and needs assessment (days 6-7 and 8).

Expected Output

Written transcript of focus group discussion and summary of main points (the summary must be in English). The summary must shed light on the following five questions:

1. **What are the major events (positive and negative) in village history and how has life changed?**
2. **Has the village become better-off or worse-off and why?**
3. **Do villagers become better-off or worse-off over the course of a year (seasonality)?**
4. **What are the major problems in the village?**
5. **What are the major needs of the village?**

Section B.2.3a Guidelines for Discussion of History/Social Change

This discussion should comprise the following stages:

1. Salutations/ Introduction (see above)
2. Open with a question on village history:

We would like to understand the history of your village. When did you parents or grandparent or great-grandparents come to this village and what did they do? What have been the major events or changes for your village over the years? How has life changed since then?

3. Close discussion by thanking participants and proceed to say:

Now we understand better the history of your village and how things have changed over the years. Have these changes that you have describes been for the better or the worse? Is your village better-off or worse-off than before and why? What has happened? [The most important part of this exercise is to understand the reasons for changes in life conditions, i.e. the processes which have resulted in the village being better or worse-off.]

4. Close discussion by thanking participants and proceed to ask **[Make Seasonality Chart]:**

I understand that many villagers have become better-off (or worse-off) over the years. But how about over the course of one year? Are there times in a year when it is very difficult, when: 1) you do not have as much to eat; 2) you are always sick; 3) you have less money to spend on your family; 4) your children cannot go to school? When does this happen?

5. Close discussion by thanking participants and ask:

You have talked about many problems which the village has faced over the years and in the course of a year. Can you tell us which of these problems are the most important and why?

6. Close discussion by thanking participants and ask:

'We now better understand the problems you face in this village. What can be done about these problems? For you, what are the most important things to help you address these problems?

7. Conclude by thanking all for their participation, ensuring all that their contributions are important for us.

Section B.2.4 Gender Focus Group Discussion and Women's Time Line (Days 3-4)

What?

This focus group discussion held with a small group of women (6-8) will focus on downward and upward pressures which have different effects on men and women as well as on gender differences in coping and enabling strategies.

How? [See guidelines on following page]

1. Identify women to participate in the discussion
2. Explain that the objective is to hear as many different views as possible. Stress that we are here to learn that all views are important to us. Ask all to please speak out if they anything to say.
3. Begin discussion with a clear, short, open-ended question. Wait for villagers to speak out (count slowly to 15). If there is no response, rephrase the question and try again. It may be useful to end the question with 'do you agree or not?', 'is this true or not', etc.
4. Allow discussion to proceed. Intervene, at times, to get clarification, to ask questions which critically challenge certain views (in a non-combative way) and to keep discussion focused. Do not dominate but participate in the dialogue.
5. Record all discussion on tape recorder, or take detailed notes if this is not possible.
6. Following the discussion, review the tape/notes and write out a brief summary of major points (the detailed transcription may be done later).
7. The entire discussion should not exceed 2 hours (usually).

Why?

This discussion is relevant to understand 'gendered' processes of social change (upward and downward pressures), 'gendered' response (coping and enabling strategies) and compare findings with group of 'worse-off' women (days 6-7).

Expected Output

Completed Women's time line, written transcript of focus group discussion and summary of main points (the summary must be in English). The summary must shed light on the following four questions:

1. **What are major aspects of female deprivation (i.e. women's problems) in the village?**
2. **Have these changed over time? If so, why (due to upward and downward pressures)?**
3. **What have women done to resist 'negative' change (coping strategy) promote 'positive' change (enabling strategy)?**
4. **Which institutions are the most and least important in helping women in good times and bad?**
5. **What are most important needs of women?**

Women's Time Line

This is simply a visual depiction of 'average' women's work over the course of an 'average' day compared to that of men. This will be conducted immediately following the first question in the gender focus group discussion on the gender division of labour. The group of women will be asked

when in the course of a day do women and men do particular activities. This will be recorded on the female and male time lines respectively.

Section B.2.4a Guidelines for Gender Focus Group Discussion

1. Opening Question

We have learned a lot about your village. It's history, it's customs. How things have changed over time. How villagers have become better off and worse off. Now we would like to know about the women of this village?

- 1. Can you tell me about when your mother or grandmother or her mother came to this village? What did they do? How have things changed for the women in this village since then?**
- 2. And from when you were little girls, how have things changed?**
- 3. Are women in this village better-off or worse-off and why? And what do these terms make you think of?**

2. Next Question (Division of Labour)

Tell us, do men and women do differ jobs, like for example, gather fuelwood and water, ploughing the field, cooking and cleaning, or do both men and women do the same work?

3. Time line Stage (if not too time consuming)

4. Following Time line move to:

Now tell us about some other differences between men and women in this village?

- Do men and women have the same amount of free time in this village? Has this changed? If so why? What do you do about it?**
- Do men and women have the same control of money in the household? Has this changed? If so why? What do you do about it?**
- Do men and women have the same power to make decisions in the household? Has this changed? If so why? What do you do about it?**
- Same questions for: 1) education of girls/boys; 2) physical abuse; 3) consumption**

5. Next Question (Institutions):

We now better understand many of the differences between men and women and how that has changed. We also know now about many of the difficulties which women face (mention the above listed problems). Are there groups, institutions, organisations, etc. which are helping women address these problems? Which are the most important and why?

6. Final Question:

We now better understand many of the differences between men and women and how that has changed. We also know now about many of the difficulties which women face (mention the above listed problems). Which of these problems are most important and why?

Section B.2.5 Environment Focus Group and Natural Resource Map (Days 3-4)

What?

The environment focus group begins with the natural resource map exercise then proceed to discuss the most important ‘environmental’ pressures (mostly downward) facing a villagers as well as their response (coping and enabling strategies)

How? [See Guidelines on the following page]

1. Identify individuals to participate in the discussion.
2. Explain that the objective is to hear as many different views as possible. Stress that we are here to learn that all views are important to us. Ask all to please speak out if they anything to say.
3. Begin discussion with a clear, short, open-ended question. Wait for villagers to speak out (count slowly to 15). If there is no response, rephrase the question and try again. It may be useful to end the question with ‘do you agree or not?’, ‘is this true or not’, etc.
4. Allow discussion to proceed. Intervene, at times, to get clarification, to ask questions which critically challenge certain views (in a non-combative way) and to keep discussion focused. Do not dominate but participate in the dialogue.
5. Record all discussion on tape recorder, or take detailed notes if this is not possible.
6. Following the discussion, review the tape/notes and write out a brief summary of major points (the detailed transcription may be done later).
7. The entire discussion should not exceed 2 hours (usually).

Why?

The discussion is required to: 1) provide information on environmental pressures (shocks and stresses) and household responses (coping and enabling strategies); 2) compare responses between ‘better-off’ and worse-off groups (days 6-7).

Expected Output

Natural resource map, written transcript of focus group discussion and summary of main points (the summary must be in English). The summary must shed light on the following three questions:

1. **What are the most important environmental pressures facing the village?**
2. **What are the coping or enabling strategies people use in response to these pressures (in particular successful coping strategies)?**
3. **What are the major needs of villagers to enable them to better respond to these pressures?**

Section B.2.5a Guidelines for Natural Resource Map and Environment Focus Group Discussion

1. The discussion will begin with the preparation of a natural resource map.

How to do a Natural Resource Map

- Find people (4-5) who are interested and knowledgeable about the village
 - Specify the information needed on the map including:
 - i. Forests
 - ii. Creeks,
 - iii. Ponds,
 - iv. Lakes,
 - v. Nearby markets
 - vi. Irrigation
 - vii. Type of crops cultivated
 - viii. Common Property Resources (wood, water, bamboo shoot, etc.)
 - ix. Home gardens
 - Choose a comfortable place (ground, table, floor in house) and lay out a large piece of paper. On the paper should already be drawn a condensed picture of the village, taken from the social map. Begin the exercise by drawing one landmark in the village. Stand back and let them complete the job.
 - After the map is finished, ask if anything has been left out, such as marginal lands away from the village.
2. Following the completion of the natural resource map, ask the participants about various types of environmental stresses and shocks affecting the village. For example:

I see that the forest is close to the village. Is it easier or harder to get fuelwood. Do you have to go further or not? Why? What do you do about it?

How are your crops this year? More or less than previous years? Why? What can you do about it?

How do you get water for drinking, crops, etc.? Does it take longer than before? Why? What can you do about it?

[Same questions: for availability of arable land, etc. It is very important to probe here for successful coping strategies]

3. Needs Assessment issues

Which of the environmental changes that you have mentioned, decreasing firewood, declining crop yields, etc. is your biggest problem and what can be done about it? Why?

Section B.2.6 Institutions Focus Group and Venn Diagram (Days 3-4)

What?

The Institutions focus group begins with the Venn diagram exercise then proceeds to discuss the most important village institutions and those which have the greatest impact of stresses and responses.

How? [See Guidelines below]

Why?

It is important to understand how pressures and responses ‘go through’ institutions and to compare findings with worse-off groups (days 6-7) about the relative importance of different village institutions for their lives.

1. It provides an overview of institutions which may have an important role in resisting shocks and stresses (i.e. coping strategies) and/or providing the opportunity to take advantage of positive pressures (i.e. enabling strategies).
2. It allows for the comparison with the assessment worse-off groups concerning the relative importance of various institutions

Expected Outputs

1. **Completed Venn Diagram**
2. **Understanding of how negative and positive pressure and response to them ‘go through’ institutions.**
3. **Understanding of impact of HDI interventions (for HDI villages) and how they have affected people’s coping and enabling strategies**

Section B.2.6a Guidelines for Institution Focus Group Discussion and Venn Diagram

1. Start with Venn Diagram

What?

A Venn diagram shows key village and external institutions and their relative importance for village life. For this study, an institution can be any formal or nonformal arrangement between people which assists in fending off (negative) stresses and shocks (i.e. in assisting coping strategies) and/or which facilitates greater access to, or benefits from, positive pressures (i.e. in assisting enabling strategies).

Examples may include: international organisations (UNHCR, UNDP, UNICEF, etc.), governmental agencies/departments (agricultural extension, health, education, etc.) self-help groups, informal credit schemes, community-based organisations, youth groups, religious groups, etc.

How?

- Find people (4-5) who are interested and knowledgeable about the village
- Choose a comfortable place (ground, table, floor in house) and lay out a large piece of paper. Start the exercise by explaining what we mean by an 'institution.' They draw a large circle which represents the boundary of the village, and one major institution such as the local school or health centre. Stand back and let them complete the job.
- Village institutions are placed within the circle whereas external institutions are placed outside. Ask villagers to draw those institutions which have *the greatest impact* on the village and indicate this by depicting them with larger circles.
- Following village institutions, conduct the same exercise with external institutions. Discussion should focus on why these institutions are important and the links they have with village institutions.

2. Upon completion of the Venn diagram, proceed to say:

Now we have a better idea of the village institutions which have the greatest impact on your village. But which ones help you the most when times are bad and which ones help you benefit from good times? How?
[You may facilitate discussion by saying, how about the organisation that gives credit? Does it help you?]

3. In HDI villages ask specifically about HDI projects?

And how about the UN water project? Does it help this village? How? Who does it help? What did you do before the HDI project when times were bad?

Section B.2.7 Well-being Ranking (Day 5)

What?

In well-being ranking villagers rank individual household's or villagers according to their relative standing in terms of well-being or deprivation.

How? [see Guidelines on the following page]

Why?

The well-being ranking is required to identify 'worse-off' households and women for semi-structured interviews and needs assessment with 'worse off' (days 6-8).

Expected Outputs

- 1. Completed Well-being ranking matrix of households and women**
- 2. Understanding of criteria used to rank households and women as 'worse-off'**

Section B.2.7a Guidelines for Well-being Ranking

1. Select a small number of villagers 4-6 who represent the diversity of the community in terms of: age, occupation, ethnicity, religion, etc.
2. Begin with a general discussion reviewing the village level information that has been collected. Say:

We have learned a lot about your village. We know about its history, and major changes, about institutions which help you, about environmental and women's issues. But now we would like to learn something else. We would like to learn about difference within your village, about villagers who are better off and those who are worse off. But before we begin, can you tell me what these words mean for you. When you say better-off or worse-off, what do these words make you think of?

3. Ask them to describe the characteristics of worse-off and best-off households.
4. Then say:

Now that we know what you mean by these words can you help us better understand these differences in your village. I would like to show you this sheet of paper ... [explain the well-being ranking]

[Remember: 1) Have the social map on the wall for reference. 2) Have cards with the names of all household heads and their wives; 3) Make sure all households are numbered and have the same number on the social map and cue card; 4) If possible, use different colour cards for the ranking of men and women; 5) only show half of the well-being matrix, do not show the part which will be used to rank women (see next page)].

5. Proceed to show them the first card, and ask where that household (person) should be ranked, or ask them to choose a few households (persons) who would best fit into each category. Then proceed to rank all households (persons). If people disagree, put the card aside and return to it after. After all households have been ranked, take a short break. Unfold the well-being matrix so the portion used for the ranking of women is now showing. When you resume, say:

Now I would like to try something different. You see the households you have just ranked here, well pretend that this is actually a ranking of the male household head, and not the whole household (forget about female-headed households). Now if this is the ranking of the married village men, where would you rank their wives. This category on the far right means better off than the best-off men, this on the far left means worse off than the worse-off men. These three in the middle are the same as those used in the previous ranking. So where would you rank the women, as compared to the men and why?

Table B.34 Well-being Ranking Matrix					
H O U S E H O L D S		Worse-Off	Middle	Best-off	
W O M E N					
	Worse Worse- Off	Worse Off	Middle	Best-Off	Best Best-Off

Section B.2.8 Semi-Structured Interviews (Days 6-7)

What?

A semi-structured interview is an interview usually conducted with or small groups of people or with one person. It includes general open-ended questions which are prepared in advance but discussion is not limited to these.

Why?

Semi-structured interviews will allow us to probe in greater detail issues raised in focus group discussions, concerning coping and enabling strategies. Further, they allow us to assess differences between poor households or women and better-off households/women (contrast with results of early focus group discussions) and between poor households and poor women (the 'double difference').

How? [See Guidelines on the following page]

1. Find a private place where people feel comfortable (someone's room or hut). Interviews will be done with those households and women who were identified as 'worse-off' by both ranking groups of men and women. Also, selection of participants should reflect the diversity of the village.
2. Explain that the objective is to get additional information to help you understand aspects of village life.
3. Begin with 'easy' questions which are not sensitive.
4. Ask questions and probe but do not offend.
5. Change topic if the interviewee is losing interest or becoming tired.
6. Thank the interviewee and assure them that their information is important to us.

Expected Outputs

Transcripts and short summaries (in English) of interviews including *detailed* information on the following questions:

1. **General information on pressures and resulting enabling and coping strategies facing 'worse-off' households and women.**
2. **What are the most important environmental pressures facing worse-off households and how do they respond?**
3. **What institutions have the greatest and least impact on 'worse-off' households and women?**
4. **What are the most pressing problems of 'worse-off' women, how have these changed, why have these changed, and what can be done about it?**

Section B.2.8a Guidelines for Semi-Structured Interviews (Households)

History/Social Change (Same basic questions posed in history/social change focus group discussion on day 2).

We have been told many things about your village. We know about its history, how things have changed, its problems and its needs. Now we would like to learn about you and your family.

1. Can you tell me about when your parents or grandparents or their parents came to this village? How have things changed for your family since then?
2. And from when you were children, how have things changed?
3. Is your family better-off or worse-off and why? And what do these terms make you think of?
4. Today what are the biggest problems which your family faces and why?

Environment

We have also learned a lot about the 'environment'. Your neighbours and friends have drawn us a map of the forests, streams, ponds, fields etc. around the village. They have also told us about some of the problems of the environment in the village. Can you tell me if any of these problems affect you and what you do about them.

1. Is it easier for your family to get fuelwood. Do you have to go further or not? why? What do you do about it?
2. How are your crops this year? More or less than previous years? Why? What do you do about it?
3. How do you get water for drinking, crops, etc.? Does it take longer than before? Why? What can you do about it?

[Same questions for availability of: fish, arable land, common property resources (i.e. anything they get free from common land), etc. It is very important here to probe for successful coping strategies.]

Institutions

We have been told by your neighbours and friends about many institutions in the village. They have told us about ... [Remember to explain clearly what an institution is] **They have also told us which institutions help the village in good times and bad and how.**

1. Can you tell me if any of these institutions help your family, and how [go through the list of institutions]?
2. [For those which do not help] Why do you not get e.g. seed from the Township? Etc.
3. Are there other ones that are not listed here which help you more?
4. And how about the HDI project? Does it help you and how?

CLOSE

Thank you very much for your answers. We now understand much more about your family. [Mention that we would like to come to one final talk the next day, i.e. the needs assessment]

Section B.2.8b Guidelines for Semi-Structured Interviews (Women)

History/Social Change (Same basic questions posed in history/social change focus group discussion on day 2).

We have been told many things about your village. We know about its history, how things have changed, its problems and its needs. Now we would like to learn about you and your family.

1. Can you tell me about when your mother or grandmother or her mother came to this village? What did they do? How have things changed for the women in your family since then?
2. And from when you were a little girl, how have things changed?
3. Are you better-off or worse-off and why? And what do these terms make you think of?

Gender

1. Question (Division of Labour)

Tell us, do men and women do differ jobs, like for example, gather fuelwood and water, ploughing the field, cooking and cleaning, or do both men and women do the same work?

2. Next Question:

Now tell us about some other differences between men and women in this village?

- Do men and women have the same amount of free time in this village? Has this changed? If so why? What do you do about it?
- Do men and women have the same control of money in the household? Has this changed? If so why? What do you do about it?
- Do men and women have the same power to make decisions in the household? Has this changed? If so why? What do you do about it?
- Same questions for: 1) education of girls/boys; 2) physical abuse; 3) consumption

3. Next Question (Institutions):

We now better understand many of the differences between men and women and how that has changed. We also know now about many of the difficulties which women face (mention the above listed problems). Are there groups, institutions, organisations, etc. which are helping women address these problems? Which are the most important and why?

CLOSE

Thank you very much for your answers. We now understand much more [Mention that we would like to come to one final talk the next day, i.e. the needs assessment].

Section B.2.9 Needs Assessment and Priority Ranking (Day 8)

What?

A discussion with the same villagers who were selected for the semi-structured interviews about their most pressing needs and how their relationship to coping and enabling strategies.

How? [See Guidelines next page]

Why?

The Needs Assessment and Priority Ranking is required to: 1) compile information on perceived needs and their relative importance, in light of coping and enabling strategies: 2) compare views of ‘worse-off’ with ‘better-off’ (expressed in history/social change, environment and gender discussions (day 2)).

Expected Outputs

- 1. List of most important needs**
- 2. Explanation of how they relate to coping and enabling strategies**
- 3. Priority ranking of said needs and explanation (Priority Ranking Matrix)**

Section B.2.9a Guidelines for Needs Assessment and Priority Ranking

1. Select the same villagers who participated in the semi-structured interviews.
2. Review key elements of those interviews concerning positive and negative pressures as well as coping and enabling strategies. You may say:

Now we have a much better understanding of what you do when times are good and time are bad. You have told us that you leave for the towns to work in the period before the harvest, that you etc. etc.

Now we would like to understand something else. What can be done to help you through bad times and to help you benefit from good times?

What will help you the most in bad times and in good times and why?

[The most important part of this discussion is the 'why'. In particular how people's needs relate to their existing coping and enabling strategies. It is important to use the passive tense 'what can be done' and not the active, 'what can we, UN, etc. do'. We do not want a shopping list.]

3. Allow for a thorough discussion of this issue and proceed to the priority ranking. Explain that:

We would like to know one more thing. You have told use many of your needs. You have said that a health centre is important because children are often sick in the rainy season, ... that ... Now we would like to know which of the many things you have listed is most important and why? Let me show you what I mean.

4. Proceed to draw the pairwise ranking matrix (see below). Remember to subdivide each category into two in order to assess how many people voted for each option. Ask for reasons why one need is more important then the other. [Note: Do not do preference ranking which is not as important for our purposes].

Table B.35 Priority Pair-wise Ranking Matrix								
	Health		Well		Credit		Land	
School	School 5	Health 3	School 3	Well 5	School 4	Credit 4	School 6	Land 6
Land	Land 3	Health 5	Land 6	Well 3	Land 3	Credit 5		
Credit	Credit 2	Health 6	Credit 3	Well 5				
Well	Well 2	Health 6						
Health								

Section B.3 Checklist of Expected Outputs per village

Table B.36 Overview of Village Study Methods			
Day	Method	Physical Outputs	Required Information (Answers to Following Questions)
1	Salutations		
2	Discussion of history/social change	<ol style="list-style-type: none"> 1. Village Historical Time Line (optional) 2. Transcript of discussion 	<ol style="list-style-type: none"> 1. What are the major events (positive and negative) in village history and how has life changed/ 2. Has the village become better-off or worse-off and why? 3. Do villagers become better-off or worse-off over the course of a year (seasonality)? 4. What are the major problems in the village? 5. What are the major needs of the village?
2	Social Map	<ol style="list-style-type: none"> 1. Social Map 2. Social Map Form 	<ol style="list-style-type: none"> 1. Complete list of village households 2. Information on household characteristics
3-4	Focus Group Discussions <ul style="list-style-type: none"> • Gender + Women's Time Line 	<ol style="list-style-type: none"> 1. Women's Time Line (optional) 2. Transcript of discussion 	<ol style="list-style-type: none"> 1. What are major aspects of female deprivation (i.e. women's problems) in the village? 2. Have these changed over time? If so, why (due to upward and downward pressures)? 3. What have women done to resist 'negative' change (coping strategy) promote 'positive' change (enabling strategy)? 4. What are most important needs of women 5. Which institutions are the most and least important in helping women in good times and bad?

Table B.36 Overview of Village Study Methods			
Day	Method	Physical Outputs	Required Information (Answers to Following Questions)
3-4	<ul style="list-style-type: none"> Environment + Natural Resource Map 	3. Natural Resource Map 4. Transcript of Discussion	1. What are the most important environmental pressures facing the village? 2. What are the coping or enabling strategies people use in response to these pressures (in particular successful coping strategies)? 3. What are the major needs of villagers to enable them to better respond to these pressures?
	<ul style="list-style-type: none"> Institutions + Venn Diagram 	1. Venn Diagram 2. Transcript of Discussion	1. Understanding of how negative and positive pressures, as well as coping and enabling strategies, go through institutions. 2. Understanding of impact of HDI projects (for HDI villages) and how they have affected people's coping and enabling strategies.
5	Well-being Ranking	Well-being Ranking of 1) Village Households 2) Village Women	1. What are the criteria used to rank households and women as 'worse-off'.

Table B.36 Overview of Village Study Methods

Day	Method	Physical Outputs	Required Information (Answers to Following Questions)
6-7	Semi-Structured Interviews with 'Worse-Off'	Transcripts of interviews with 'worse-off' households and women.	<ol style="list-style-type: none"> 1. What are the key pressures, enabling and coping strategies facing 'worse-off' households and women. 2. What are the most important environmental pressures facing worse-off households and women and how do they respond? 3. What institutions have the greatest and least impact on 'worse-off' households and women? 4. What are the most pressing problems of 'worse-off' women, how have these changed, why have these changed, and what can be done about it? 5. How does the experience of poor households or women differ from better off households/women (contrast with results of early focus group discussions) and poor household from poor women. (The 'double difference')
8	Needs Assessment with 'Worse-Off' + Priority Ranking	Priority Ranking Matrix	<ol style="list-style-type: none"> 1. What are 'worse-off' households and women's most important needs 2. How do these needs relate to coping and enabling strategies

Appendix C - Village Study Report Format⁶⁵

Headings	Main References
<p>1. Overview of the Village (Key question: Where did we go?)</p> <p><i>Village characteristics</i></p> <ol style="list-style-type: none"> 1. HDI village or not? 2. Number of the households 3. Population 4. Ethnicity 5. Agriculture/climate 6. Main economic activities 7. Dates Visited 8. Religion 9. Male/Female Population Breakdown 10. Number of Female Headed Households 	<ol style="list-style-type: none"> 1. Social Map 2. Social Map Form 3. Natural Resource Map
<p>2. Identification of Poverty/ Social Deprivation (Key question: Who are the poor?)</p> <ol style="list-style-type: none"> 1. The criteria used to rank ‘worse-off’ (or ‘better-off’) households and women 2. Wealth ranking between of households and of women conducted separately by groups of men and women 	<ol style="list-style-type: none"> 1. Well-Being Ranking Discussions 2. Well-Being Ranking Matrices 3. Social Map Form
<p>3. Processes of Poverty (Key questions: Has the village become better-off or worse-off and why? What do they do?)</p>	

⁶⁵ The village report format was drafted by a team member and revised by the present consultant. It follows closely the questions posed in the Myanmar PPA methodology (Appendix B).

Headings	Main References
<p>3.1 Social Change, History and Seasonality</p> <p><i>3.1.1 Better-off Households</i></p> <ol style="list-style-type: none"> 1. Trends and reasons why the village has become better-off or worse-off (upward and downward pressures on the village) 2. Trends and reasons why the village has become better-off or worse-off over the course of a year (seasonality) <p><i>3.1.2 Worse-off Households</i></p> <ol style="list-style-type: none"> 1. Trends and reasons why they have become better-off or worse-off (upward and downward pressures on the village). 2. Trends and reasons why the village has become better-off or worse-off over the course of a year (seasonality). 	<ol style="list-style-type: none"> 1. History/Social Change Discussion 2. Village Historical Time Line 3. Seasonality Chart <ol style="list-style-type: none"> 1. Semi-Structured Interviews (Households)
<p>3.2 Gender</p> <p><i>3.2.1 Better-off Women</i></p> <ol style="list-style-type: none"> 1. Major aspects of female deprivation (women's problems) 2. Trends and reasons why women's problems have changed (upward and downward pressures on women) 3. Women's responses to 'negative' change (coping strategies) and 'positive' change (enabling strategies) 4. The most and least important institutions in helping women in good times and bad <p><i>3.2.2 Worse-off Women</i></p> <ol style="list-style-type: none"> 1. Major aspects of female deprivation (worse-off women's problems) 2. Trends and reasons why 'worse-off' women's problems have changed (Upward and downward pressures on 'worse-off' women) 3. Worse-off women's responses to 'negative' change (coping strategy) and 'positive' change (enabling strategy) 4. The most and least important institutions in helping 'worse-off' women in good times and bad 	<ol style="list-style-type: none"> 1. Gender Discussion 2. Women's Time Line 3. Venn Diagram <ol style="list-style-type: none"> 1. Semi-Structured Interviews (Women) 2. Venn Diagram

Headings	Main References
3.3 Environment <i>3.3.1 Better-off Households</i> 1. The most important environmental pressures facing the village 2. Coping and Enabling Strategies people use in response to these pressures (in particular successful coping strategies) 3. Institutions with greatest impact on above coping and enabling strategies <i>3.3.2 Worse-off Households</i> 1. The most important environmental pressures facing these households 2. Coping and Enabling Strategies people use in response to these pressures (in particular successful coping strategies) 3. Institutions with greatest impact on above coping and enabling strategies	1. Environment Focus Group Discussion 2. Natural Resource Map 1. Semi-Structured Interviews (Households) 2. Natural Resource Map
3.4 Institutions <i>3.4.1 Better-off Households</i> 1. Understanding of institutions with greatest impact in village 2. Understanding of the impact of HDI interventions <i>3.4.2 Worse-Off Households</i> 1. Understanding of institutions with greatest impact on worse-off households 2. Understanding of the impact of HDI interventions on worse-off households	1. Institution Focus Group 2. Venn Diagram 1. Semi-Structured Interviews (Households) 2. Venn Diagram
4. Recommendations and Conclusions (Key question: What are the major problems and needs?) 4.1 Social Change <i>4.1.1 Better-off Households</i> 1. Major problems 2. Major needs <i>4.1.2 Worse-off Households</i> 1. Major problems 2. Major needs 3. Links between needs and coping/enabling	1. History/Social Change Focus Group Discussion 2. Environment Focus Group Discussion 1. Semi-Structured Interviews (Households) 2. Priority Ranking (Households)

Headings	Main References
strategies	
4.2 Gender <i>4.2.1 Better-off Women</i> 1. Most important problems and needs <i>4.2.2 Worse-Off Women</i> 1. Most important problems and needs	1. Gender Focus Group Discussion 1. Semi-Structured Interviews 2. Priority-Ranking

Appendix D - Site Selection

Section D.1 Conceptual Issues

Site selection is a critically important first step when attempting to generalise results from a limited number of case studies. Generalising case study results to a higher level of aggregation requires a judgment about the ‘typicality’ of the relevant population characteristics at the different levels of analysis (Hammersley 1992, Ch. 5). Establishing typicality requires an informed judgment that the case study in question is not an outlier or extreme case, but representative of population characteristics across a broader region.

For the present purposes, establishing typicality is a four stage process:

1. specifying the population characteristics in question to generalise
2. identifying indicators of those characteristics
3. selecting broad regions or areas which are *predominantly* characterised by these characteristics
4. selecting a limited number of villages which are typical of these broad areas.

More concretely, the primary focus of this study is on coping and enabling strategies of the poor. Variation in coping/enabling strategies is closely related to variation in livelihood strategies (point #1). The selected indicators must be those which *best* differentiate between major livelihood types in a given region (point #2). The actual indicators selected include land use type (NRS), access to water (Dry Zone), elevation and access to water (Shan State) and water type and land use (Delta Region) (point #3). Selection of particular villages within different land use categories requires particular knowledge that the village is typical of the broader category to which it belongs (point #4).

There are two secondary criteria used in the selection process: HDI-E project area; ethnicity. A percentage of the chosen sites receive HDI-E project support and are composed primarily of ethnic populations (Bengali, Danu, Karen, etc.) These additional criteria were specified in the project document and respond to the objective of capturing variation in coping/enabling strategies related to one or both of these variables.

A total of 12 villages were selected. Six were in three townships in Northern Rakhine State. Two each were in Dry Zone, Delta and Shan State. The inter-regional distribution of villages was determined by UNDP Yangon with a view to best meet expected data requirements for current or future project interventions.

It is important to stress the limitations of this type of analysis.

First, if properly done, results may only be deemed representative or typical of a *limited number* of coping/enabling strategies/livelihood types (proxied by the above indicators). As a consequence, it cannot stake a claim to national ‘representativeness’ unless the selected livelihood/coping-enabling strategy types are exhaustive of those found nationally (the present study clearly does not satisfy this requirement).

Second, the *primary* reliance on one variable per region as an indicator of livelihood/coping-enabling strategy type assumes that these variables do not vary widely within a given region. If this

assumption is violated, then the chosen indicators will be too broad. They will have to be further disaggregated by other variables which account for the variation in question (e.g. access to markets/roads, irrigated or rain-fed cultivation, access to modern inputs, extension services, etc.).

Third, there is no attempt to match villages, controlling for all factors which are expected to influence outcomes, excepting one. As indicated, village selection was based on three criteria (land use, HDI project presence, ethnicity), any of which may account (singly or in combination) for observed differences in outcomes. This point is important because it should be emphatically stated that the present study provides no basis for a counterfactual (with/without) assessment of the impact of select HDI project interventions on village outcomes. Its evaluation import is limited to assessing the efficacy of certain HDI project interventions *within* a small number of villages.

Finally, even if the case study results may be generalised to broader livelihood/coping-enabling strategy types, this does not allow for well-being comparisons between communities or regions. The reason is that there is no common unit across the domain of the comparison and well-being referents may systematically differ across areas.

Section D.2 The Villages

Section D.2.1 Northern Rakhine State (NRS)

The initial stage of village selection was based on information contained in the 'Economic and Financial Survey' of the townships of Maungdaw and Buthidaung conducted in 1996 (GRET, 1997). The document identified the following five geographical areas and the corresponding land-use patterns:

	Area	Land Use
1	Sea and Naaf River	Fishing
2	Salty Coastal Area	Prawn Growing; Salt Making
3	Low Lands (Eventually Flooded)	Large/Medium Paddy Cultivation; Vegetable Gardens
4	Hilly Areas	Medium/Short Paddy, mustard, potato, groundnut, betel leaf cultivation
5	Mountainous Areas	Bamboo Cutting; Cane Cutting; Wood Cutting; Thatch Cutting.
Source: GRET 1997, 8.		

The above typology did not include the township of Rathedaung which figured in the present study. Discussions with resources persons familiar with NRS, however, suggested that no significant land use patterns in Rathedaung were omitted by the above categorisation.

The next stage entailed choosing villages which were deemed 'typical' of the different land use patterns. Two information sources were used. First, a detailed UNHCR map of the three townships specifying individual village tracts and villages in the three townships. Second, discussion with resources persons in Yangon (UNDP project personnel) and NRS (radioed transmission) concerning particular villages to select. Following this process a preliminary list of villages was drawn up.

The last stage involved final modification of the said list by village team members once in the field. This followed discussion with UNDP project field staff concerning the accuracy of the above land-use typology as well as the typicality and size of selected villages. Village size was relevant because the wealth ranking exercise (Section B.2.7) becomes difficult in very large villages. As a result of the discussion, two modifications were made to the above land-use categorisation. First, the 'mountainous area' category was omitted. It was learned that no real 'villages' were found in the mountains, only a small number of dwellings occupied by ethnic groups. Second, the sea/Naaf river category was not sharply demarcated from the lowland category because it was concluded that most fishing villages also engaged in agriculture.

The final villages selected, and their '*site-selection-relevant*' characteristics, are discussed below. Much greater detail on village characteristics is provided in Section 1 of the village reports (see the Village Case Study Reports - Volume I).

Section D.2.1a West Oo Daung Village, Maungdaw Township

This **salty coastal** village of 149 households is located between the Bay of Bengal and the Mayu Mountains. It is a **Muslim** village with many resettled returnees from Bangladesh. It receives assistance from UNHCR and **UNDP HDI-E** (CDRT- MYA/96/009) in health, education, food security and water/sanitation. Major livelihood sources include: prawn breeding, fishing, paddy cultivation, winter crop cultivation (chillies, potatoes, eggplant, beans, watermelon, groundnuts) and livestock raising (primarily chickens).

Section D.2.1b Kapagaung Village, Maungdaw Township

This **low land** island village of 22 households is surrounded by the salt water Sabai Pin Yin creek and located between the Naaf river and the Mayu Mountains. It is a **Rakhine Buddhist** village which received **no UNDP** project intervention. Major livelihood sources include: paddy cultivation, winter crop cultivation (chillies, beans and vegetables), tamarind, mango and coconut cultivation, livestock raising, border trade with Bangladesh and fishing in the Naaf river.

Section D.2.1c Maung Hla Ma Village, Buthidaung Township

This **hilly-area** village of 96 households is located in a valley surrounded by hills close to a small stream. It is predominantly **Muslim**, including many resettled returnees from Bangladesh, though there are also some households of **Dynet** ethnicity. It has received assistance from SFP, UNHCR, and **UNDP** in health, education, food security, and water/sanitation. Major livelihood sources include: paddy cultivation, winter crop cultivation, gardening, livestock raising, sugarcane and betel leaf cultivation and agricultural trade.

Section D.2.1d Kin Chaung Village, Buthidaung Township

This **low land** village of 20 households is located approximately 1 mile from the Mayu river and not far from the Mayu mountains. It is a **Rakhine Buddhist** village which receives **no UNDP** assistance. Major livelihood sources include: paddy cultivation, winter crop cultivation (groundnuts, sesame, mustard, chillies, potatoes, watermelon, cucumber, corn, tobacco, radish), livestock raising and trade (primarily toddy palm leaves).

Section D.2.1e Kyauk Chaung Village, Rathedaung Township

This **salty coastal** island village of 72 households is located between the Mayu river and the Mazay hills. It is a **Rakhine Buddhist** village which receives **no UNDP** assistance. Major

livelihoods sources include: prawn breeding, salt making, paddy cultivation, winter crop cultivation (groundnuts and watermelon) and livestock raising (mainly buffaloes, pigs and goats).

Section D.2.1f Aung Ma Village, Rathedaung Township

This **low land** village of 114 households is located at the foot of the Mayu mountains and close to the Mayu river. It is a **Rakhine Buddhist** village which receives **no UNDP** assistance. Major livelihood sources include: paddy cultivation, winter crop cultivation (groundnuts, watermelon), prawn breeding, fishing in the Mayu river and firewood collection from the nearby hills and mangrove forests.

Section D.2.2 Dry Zone Region

Site selection for the Dry Zone region was based primarily on discussion with the CTA of UNDP project MYA/96/006 (Environment and Food Security in the Dry Zone) after explaining the selection criteria. Because only two villages could be selected, given time and resource constraints, the objective was to identify two major livelihood categories. Given the severe climactic conditions in the region (three consecutive years of drought), the key criteria used to distinguish livelihood types was access to water.

Section D.2.2a Kulai Village, Kyaukpadaung Township

This **dry, non-irrigated** village faces severe water shortages and major environmental stresses (soil erosion and infertility). It is a **Burmese Buddhist** village which receives **UNDP HDI** project assistance (environment and food security project). Major livelihood sources include: maize, millet, paddy, sunflower, sesame and tomato cultivation, livestock breeding, jaggery production from toddy palm juice and gypsum digging.

Section D.2.2b Kyaukkhwet Village, Kyaukpadaung Township

This **partly irrigated** village is situated in an area with **moderate rainfall** in proximity to Mt. Popa. It is a **Burmese Buddhist** village which has received **minimal UNDP HDI** assistance from education (MYA/96/004) and water/sanitation (MYA/96/002) projects. Major livelihood sources include: banana, maize, millet, corn, paddy and sunflower cultivation

Section D.2.3 Shan State

Site selection for Shan state was based primarily on the research team's own knowledge of major topographical difference between areas. The preliminary selection of villages was subsequently reviewed and cleared by the CTA of UNDP project MYA/96/008 (Environment and Food Security in Shan state). As above, given that only two villages were selected, the objective was to ensure that they were typical of two major livelihood types. The two main criteria used were elevation (hilly areas or plane) and access to water.

Section D.2.3a Taung Paw Gyi Village, Pindaya Township

This **hillside** village is located in proximity to a **water source** (small spring). It is an **HDI** village of **Danu** ethnicity. Major livelihood sources include: tea, coffee and vegetable cultivation.

Section D.2.3b Tha Yet Pyar Village, Pindaya Township

This **water scarce** village is situated on the **plane**. It has received some **HDI assistance** (education project). Ethnically, it is composed of **Danu** and **Taungyoe** peoples. Major livelihood sources include: paddy, wheat, corn, sunflower and potato cultivation, broom making and trade.

Section D.2.4 Delta Region

Site selection for Delta region drew on the research team's knowledge of different land use patterns and on the advice of the CTA of UNDP project MYA/96/008 (Environment and Food Security in Delta). As above, the objective was to ensure that the two villages selected were typical of two major livelihood types. The main criteria used to distinguish livelihood types were water type (fresh, brackish or salt) and land use patterns.

Section D.2.4a Pa Wein Village, Bogalay Township

This **fresh water** village is located in the Northern part of the township. It is a predominantly **Karen** village which received assistance from **UNDP's Environment and Food Security project**. Major livelihood sources include paddy cultivation, pig breeding and fishing.

Section D.2.4b Teipinseik Village, Bogalay Township

This **brackish water** village is located in a remote mangrove area. It is a **Burmese Buddhist** village which has received some assistance from **UNDP's health project** (MYA/96/001). Major livelihood sources include: Dani thatching, coconut cultivation and crab trading.

Appendix E - Monitoring Social Deprivation: Preliminary Thoughts

The first objective in the terms of reference is ‘to select a limited number of indicators or proxies of poverty and/or social deprivation to facilitate, *inter alia*, poverty targeting and monitoring.’ Section 2 of the present report focused specifically on indicator selection for targeting purposes. Indicator selection for monitoring purposes requires additional types of information and analysis which go beyond the scope of the present project. What follows are some preliminary thoughts on a process for identification of indicators to monitor progress in reducing poverty/ social deprivation.⁶⁶

1. A first step is to review objectives and outputs of all nine operational HDI projects. It is necessary to start with project objectives and outputs (and not with indicators), because monitoring effectiveness in reducing poverty/ social deprivation must be based on specific changes which particular projects are supposed to induce.
2. A second step is to conceptually map out links between project outputs and outcomes. Outcomes are the short and medium term effects of the use of, or response to, project outputs.
3. A third step is to review the monitoring and evaluation systems of all nine projects to examine existing outcome and impact assessment instruments, and analyses undertaken with them, so as to avoid duplication.
4. On the basis of steps 1-3, a fourth step involves selecting monitoring instruments to assess changes in outcomes according to *project-based criteria*. Here, there is a very close mapping between project objectives, outputs and outcome criteria. For example, changes effected by the sectoral projects (health, education or water/sanitation) may be assessed according to standard indicators for measuring outcomes in the sector to which they belong. Changes effected by income generation projects may be assessed according to indicators elsewhere used to measure changes in income.
5. A fifth step involves selecting monitoring instruments to assess changes in outcomes according to *cross-cutting criteria*. Here, the aim is to assess project outcomes according to a number of dimensions which are central to Myanmar’s HDI, and to broader concerns of sustainable human development. A short list of interrelated concerns would include equity, sustainability, participatory orientation and gender awareness.
 - **Equity** refers to the distribution of project benefits and/or access to services therein provided as well as the effect of project activities on the poorest or worse-off villagers;
 - **Sustainability** refers to the relationship of project activities to the natural resource base (environmental sustainability) as well as the institutional and financial viability of project activities over the medium term;

⁶⁶ Some of these steps have already been initiated in the work of the HDI support project, MYA/96/010 (Khan 1999).

- **Participatory orientation** refers to the active involvement of villagers in project activities with particular emphasis on worse-off villagers (equity concerns);
 - **Gender awareness** refers to the differential impact of project activities on men and women, the distribution of project benefits between men and women (equity concerns), and real effective involvement of women in project activities (participatory concerns).
6. A final step, if appropriate, would be to select monitoring instruments to assess changes in *impacts* according to the cross-cutting criteria proposed in step five. Impacts are longer-term effects that follow from *outcomes*. Examples include:
- **Re. Equity.** Assessment of whether project intervention has changed the structure of production and exchange in a more egalitarian fashion with particular emphasis on the consequences for worse-off villagers.
 - **Re. Sustainability.** Assessment of the longer-term consequences of project intervention on the natural resource base and whether or not project-initiated institutions and activities have become self-sustaining.
 - **Re. Participatory Orientation.** Assessment of the consequences of project intervention for the active participation of (worse-off) villagers in social and economic life.
 - **Re. Gender.** Assessment of the consequences of project intervention for gender relations within a community with emphasis on worse-off women.

Steps 4-6 involve selection of appropriate monitoring instruments to assess changes in outcomes and/or impacts according to project-specific and cross-cutting criteria. Two such instruments are intersubjectively observable indicators and participatory assessment instruments similar to those conducted by the present project's village studies (which are similar to the PASTRAC exercises).

- With respect to indicators, a similar analysis as that presented in Section 2 could be undertaken to gauge the interrelationship among a number of plausible indicators (if this is deemed necessary). The one key selection criteria which differs from the criteria used in Section 2, is that indicators must be sensitive to relatively short-term *changes* in outcomes (this would likely rule out landholding, for example). This type of analysis could be undertaken entirely by nationals, such as those who performed the statistical analysis of the HDIBS data for the present report.
- Village studies or PASTRAC exercises may be useful to analyse actual changes effected by projects on the basis of focus group discussions and semi-structured interviews with villagers. These may be preceded by well-being rankings to gauge the views of worse-off villagers. In addition, *if villages are properly matched*, this type of analysis allows for counterfactual analyses (with/without), and not simply historical ones (before/after), of changes in outcomes.