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Title: Household Vulnerability Mapping: tools to increase the effectiveness of CBR in poverty reduction

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PAPER

Abstract

Application of the Umbrella Model demonstrates that households with persons with disabilities are significantly more vulnerable than households with no persons with disabilities (36.5% vs. 25%, OR 1.72 (0.8-2), and enables accurate differentiation and profiling of vulnerability to inform more efficient targeting of interventions aimed at reducing poverty. This model can support a rights-based approach to CBR for poverty reduction where all are included in the development process, but where not all persons or households will need, or benefit from, being a beneficiary of services or activities.

Background

Persons with disabilities are more likely than non-disabled persons to be poor, and research from a number of developing countries demonstrates that households with a household member who is disabled are more likely to be poor than households with no disabled members, although findings are not unequivocal and there are very limited data.^{1,2} A significant underlying contributor to poverty is exposure to, and consequences of, natural disasters and other crises and hazards³. Persons with disabilities are known to be more vulnerable to the risk and impact of disasters and economic shocks.^{4,5} Poverty reduction programmes which aim to reduce ameliorate the impact of such shocks and increase household resilience thus need to be fully inclusive of persons with disabilities. In practice, the demand for inclusion has often resulted in the use of vulnerable group profiling, whereby socio-demographic sub-groups (older persons, persons with disabilities, women headed households) are automatically included as beneficiaries, either by a quota system or as an absolute right. Whilst this does ensure inclusion to some extent, its basic assumption (that all persons with disabilities are vulnerable) is misguided, and can also lead to other problems (either when people with lower levels of need are included as a beneficiary simply because of a disability, and likewise, where some people who have higher levels of need are excluded because they don't have a disability). A more nuanced approach is required to both uphold the right for persons with disabilities to be included in the process of the project, and to have equal right of access to the benefits of the project, based on need, as non-disabled person. This approach thus upholds the letter and spirit of the CRPD (particularly article 32) without leading to unhelpful stereotyping. However, this approach also

rightly places greater emphasis is on development and relief agencies to ensure that all aspects of the programme, such as information, meetings and activities are fully accessible to persons with disabilities, and that the views and perspectives of persons with disabilities is taken into account at every stage in the design and implementation of the programme. It also then requires that development and relief agencies utilize a more effective approach to identifying persons with increased vulnerability, in a way which takes into account aspects related to disability, but which does not work on the assumption that all persons with disabilities are vulnerable. These tools need also to enable field workers to better understand and quantify the underlying causes of vulnerability, to design and implement suitable interventions and to predict likely outcomes of interventions and measure medium term impact of efforts to reduce household vulnerability.

The ‘Umbrella model’ has been under development in Myanmar since 2010, and draws on Moser’s asset vulnerability framework to measure ten different factors which contribute to vulnerability at household level. This model and its application are described below. This model can enable a ‘rights based’ approach, facilitating inclusion of persons with disabilities (and other ‘vulnerable’ group members) as active participants in process, but without guaranteeing their status as an automatic beneficiary. This research examines the applicability and usefulness of the Umbrella model to analyze household vulnerability of rural households in the Union of Myanmar, with particular reference to vulnerability of households with person(s) with disabilities. Myanmar is one of the poorest countries in Southeast Asia, with 26% of households classified as living in poverty. Households with disability account for 10% of all households in Myanmar, but comprise 16% of all poor households⁶.

Method

Data collection tools were based on the Umbrella model,⁷ so called because of its application to plot household vulnerability in a user-friendly umbrella style radar plot to illustrate the relative degree of ‘protection’ which a household has against shocks and hazards. Validated indicators were used to measure ten key factors (indebtedness, productive income, livelihood diversity, dependency ratio, asset profile, water & sanitation, food security, health, social capital and decision making power) which contribute to household vulnerability. These are based on a livelihood and vulnerability framework developed by the Livelihood and Food Security Trust Fund (Myanmar)⁸. This model looks primarily at resilience (the capacity to cope with shocks and hazards), rather than relative exposure, and measures the relative resilience of a given household or type of household compared to others in the sample population. Hence, it is best applied to determine which households are more vulnerable within a given population, rather than for absolute comparison between regions or countries.

The full list of factors and linked indicators is included as Table 1.

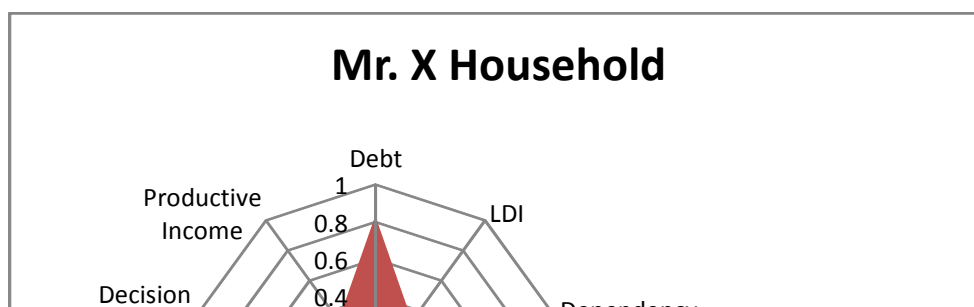
Table 1: Vulnerability factors, contributions to vulnerability, indicators and sources

Factor	Contribution to vulnerability	Indicator	Source & validation
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Indebtedness	High levels of non-productive debt put livelihood assets at risk (collateral); repayments may reduce essential expenditure; high levels of existing debt can reduce ability to access additional credit	Debt repayment as proportion of income Repayment: income ratio >30% is usually risky	World Bank 1997 ⁹ , adapted
Income (Productive Income)	Low or negative income: expenditure ratio can lead to reduction in essential spending, increase risk of debt or negative coping responses. High proportion of income spent on non-productive items can lead to under-investment in livelihood, leading to higher risk	Proportion of income expended on non-productive items (food, health, rent, fines)	World Bank 1997, adapted
Assets	Ownership of livelihood assets, convertible assets or crucially, land (in the form of usage right) can provide short term protection against shocks.	Moser's asset vulnerability Framework, adapted for survey by Myanmar Market Research Department	Moser (1998) ¹⁰
Food Security	Current and prior experience of food insecurity is strongly linked with increased vulnerability to future food insecurity. Likewise, food insecurity leading to malnutrition can affect human capital, and put livelihoods at risk.	Food Security Index	UNDP ¹¹ , modified
Livelihood diversification capacity	Income derived from a single source is more vulnerable to shocks. Multiple sources, or the potential to diversify, can increase protection against shocks affected main/key livelihoods	Livelihood diversity index (= number of income generating activities at HH)	DHS (2006) modified
Health	Chronic or frequent illness in primary earner OR one requiring care threatens livelihood security and reduces income, as well as increasing health expenditure; unplanned health expenditure is a common cause of negative coping (e.g. conversion of livelihood assets to cash)	Income generating household member days per year lost work through illness	UNDP modified
Water & Sanitation	Water is an essential for health and many livelihoods; more time taken to draw water reduces time for other activities; unsafe water sources increase risk of ill health which reduce livelihood effectiveness; unreliable water supplies increase resource expenditure	Average time to collect water	DHS (2006) ¹²
Dependency	Household members requiring high levels of social or medical care divert human, physical and financial resources away from potentially productive livelihood activities	Household Dependency scale	TLMI ¹³ adapted
Social Participation	Persons with higher levels of social participation build up social capital, which can increase the likelihood of relief and assistance in times of difficulty	Participation index	TLMI, adapted from p-scale (KIT)
Decision making	Persons with more influence in decision making can have stronger negotiating position for livelihood related factors such as fair pricing, land and asset use	Proximity to power scale	Adapted UNDP

Data from these indicators are then converted by mathematical formulae to a 0-1 scale which is plotted on a 10-point radar plot, which resembles an umbrella (hence the name). Scores can be plotted and displayed as single households, or aggregated/mean scores, at village, township or even State level, or clustering by socio-demographic groupings. Higher scores indicate derive a larger umbrella, which is indicative of greater protection (and less vulnerability). A sample model for a village 'plot' is displayed as Figure 1.

Figure 1: sample 'Umbrella' vulnerability profile



The model was converted to a questionnaire, which was translated into local language (Burmese) and training was given to staff of the Myanmar Market Research Company (MMRD), who then conducted data collection according to the criteria outlined. Initially, the questionnaire was piloted on a sample of 100 households, and amendments were made to the question phrasing. The study population was selected in the central Dry Zone, in areas known to have higher than average poverty levels, as part of a baseline survey for a large-scale livelihoods intervention project funded by the Livelihood and Food Security Trust Fund (LIFT). Thirty participating villages in two townships (Ayartaw and Mahlaing) were selected based on initial poverty surveys, and from a total target population of 4,776 households, a randomized 1:4 household sample was selected, weighted according to village population, yielding a total of 1,194 households. Consent was obtained and recorded in local language, and households were given the option to decline participation. Verification and monitoring for quality control was conducted by MMRD. Data collection, tabulation and basic analysis were conducted by MMRD. Disability was determined by applying the modified ICF criteria used in the 2008-2009 Myanmar National Disability Survey¹⁴. Older persons were those aged 70 or over. Analysis was conducted by the author, using Microsoft Excel software. Vulnerability was defined in relative terms, by measuring the relative deviation of a particular household score from the population mean. A household was classified as 'Vulnerable' if they had three or more of the ten factors which scored over 1 standard deviation lower than the population mean for that factor. A household was considered to have economic vulnerability if it had two or more of the economic factor scores (debt, livelihood diversity, assets, productive income) more than one standard deviation lower than the population mean for that factor.

Results

The sample of 1,194 households yielded 85 households which had one or more persons with disabilities, equating to 7% of the population, which is consistent with known prevalence for that area. Of those 85 households, 36 had one or more women or girls with disability. The distribution of scores for different factors at household level demonstrated in most cases a normal distribution, but with some factors such as assets, water & sanitation and health, a clear bimodal distribution indicated clustering around either high or low scores. In total 25.8% of all households were classified as vulnerable, consistent with a known poverty prevalence of 26% in that area. However, when comparing households with and without

persons with disabilities, 36.5% of all households with a person with disabilities were classified as vulnerable, compared to 25% of households with no persons with disabilities.

Figure 2: percentage and Odds Ratio (with 95% confidence interval) for vulnerability and economic vulnerability for different socio-demographic groups

	% and Odds Ratio (95% Confidence interval)	% and Odds Ratio (95% Confidence interval)
	Vulnerable (3 or more factors)	Economic Vulnerability (2 or more economic factors)
Households with Person(s) with disabilities (compared to households with no persons with disabilities)	36.5% vs. 25% 1.72 (0.8-2.0)	29.4% vs. 17.9% 1.91 (0.81-2.16)
Households with older person with disabilities (compared to households with non-disabled older person)	54% vs. 27% 3.16 (0.7-4.0)	50% vs. 34.4% 1.92 (0.36-4.8)
Households with female person with disabilities (compared to households headed by non-disabled female)	41% vs. 29% 1.70 (0.7-2.4)	39.1% vs. 21.4% 2.36 (0.7-2.9)

These differences persisted despite corrections for possible co-dependent factors such as economic dependency. The main underlying factors linked with the increased vulnerability rates amongst households with persons with disabilities are economic factors such as lower rates of livelihood diversity, poorer asset profiles, higher rates of food insecurity and high rates of non-productive expenditure. Whilst female headed households had moderately higher rates of vulnerability than male headed households, and the presence of an older person increased overall rates of vulnerability, these factors were exacerbated by disability. The data indicates that households with a woman with disabilities are more likely to be vulnerable than a woman headed households without a person with disabilities, with even higher likelihood of vulnerability related to economic factors. Households with women or girls with disabilities were more likely to be vulnerable than households with a man or boys with disabilities.

Conclusion

The model has demonstrated the proportion of households classified as vulnerable, and the typical profile of vulnerability linked to disability. Applied to planning, this can more accurately inform which kind of activities could be best targeted to which households to achieve the biggest reduction in vulnerability¹⁵. A major benefit of the Umbrella Model is the ability to differentiate between households with persons with disabilities which can be reasonably classified as 'vulnerable' and those which are not. Current practice within the

humanitarian sector has tended to classify beneficiary households according to demographic characteristics, often resulting in automatic classification into a 'vulnerable group' of any and all households which have a person with disabilities as a household member. This model allows more accurate differentiation, and in doing so can be used to support a rights-based approach to inclusion of persons with disabilities which does not assume automatic vulnerability, but instead can identify persons with disabilities for whom inclusion as a recipient of assistance is warranted. This does not mean that there is no need for disability specific interventions, such as assistive devices, physiotherapy, on an individual level, but the model is specifically designed to assist planning within a mainstream poverty reduction programme to directly respond to economic factors. Hence, the Umbrella model has strong potential value for application in poverty reduction projects, including those implemented using Community Based Rehabilitation (CBR) by enabling detailed analysis of categories and causes of vulnerability at household level, and enabling more targeted interventions based on a more robust understanding of underlying contributory factors to vulnerability. Given the flexibility of the model, allowing for the use of different indicators to better reflect local conditions, the model can be applied in a variety of settings. However, this limits the extent to which data from one area or country is comparable with data from another, and the model remains at best a predictor of relative vulnerability of a given household or group of households as compared to others within that same area. Our sample highlighted the need to experiment further with indicators which better capture differences between households. This is particularly true of the indicators used for debt and food security, which showed heavy clustering at one end of the scale. The model requires more robust field testing in a variety of settings, and further research to identify a wider pool of suitable indicators. Finally, the model would benefit from longitudinal analysis of accuracy in predicting vulnerability, and in particular, to explore and identify more substantive connections between vulnerability measurements and poverty.

¹ Braithwaite J, Mont D. Disability and poverty: a survey of World Bank poverty assessments and implications. ALTER – European Journal of Disability Research / Revue Européenne de Recherche sur le Handicap, 2009, 3(3):219–232

² Griffiths M et al (2012) Uncomfortable Truths: inequalities associated with Disability. Bulletin of Social Policy & Poverty Research Group 1(5)

³ Kreimer A, Arnold A (2000) Managing Disaster Risk in Emerging Economies. World Bank: Washington DC

⁴ International Disability Rights Monitor. Disability and Early Tsunami Relief Efforts in India, Indonesia and Thailand. <http://www.ideanet.org/cir/uploads/File/TsunamiReport.pdf>

⁵ Griffiths M, Scherrer V (2009) Including Persons with Disability in Early Recovery: Ten Lessons from the Post-Nargis Experience. Yangon, TLMI/UNDP

⁶ Griffiths M et al (2012) Poverty and Disability in Myanmar. Bulletin of Social Policy & Poverty Research Group 1(1)

⁷ Aung Min, Griffiths M (2011) Using the umbrella model to measure household vulnerability and facilitate 'smart' programming for livelihood vulnerability reduction. UNOPS/LIFT. Yangon

⁸ Griffiths M, Woods L (2009) Vulnerability Analysis: the Building Blocks for Successful Livelihood Intervention. UNOPS: Yangon

⁹ World Bank, 1997. Survey of living conditions: Uttar Pradesh and Bihar. Household Questionnaire, December 1997–March 1998.

¹⁰ Moser C (1998) Reassessing urban poverty reduction strategies: The asset vulnerability framework. World Development 26, No 1, pp 1-19

¹¹ UNDP (2006) Integrated Household Living Conditions Analysis. Yangon: UNDP

¹² DHS (Demographic Health Survey), 2006. Measure DHS: model questionnaire with commentary. Basic Documentation, Number 2.

¹³ Griffiths M (2007) Economic Vulnerability Score: applications for Community Based Rehabilitation. Internal.

¹⁴ Department of Social Welfare (Griffiths M, Ed) (2009) Myanmar National Disability Survey. Yangon: TLMI

¹⁵ For example, a programme designed to target livelihood interventions to all vulnerable households which had low livelihood diversity, to target a food security reduction programme to all households with vulnerability and high levels of food insecurity, to target asset enhancement grants to all vulnerable households with low asset profiles, and target savings programmes to all vulnerable households with high rates of non-productive expenditure, would overall address specific needs of 260 households (84% of the total vulnerable households) of which 28 are households with persons with disabilities (90% of all vulnerable households with persons with disabilities).