

## Chapter 9

### Conclusions

#### 9.1 The justification for undertaking this study

Poverty is a phenomenon that currently affects a majority of people in the world yet identifying the poor still remains problematic, posing major difficulty in proper targeting of the group for poverty reduction programmes. This is especially critical for developing countries where resources are scarce and require careful utilisation. One of the most significant challenges for the identification of poor people lies in the complexities of measuring poverty, a critical determinant towards better targeting of the poor, especially if a country is to achieve its overall development goals.

Traditionally, poverty has been measured using simple economic measures of income and expenditure (World Bank, 2001). However, there is an emerging body of critique arguing that these measures only capture certain limited aspects of poverty and lacks the ability to indicate the meaning of poverty in the lives of those people who experience it. In recent development literature and practice, it is widely acknowledged that poverty is multidimensional and dynamic in nature, and more recent attempts to measure poverty consider these aspects in their methodology (Brock, 1999; DFID, 2001b; Mayer, 2003; Fisher *et al.*, 2005). Another emerging interest in poverty and development discourse is in the strategies and behavioural responses employed by the poor to cope with their situation, which provides much needed understanding on *what happens* within the poverty experience (Brock, 1999; Narayan *et al.*, 2000; Hettige and Mayer, 2003).

The sustainable livelihoods approach is one method that looks into different dimensions of poverty such as environmental, social, economic and political and thus provides a better understanding of the complex 'driving' forces and process behind the poverty concept (Davies, 1996; Scoones, 1998; Carney, 1998). Consequently since the 1990s it has gained wide acceptance as a valuable means of understanding different aspects that shape poor people's lives and well-being. It is considered an analytical framework that can help measure the more dynamic and relational aspects, especially for those groups whose circumstances place them at higher risk in terms of poverty (Carney, 1998; Scoones, 1998; DFID, 2001b).

One such group at risk are coastal communities who seem to be among the poorest around the world (ADB RETA, 2003; Whittingham *et al.*, 2003). This is partly as a result of these communities being heavily dependent on natural resources that may be over-exploited or that can be accessed only seasonally. Nonetheless, according to Bene (2003) there is an enormous gap in the understanding of the poverty situation among coastal communities. This situation is reflected in Sri Lanka too where currently inadequate knowledge is available regarding the poverty issues that particularly affect coastal communities in the country. This is despite the fact that these communities make up a significant proportion (about 25%) of the country's population.

As a measure of sustainable coastal resource management and livelihoods development, natural resources in specific coastal areas are being co-managed by the government and local communities in a coastal zone management initiative called Special Area Management (SAM) since the early 1990s. The SAM process attempts to ensure the economic and social well-being of local communities as well as the ecological well-being of the natural ecosystems within a SAM site, by the practice of sound natural resource management (CCD, 2004). For the purpose of assessing the relationship between the SAM process and the sustainability of livelihoods at a household level, both SAM involvement and SAM benefit were considered as important variables.

Set in this context, my own research had three broad objectives. The two major objectives were related to investigating the usefulness of using a combination of indices that I developed together with other standard qualitative tools to measure poverty at the household level. The third objective was to apply the above indices and tools to assess the impact of Special Area Management (SAM) on the sustainability of livelihoods. The two coastal sites I selected for testing the methodologies were Rekawa and Kalametiya, on the south coast of Sri Lanka. Following the devastating Asian tsunami in December 2004 during the course of my research, I also applied the same methodology to assess the impact of the tsunami on coastal livelihoods in the same study area.

In my study while I adopted a sustainable livelihoods approach as an overall conceptual framework, I determined whether certain qualitative participatory tools such as wealth rankings and in-depth interviews have a part to play in measuring certain aspects of

poverty that are difficult to capture through conventional methods. In addition I focused specifically on two elements of livelihood security - food security and personal wellbeing – two important elements of poverty that have not been previously examined extensively in the context of natural resource management/sustainable livelihood systems and tested their ability to highlight aspects of livelihoods sustainability that are not covered by conventional approaches.

Towards this purpose, I developed four simple food security indices based on the work of Maxwell *et al.* (1999) and Malleret-King (2000) and one personal well-being index in line with a subjective well-being approach as described by Rojas (2004). The four food security indices were developed on the basis of behavioural responses of individuals and strategies such as changes in consumption patterns or asset ownership adopted in a household during crisis and non-crisis situations in the short and long term. Each of the indices combined frequency of use and perceived severity of adopted strategies to give a simple quantitative score for each household. The personal well-being index was designed on a simple scoring system that was given based on the overall subjective feelings (either positive or negative) that each individual had about their life at the time of the survey.

The findings of my study are broadly divided into two: firstly those related to testing the methodology that I developed and secondly the application of this methodology to two case studies (the impact of the SAM process on livelihoods and also the impact of the Asian tsunami).

## **9.2 Methodological aspects - the relationship between the different indices**

Overall, the different indices that I developed through participatory methods – wealth rank, food security and personal well-being indices are all clearly capturing some aspects of poverty. Therefore when used together, these indices provide important complementary information on the overall well-being, food security, and vulnerability to poverty existing at the household level that would be difficult to analyse through

conventional poverty approaches. It thereby suggests an alternate method to measure certain dimensions of poverty as the household level.

Previous empirical studies have shown that wealth rankings are a useful method whereby a community can be stratified in terms of its socio-economic characteristics. It has also proved to be accurate in identifying the poorest groups within a community (Reitbergen-McCracken and Narayan, 1998; Simanowitz and Nkuna, 1998; White and Pettit, 2004). Results of my empirical study demonstrate that wealth rank in addition to the above mentioned aspects can be also considered a proxy to several more conventional poverty-related variables such as income and productive and liquid assets (significant associations were noted when correlation tests were undertaken). Wealth rank can therefore act as a composite explanatory variable on poverty in its own right in relation to the analyses undertaken with the food security indices and the personal well-being index.

With regard to the food security indices that I developed, similar to previous research undertaken by Maxwell (1996 and 1999) and Malleret-King (2000), the indices helped capture how people make certain decisions based on trade-offs with other basic needs to ensure a certain level of security is achieved in terms of food and asset ownership. Unlike in the case of previous empirical studies however, the indices I developed also proved to be useful for highlighting gender differences and obtaining a better understanding of how males and females respond to food shortages and lack of money at the household level in both the short and long term. These gender differences are useful for getting a better understanding of gender related behavioural responses at the household level and the different roles males and females play in this context.

In addition, the food security indices are clearly measuring certain elements of poverty. A strong relationship was shown between all four indices and wealth rank, with the general linear models (GLMs) demonstrating that poorer households were consistently more likely to be food insecure for both the crisis and non-crisis indices.

Moreover, the food security indices are capturing some dynamic aspects of poverty: short-term indices showed changes mainly in household consumption patterns and therefore the dynamic nature of poverty over very short periods of time. The long-term indices also demonstrated a dynamic aspect, but over a longer-time scale, and showed

changes that were concerned with household asset ownership. This illustrated that certain aspects of vulnerability to poverty are also captured by the four indices – where changes in relation to access to tangible (for example household and productive assets) and non-tangible assets (for example social relations with neighbours and relatives) are covered.

In the GLMs as wealth rank accounts for only a certain degree of the explanatory power of the indices, it is not unreasonable to assume that the food security indices are capturing other dimensions of poverty not included by wealth rank, such as the vulnerability to poverty. This, as mentioned above, induces certain behavioural responses in individuals in terms of trade-offs related to food consumption patterns and asset ownership based on specific crisis or non-crisis circumstances they face.

While wealth rank appears to be a relatively more ‘stable’ condition over time than the short-term food security indices, the long-term indices provide valuable information to help determine whether a household will move to a different wealth category (either better-off or poorer) or remain static - based on changes in asset ownership over a longer time period. The indices therefore provided information on poverty for different time scales.

The personal well-being approach I used in my study was similar to that described by Rojas (2004) and proved to be useful to get a better understanding of these less tangible dimensions of poverty. Since the approach allowed individuals themselves to indicate and rank domains of well-being that influence how they felt about life, it was sensitive to local value systems and socio-economic conditions and therefore gave a realistic interpretation of how people in the area perceived their own well-being. For example, while different domains were identified as influencing how people felt, they varied in importance to individuals and not all were considered of equal weight. My findings revealed that the social and psychological domains appeared to be the most important, which was similar to results described by Rojas (2004) where family, health and consumption appeared to be the most important domains to people.

In terms of wealth rank, binary logistic regressions showed that there was a significant relationship between personal well-being and wealth rank, where a negative correlation indicated that individuals who were poorer were more likely to feel negative about life

than positive. This was also confirmed by the fact that a lower proportion of those in the poorer wealth categories had positive scores for personal well-being.

In the same manner, personal well-being gave a significant relationship with the short-term food security indices when binary logistic regressions were carried out, where those that were more food insecure were shown to be more likely to be negative about life overall than positive (i.e., STCS showed a negative correlation with personal well-being, while the STAS showed a positive correlation). In terms of the long-term food security indices however, no significant relationship was found with personal well-being. This may possibly be due to indices indicating changes of mainly asset ownership over a long period not reflecting an individual's perception of life in current, real time (i.e., snap-shot views).

One of the key findings of my study was that wealth rank and the short-term food security indices (which were all derived from participatory research methods) were better at capturing personal well-being (had a higher degree of explanatory power according to the binary logistic regressions) than traditional poverty indicators such as income. Wealth rank and food security indices are however unlikely to be describing the *same* aspects of poverty as personal well-being as there are different explanatory powers observed for each index. We can therefore assume that the personal well-being index was picking up on discreet differences that existed between these different indices and that therefore different elements of poverty are being covered.

Overall both the food security and personal well-being indices were also useful for teasing out the subtle differences in how individuals behaved and felt about life based on their gender. For example, in the case of the food security short-term indices, the GLMs fitted better for females while for the long-term indices the models fitted better for males. This indicated that for short-term indices which are more related to changes in household consumption patterns, the females appeared to be more responsible, while in the case of the long-term indices linked to changes in asset ownership, the males took the key decisions (although in the case all decisions, both genders appeared to consult with each other as there was a high degree of co-linearity). In regard to personal well-being, the binary logistic regressions demonstrated that different predictors were important for the two genders. For the females, the best predictor of personal well-being was the STAS

variable, followed by wealth rank while for males wealth rank was the best predictor of personal well-being followed by the STCS.

### **9.3 Application of the methodology**

#### **9.3.1 The relationship between the Special Area Management (SAM) process and livelihood sustainability at the household level**

In my study, I do not attempt to evaluate the entire SAM process, but assess the relationship between the SAM process and the sustainability of livelihoods at a household level, and for this purpose two variables were used – SAM involvement and SAM benefit. When the relationship between wealth rank and SAM involvement was tested, it appeared that there was a significant correlation where poorer households are more likely to be involved in the SAM process than wealthier households. As expected, SAM involvement shows a correlation with benefit by SAM. However wealth rank versus benefit by SAM gave a non-significant result.

This validated findings of my SAM survey that show that while poorer households are more likely to get involved in the SAM process, they do so with the incentive of deriving some tangible benefits. In reality however it may not be the poorer households that receive benefits. So while the SAM process had got the attention of the poorer households within the community, it needs to deliver on the expectations of these poorer and more vulnerable groups if it is to ensure its long-term success and sustainability.

In relation to the personal well-being of an individual, participation in SAM did not appear to show any significant relationship to how they felt about life overall. People perceived social, psychological and health related issues that affected them at the household level of more importance than general coastal resource management issues. In terms of coastal zone policy and management implications it is important to adopt a more holistic people-centered approach when initiating co-management arrangements, where not only environmental concerns but other issues that impact peoples lives need to be addressed in practical and real terms. With regard to the food security indices, participation in SAM only appeared to be important in the case of crises situations for females, where those who were more food insecure participated in the process. Unlike in

the case of wealth rank however no strong and consistent relationship emerged between the food security indices and involvement in SAM.

### **9.3.2 The relationship between the Asian tsunami and livelihood sustainability at the household level**

The Asian tsunami was a shock of enormous magnitude that affected the communities in my study site. The availability of baseline data from my research over a three year period prior to the tsunami, gave me the opportunity to help put in context the impact of the tsunami had on the livelihoods of this community in the immediate aftermath of this major shock.

In terms of personal well-being, as expected, a larger percentage of respondents were feeling negative overall compared to pre-tsunami times. It was interesting to note that the social and psychological domain of well-being appeared to be the most important in contributing how individuals felt overall, similar to pre-tsunami times, but not wealth rank. With regards to the latter, this was to be expected as the tsunami impacted people from both better-off and poorer backgrounds.

In terms of coping soon after the tsunami, strategies adopted could be broadly divided into those that were externally driven and used exclusively under the tsunami situation, to those that were more internally driven and used both pre and post tsunami. In the case of the latter category, coping strategies that depended on social relations and networks were considered of high importance. It was interesting to note therefore that irrespective of the nature and the magnitude of the shock, people considered their social assets to be one of the most important strategies to help them face a crisis.

From a methodological perspective, overall it appeared that the personal well-being index was a quick and easy method to adopt during natural disaster situations to assess what factors were influencing how people felt overall, so that suitable recovery and rehabilitation initiatives could be implemented that were sensitive to local needs and priorities. The food security indices on the other hand, appeared to be too time consuming to develop from inception in an emergency situation (I was in a unique position of having baseline data and a tested methodology). Nevertheless, valuable information was obtained

on how people coped in situations of unexpected shocks from undertaking the FGDs and noting down the importance people placed on the different coping strategies that were adopted and how these differed in terms of pre and post tsunami scenarios.

#### **9.4 Future directions**

In terms of practical applicability of the indices I tested, developing the food security indices were relatively more time consuming and involved more data collection than the wealth rankings and personal well-being surveys. The food security indices were also not understood as easily by people as the wealth rank and personal well-being concepts (for example the concept of perceived severity ranking was not understood by some of the respondents). In addition, unlike in the case of Malleret-King (2000), in my study crisis and non-crises strategies gave contradictory results when used simultaneously, and this could cause confusion in the interpretation of findings. Although several potential explanations are explored in this study, it would be important to conduct further research on these aspects before ascertaining the most probable reason for these particular results and to determine whether crisis or non-crisis indices are more useful. While Maxwell (1999) showed clear proof through his analyses that short term coping strategies were good indicators of poverty, both Malleret-King's (2000) and my own research have indicated that accumulation strategies are also fairly sensitive indicators of certain aspects of poverty. But since there is no precedence in the literature in terms of the use of accumulation strategies in this context, it is difficult to draw conclusive conclusions and further exploratory research would be required.

If the major analytical shortcomings of the food security indices can be overcome however, they are likely to prove useful not only to measure certain elements of poverty that are not covered by conventional methods, but also to use in vulnerability and poverty mapping exercises such as those described by Amarasinghe *et al* (2005) and Hyman *et al* (2005). The indices could potentially be used as one indicator of poverty in a mapping exercise to show the spatial variation of poverty across small geographic areas, for example villages and GN divisions. This could help show clusters of high food insecurity and vulnerability and therefore contribute towards better targeting of poverty alleviation interventions at the local scale. Further research however must be carried out to investigate this possibility.

To apply to natural disaster situations, the food security indices may need further modifications. This is another line of research that would be timely to follow up on in the future, as adaptations of local communities to climate change and natural disasters especially in the coastal regions of the world, is high on the international political and research agendas (SANDEE, 2005). Assessing the possibilities of developing a vulnerability index to measure how people cope in the case of a natural disaster based on these indices would therefore be a useful exercise.

With respect to the personal well-being index, future work could see an improved version of the index that picks up more subtle differences in factors that influence how people feel by differentiating overall subjective well-being into more than just a two-point scale. There is also an interesting relationship that emerged between the personal well-being and wealth rank variables that would be worth exploring further, especially in terms of their combined value for measuring aspects of poverty in natural resource use/management systems. While the personal well-being approach appeared to be accepted and understood by the community group in my study site, it would be important to ascertain its cultural sensitivity by testing it with other ethnic and cultural groups.

In terms of coastal resource management initiatives, the use of indices and tools such as those developed in my study, to better target the poor and more vulnerable groups in the community could prove useful to evaluate whether these groups are actually benefiting from the management process. My research for example showed that involvement of poor groups in initiatives such as SAM, did not necessarily translate to deriving benefits at the household level. If individuals feel that they are not benefiting, they are unlikely to remain involved in the process in the long term. This would undermine the overall success and sustainability of these initiatives. Moreover, as social and psychological factors appear to play an important role in the decisions an individual makes, natural resource management needs to adopt a more people-centred approach that takes these factors into consideration, to be sustainable in the long-term. In this context, further exploration of the concepts, indices and tools tested in my study could prove valuable.