

## **Chapter 7**

# **Using a Personal Well-being approach to measure Livelihood Sustainability at the Household Level**

### **7.1 Introduction**

Personal well-being is one dimension of a sustainable livelihoods system which has been rarely investigated especially in the context of coastal resource management. In this chapter I develop a simple personal well-being index and attempt to relate the way people feel overall to various factors that are linked to different aspects of their livelihood systems. The chapter illustrates that both quantitative and qualitative methods can be used to determine what factors influence the overall personal well-being and well-being of individuals. It demonstrates that the personal well-being index can reveal useful and complementary information regarding livelihood sustainability at the household level once some background knowledge and understanding of people's lives and their constraints and aspirations has been established. The study reveals that there were a number of categories or domains that influenced how people feel in the study area but that not all these domains are considered of equal importance. Other measures of well-being are shown to give significant relationships with the personal well-being index but have different explanatory powers thereby indicating that they are capturing different aspects of personal well-being.

### **7.2 Background**

While there are many definitions of personal well-being used in human development literature, in the context of my study personal well-being is defined as the subjective feelings such as depression, fear, hope and happiness that fundamentally determine people's satisfaction with life and their level of security. The definition I use is closely linked to the subjective well-being concept, where subjective well-being is defined as the well-being declared by a person, based on the person's answer to a question or a group of questions based on his or her well-being (Rojas, 2004). Well-being is viewed as being multi-dimensional and constitutes both psychological and materialistic dimensions (or domains). According to Jackson and Marks (1999), human well-being is related to the satisfaction of human needs. Maslow (1954) classified human needs in the form of a

hierarchical pyramid – with basic human needs (such as air, water, food and shelter) at the base of the pyramid, social needs (such as safety and security) in the middle and moral and spiritual needs at the top of the pyramid. According to Max-Neef (1991) human needs can be organised into 10 major dimensions which could be satisfied at the individual or community level.

The measurement of well-being has been covered comprehensively in the “quality of life” research. Here, a numerical value is usually given to an individual’s subjective perceptions, thereby making it possible to compare perceptions across different contexts and situations (White and Pettit, 2004). Participatory approaches are generally used in research of this nature.

Rojas (2004) defined six domains of subjective well-being; job, consumption, health, family, friendship and pursuing ones goals. The question, “taking everything in your life into consideration, how happy are you?” was administered and a Likert ordinal scale giving seven options from very unhappy to extremely happy used to record people’s responses. Findings of the study indicated that not all six domains of life were equally important to subjective well-being. All domains were positively correlated with well-being and therefore greater satisfaction in any of the domains resulted in a higher level of well-being. But as correlation coefficients were relatively low, it meant that all six domains were important but none of them individually good determinants of subjective well-being.

Ruta *et al.* (1994) designed the person generated index (PGI), where individuals themselves specify domains of life that are important to their well-being and then assess their performance in respect to these. This method shows sensitivity to the local culture and social context of respondents and also makes it possible to compare well-being within and between communities. For example in terms of the frequency with which different domains are mentioned and the range of scores that they obtain (White and Pettit, 2004).

The index I develop in this study incorporates a multi-dimensional approach to personal well-being, but was not pre-determined and instead based on the responses obtained from the questionnaire survey. Responses were placed in seven categories - income related; livelihood activity related; expenses related; living conditions; composition of family;

health, psychological and social issues; and environmental issues. While these categories reflect well-being and ill-being dimensions cited in the literature, the personal well-being index reflects how individuals at my study site view their well-being.

## **7.3 Methodology**

### **7.3.1 Overview of Methodology**

A semi-structured questionnaire was initially developed after consultations with specialists familiar with psychometric tests and general psychology questionnaires. Thereafter a total of five household interviews were held in each of the study sites, with both male and female respondents in each household, as part of a pilot study. The draft interview outline was discussed in detail with the community field assistants prior to piloting and useful input was provided by them in terms of how to phrase particular questions based on local realities and experiences, to help ensure that the interviewee and I had the same understanding of the questions posed. During the piloting of the semi-structured interviews, the field team and I had several discussions on how to further improve the semi-structured questionnaire based on our preliminary findings. While this exercise was undertaken six months after I had initiated my field work and I had gained some background knowledge about the people in the study site, the local knowledge of the community field assistants proved to be invaluable in guiding the changes that were required to be made with the interview outline and content. Overall, results from the household interviews revealed that respondents were able to answer the questions posed without much difficulty and understood the nature of the type of information that was required as most appeared to find the concept of personal well-being easy to grasp. Through these semi-structured interviews I was able to get a general idea of how community members felt about certain issues.

Some of the major factors that influenced how individuals felt in the present and in the past were related to social issues (being unhappy due to a member of the household being an alcoholic or being happy because they had successfully arranged good marriages for their children); livelihood activities (for example being unhappy due to having a lower wage as hired help in the fishing industry or being happy because of obtaining a good price for their sea fish catch); economic status (for example being unhappy due to being

unable to make ends meet and the high cost of living or being happy due to having the finances to purchase their own boat); environmental factors (for example being depressed because the Kalametiya lagoon was shrinking and therefore being more difficult to get a good catch of fish or due to their crop being destroyed due to the drought) and institutional and legislative factors (being unhappy due to the ban on the lobster fishery during certain months of the year) and so on. More vulnerable households seemed to find it more difficult to predict how they would feel in the future, as they viewed the present to be very bleak and thought more on a day-to-day basis. Goals and aspirations in these individual's lives also based around enhancing their livelihoods and economic status and resolving social problems.

A draft personal well-being questionnaire was then prepared taking into consideration the findings from the preliminary household interviews and piloted in five households per site. Households that were not part of the survey sample were used for this pilot. A five-point ordinal scale from unhappy to very happy was tested during the pilot but all the respondents appeared to find it difficult to use and tended to think of themselves as being either unhappy or happy, so in the final questionnaire the scale used was a two-point ordinal scale. The personal well-being questionnaire once finalized thereafter was administered over a two month period. As in the case of the other household surveys, my sample comprised of 35 households in each of the 6 villages under investigation. I interviewed both a male and female respondent in each household to determine whether there were gender differences in terms of personal well-being and well-being. The questionnaire was administered separately to individuals in a house, in a manner where responses could not be overheard, so that this could not influence their answers.

### **7.3.2 Comments on Methodology**

While the well-being of the poor may have broad commonalities across the world, it is clear that indicators of personal well-being and ill-being are community-specific and therefore are likely to differ even within one country, depending on the context. For instance, what is indicative of well-being to an individual in the capital city of Colombo, would differ greatly from what an individual in a rural part of Sri Lanka would perceive. Therefore to develop suitable indicators of personal well-being and security of the community under investigation, I initially planned to first carry out some household

interviews and focus group discussions to get an understanding of how these coastal communities perceive their own personal well-being.

However since a fair amount of the information that was collected during the preliminary interviews was of a somewhat personal nature, I did not believe that individuals would feel comfortable discussing some of these issues in the presence of a group, and therefore decided not to undertake focus group discussions in this instance. Moreover the interviews gave a clear idea of what revisions would be necessary in the questionnaire and therefore there was no need to hold the FGDs.

The aim of the household questionnaire was to score each individual in the selected sample as to how they perceive themselves (their happiness, aspirations, fears, contentment, etc) in terms of their personal well-being and well-being. I attempted to relate their perceptions to factors such as their wealth, primary livelihood activity, age, gender, food security scores and the participation in collaborative management processes such as Special Area Management (SAM). See Annex 3.5 for the personal well-being questionnaire.

### **7.3.3 Development of a Personal well-being Index**

Based on their answer to the question, “how do you feel about life in general now?” each respondent was given a personal well-being (PS) score of 1 (feeling positive) or 0 (feeling negative), at the time the questionnaire was administered (present). To evaluate what was influencing how the respondents felt, they were requested to list and then rank the reasons why they were feeling either positive or negative. For coding purposes, factors were broadly divided into 7 categories or domains, reflecting both the material and psychological dimensions attributed to personal well-being in the literature (income related; livelihood activity related; expenses related; living conditions; composition of family; health, psychological and social issues; and environmental issues). See Annex 7.1 for the categorization of responses.

Although a more complex index could have been developed, this simple index was deemed the most suitable for this particular study giving an overview of what factors influenced an individual’s personal well-being in terms of their overall livelihood system.

It also reflected well the perceptions of well-being expressed by individuals at the site. Since I did not find a precedent in the literature on ways of measuring personal well-being in the past, I tested the same method in this context, by asking respondents how they felt overall 10 years ago and giving them an overall score of 1 (positive) or 0 (negative).

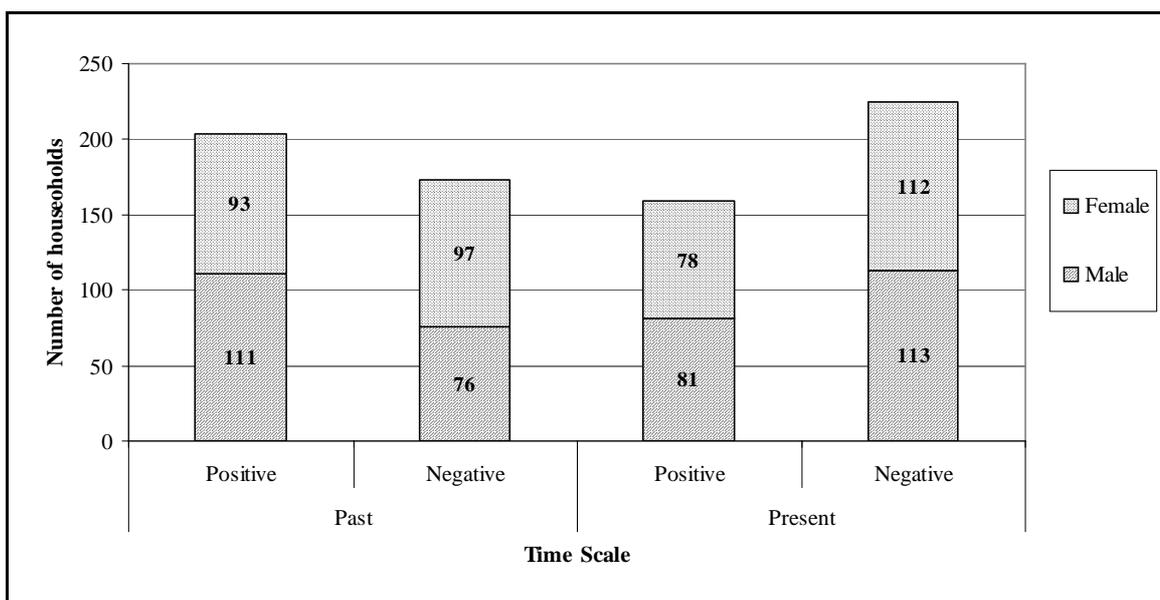
A crude score was developed for the total sample of males and females whereby a category or domain was given 4 if ranked first, 3 if ranked second and so on and the scores added up by category. This was useful to investigate broad gender differences in perception of well-being and what factors contributed towards males and females feeling in a particular manner. The factors affecting whether people felt positive or negative were then evaluated using logistic regressions.

## **7.4 Results**

### **7.4.1 Perceptions of well being at present and in the past**

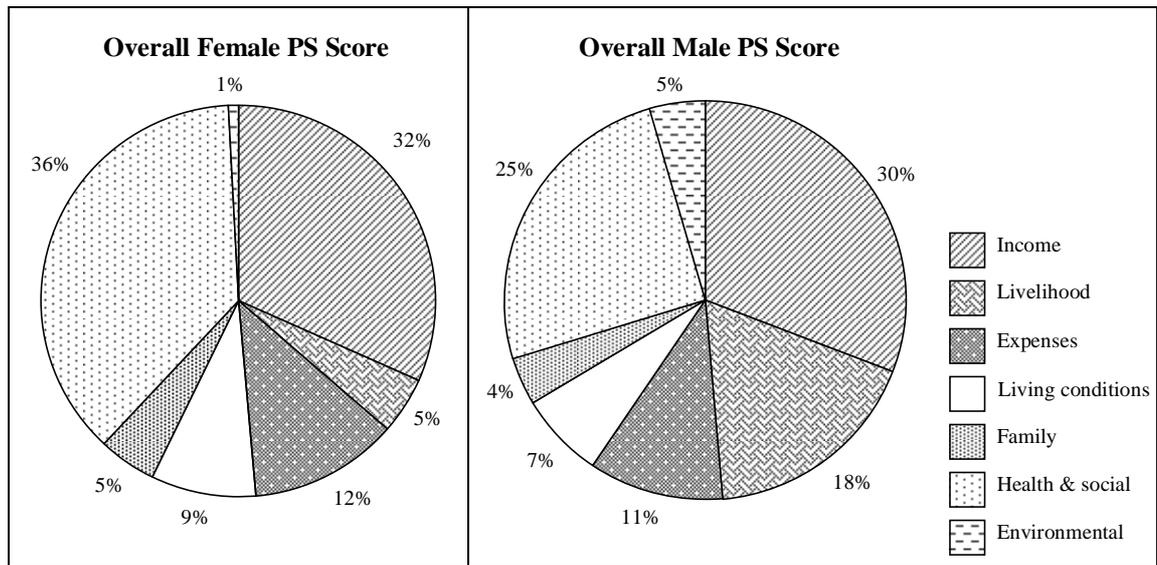
Results indicated that at the time of the survey a larger number of respondents were feeling 'negative' overall than 'positive', with about 59 % of the respondents feeling negative, compared to 46 % who felt negative 10 years before. From a gender perspective, a chi-squared test showed that there was no significant difference between the number of male and female respondents that felt positive or negative at present ( $P=0.97$ ), while there was a significant difference in the way male and female respondents felt in the past ( $X^2=3.7, 1 \text{ df}, **$ ). It appears therefore that at present a majority of both males and females feel more negative about life, while in the past, fewer people overall felt negative about life, but more females felt negative than males (see Figure 7.1).

**Figure 7.1: Perceptions of well being at present and 10 years ago**



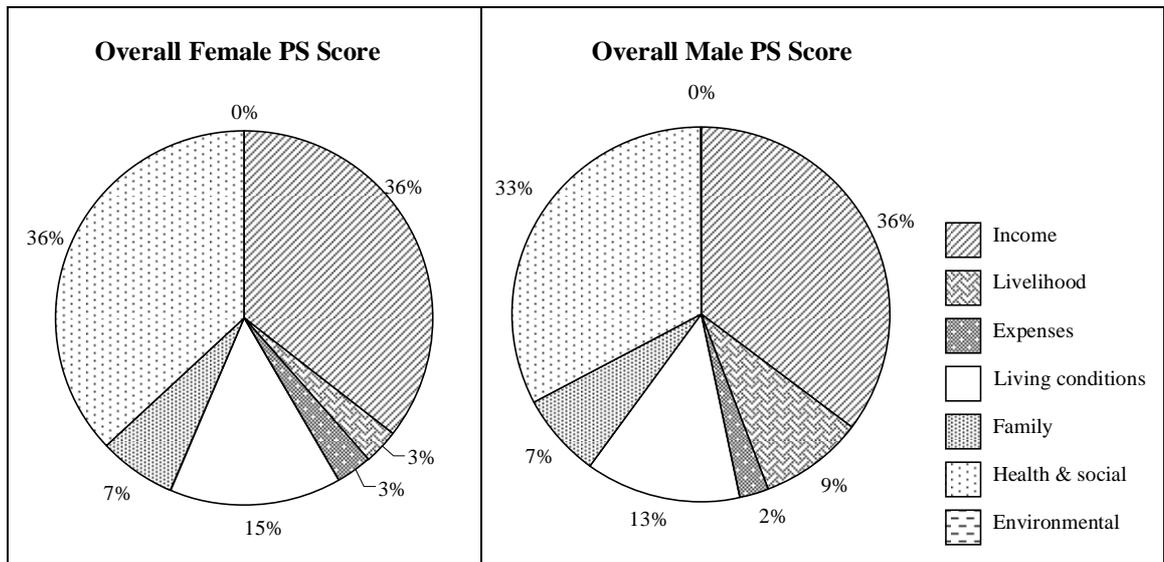
In the case of the majority feeling negative at present (Figure 7.2), factors in the health, psychological and social issues category and the income related category were the most frequently mentioned and given the highest ranking by females (amounting to 36% and 32% respectively of the overall PS score), and males (25% and 30% of the overall PS score). Reasons mentioned by both genders in relation to health and social issues were: bad health or spouse's bad health, a family member deceased, a family member leaving home (for employment purposes usually), strained relations between family members and being old. In addition, in the case of females, the spouse (primary income-earner) dying and not being able to arrange good marriages for children were two other important issues highlighted. Income related issues highlighted by both genders were being unemployed or obtaining an unstable income that was inadequate to meet household expenses. For males, in addition to the above mentioned two categories primary livelihood activity related issues were also ranked high (18% of overall PS score). Specific reasons given were income being low due to poor fish or shrimp catches and also having to engage in non-permanent labour work.

**Figure 7.2. Overall Negative Personal well-being Scores for Females and Males during the time of the survey**



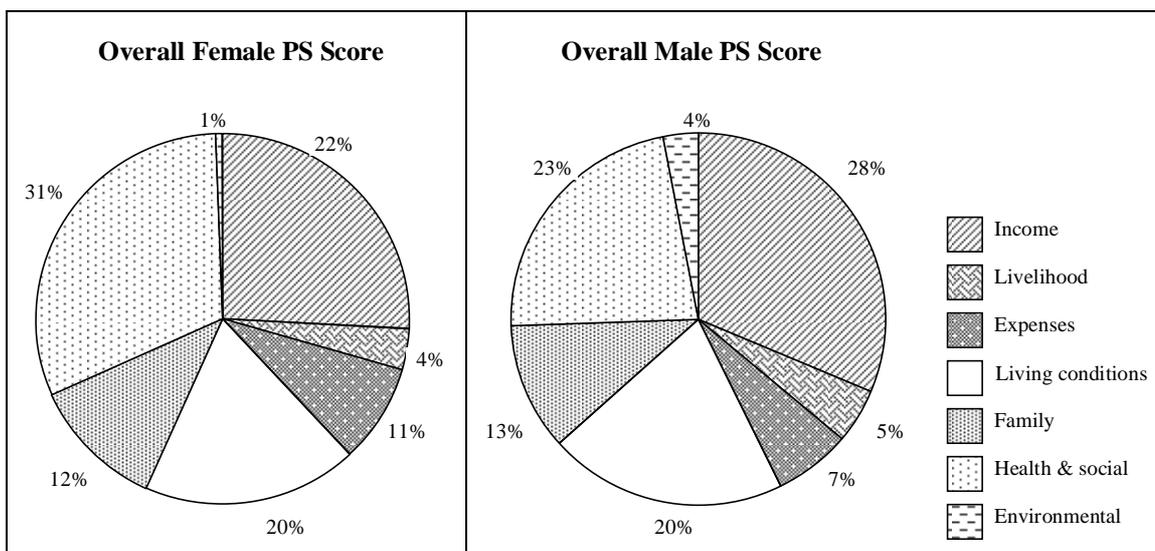
In terms of those feeling positive at present (Figure 7.3), the factors most frequently with the highest ranking were: income related issues for both males and females (36% of overall PS score in both cases), followed by health, psychological and social issues (36% females and 33% males). Some of the specific reasons mentioned in relation to income related issues were: having a good income that was adequate to meet household expenses and having a stable income. In terms of the health, psychological and social issues category, reasons highlighted were: having a caring and understanding spouse in addition to good relations between family members – where children and parents helped each other. Therefore informal social safety nets at the household level were considered important by both genders. In the case of males, living conditions also had a relatively high PS score and the main reasons indicated were the ownership of their own house and/or land.

**Figure 7.3. Overall Positive Personal well-being Scores for Females and Males during the time of the survey**



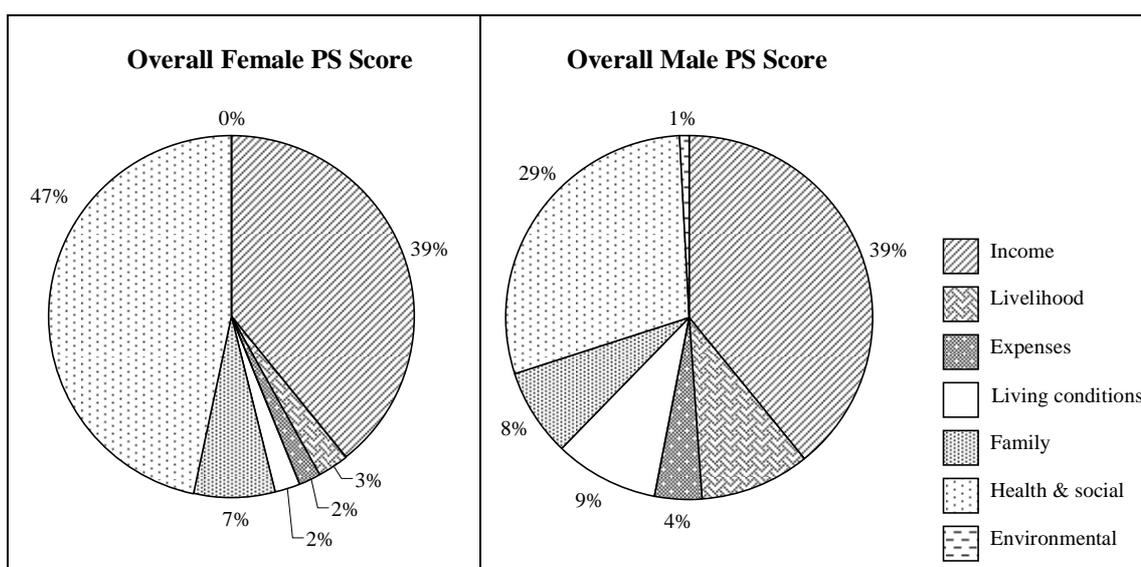
In the past while fewer people were feeling negative overall compared to the present, a similar pattern emerged in terms of factors influencing what made both genders feel negative, with income related and health, psychological and social issues being mentioned most frequently and ranked the highest (see Figure 7.4). Living conditions were also considered important to how individuals felt overall in the past, with not owning their own house/land or having only a temporary structure as a house being cited most frequently by both genders.

**Figure 7.4. Overall Negative Personal well-being Scores for Females and Males 10 years prior to the time of the survey**



In the case of those feeling positive in the past, similar categories of factors were mentioned for both genders as in the present (Figure 7.5). In regard to income related issues, a good income that is adequate to meet household expenses, being employed and having a stable income were the most frequently mentioned reasons. For the health and social issue category, once again good relations with family members and having a caring and understanding spouse were considered to be the most important.

**Figure 7.5. Overall Positive Personal well-being Scores for Females and Males 10 years prior to the time of the survey**



#### 7.4.2 Association between the male and female personal well-being in a household

The above findings indicated that overall at the community level, there were similar factors influencing how both genders felt in the past and the present. To investigate whether this was true at an individual household level, a chi-squared test was carried out to test whether there was a significant association between the personal well-being scores of the male and female heads of households in the present context. Only households where both genders had responded could be taken into consideration<sup>27</sup>. The test showed that there were significant associations between the responses of members of particular households ( $X^2=54.4$ , 1 df, \*\*\*). Likewise, when a logistic regression was undertaken with the PS score as the dependent variable, as expected, with both genders, spousal PS scores show a high co-linearity (a positive B value), indicating that individuals from the same household are strongly influenced by each others perceptions on life. Another explanation could be that both are shaped by the same determinants (see Table 7.1).

**Table 7.1. Relationship between Spousal PS scores in the present context**

Indices (Independent Variables)	Significance of model	Model correctly predicting % respondents	R square	B value
Spousal PS score present	0.000	78.5%	37.5%	+2.546

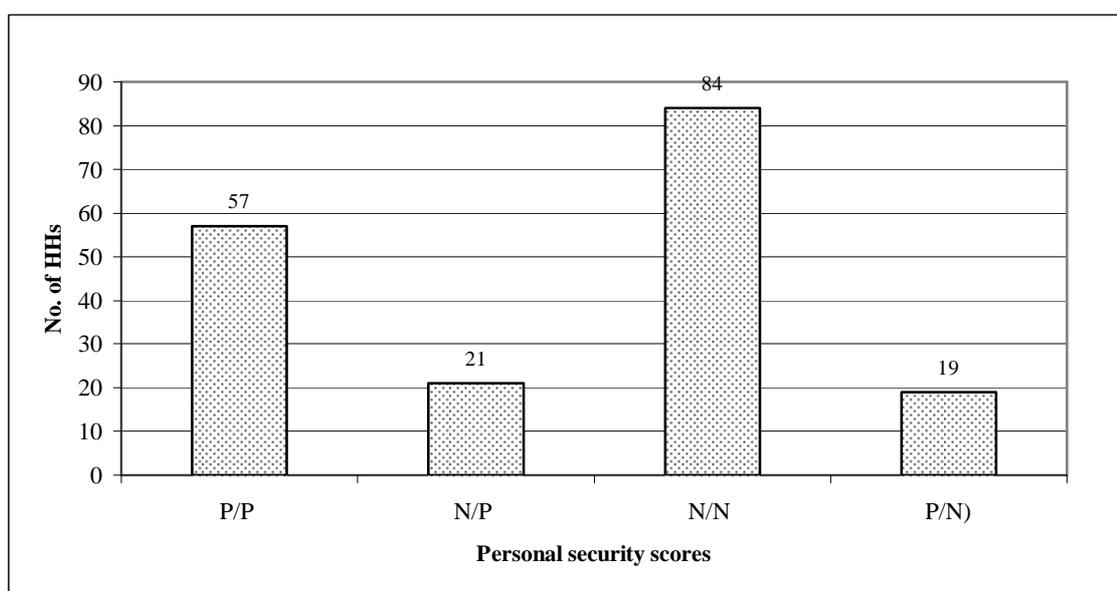
As shown in Figure 7.6, 78% of households, both partners felt the same way (141/181 households), and in 60% of these households, both partners felt negative. There were substantially fewer households in which the partners felt differently. There were no gender-specific trends in these households; in 48% of them males were the positive partner, and in 52%, females were. When a qualitative check was undertaken to determine whether there were any specific factors contributing to differences in responses in the same household, it was clear that age was an important factor. For example in households where the mother and son responded or the father and daughter, in general the older respondent felt more negative about life, possibly due to having more financial and social commitments. In other cases, males were unhappy due to livelihood related factors such as a low fish catch, not owning their own boats and gear or being hired help in the

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<sup>27</sup> 14 female-headed households, 6 households where the females were employed abroad and 7 households where for various reasons only one respondent was available during the time of the survey were removed for this test

fisheries industry, while females were unhappy about family members leaving home for employment and anxious about the future, particularly securing their children's future through education and arranging good marriages.

**Figure 7.6. Overview of households with Positive (P) or Negative (N) personal well-being scores for both genders (male/female) in the present context**



In the same manner, a chi-squared test was carried out to test whether there was a significant association between the personal well-being scores of the male and female heads of households in the past (see Figure 7.7). As in the previous case, only households where both genders had responded could be taken into consideration<sup>28</sup> The test showed that there were significant associations between the responses of members of particular households ( $X^2=30.33$ , 1 df, \*\*\*). A logistic regression reconfirmed this showing high co-linearity of PS scores within a household (see Table 2).

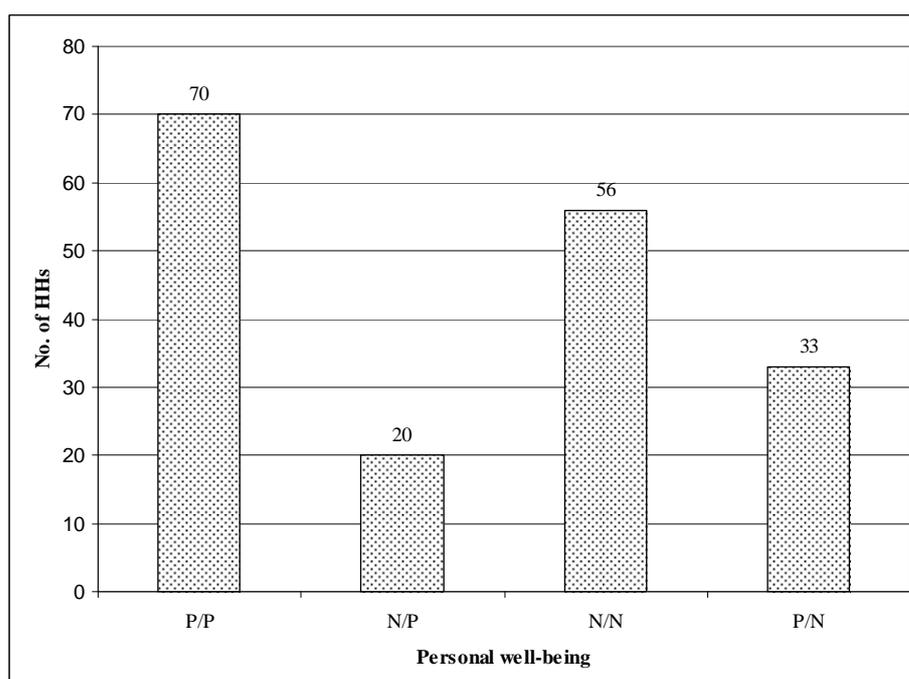
**Table 7.2. Relationship between Spousal PS scores 10 years before the survey**

Indices (Independent Variables)	Significance of model	Model correctly predicting % respondents	R square	B value
Spousal PS score present	0.000	70.4%	21.4%	+1.782

<sup>28</sup> In this instance 15 female-headed households, 6 households where the females were employed abroad and 9 households where only one respondent was available during the time of the survey were removed for this test

As indicated in Figure 7.7, 70% of households, both partners felt the same way (126/179 households), but unlike in the case of the present context, in a larger percentage of these households (56%) both partners felt positive not negative. There were fewer households in which the partners felt differently. In a majority of these households (62%) it was the males who stated that they had felt positive in the past as opposed to the females. When a qualitative check was undertaken on the main reasons given for males feeling positive, primary livelihood related factors such as a better fish or shrimp catch than at present, a good income and also the cost of living being lower appeared to be important factors. Reasons for feeling negative in the past were similar to those mentioned in the present for both genders.

**Figure 7.7. Overview of households with Positive (P) or Negative (N) personal well-being scores for both genders (male/female) in the past**



#### 7.4.3 Personal well-being at the community level

In both the past and present contexts, the mean PS scores for both Rekawa and Kalametiya indicate that overall females were more negative than males (Annex 7.2). However at the village level this is not always the case. For example, in the Gurupokuna (Kalametiya site) males show a higher mean negative score than females in both the

present and past, while in the present, males at Boraluwagoda (Rekawa site) were more negative. In Gurupokuna a majority of fishers in my sample were hired help and this may have led to the high negative score. Therefore when a qualitative check was undertaken in Gurupokuna for the present, livelihood related factors (such as not owning fishing boats or gear, involved in small-scale coastal fishery as opposed to deep sea fishery and income being low due to poor fish catch or banning of lobster fishery during certain times of the year) and income related factors (such as an unstable income that was not adequate to meet household expenses) were mentioned. For the past, while income related factors once again contributed to a high negative PS score, living conditions (mainly not having a permanent house) were also mentioned. In Boraluwagoda also livelihood related factors were contributing to the high mean negative PS score at present, with many indicating that they were engaged in casual labour work and therefore income was not stable. In the past they indicated that they depended more on fishing (both lagoon and sea) and that fish and shrimp catch was better, therefore ensuring that they had a relatively good income.

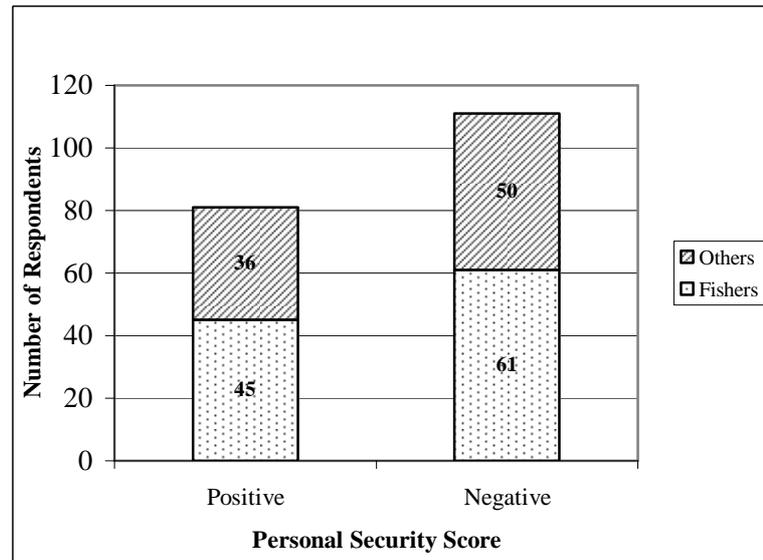
#### **7.4.4 Personal well-being of the Fishing Sub Population**

To illustrate what types of relationships existed between personal well-being and households belonging to one livelihood category, I investigated what factors influenced how the sub-sample of fishing households<sup>29</sup> felt about life at present. As discussed previously in Chapter 5 Section 5.4.3.6, I focused on fishing households since this was the major livelihood activity in the study site. While I categorized households into four livelihood categories (see Chapter 5, Section 5.4.3.5), in this case, those belonging to all other livelihood categories were classified as ‘others’. Only male respondents were considered as they were the household members engaged in the fisheries industry. The findings indicated that while a majority felt negative about life, a similar percentage (58%) of respondents from both the fishers and ‘others’ category felt this way (Figure 7.8).

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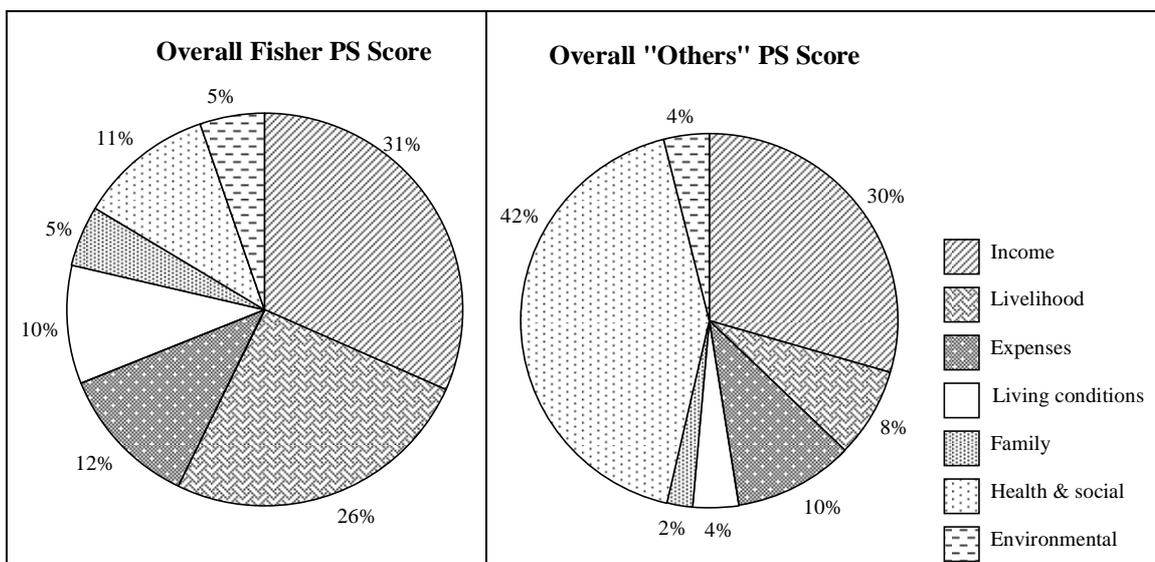
<sup>29</sup> households where at least 10% of the total income was derived from fishing activities

**Figure 7.8. Perceptions of well-being at Present between Fishers and Others at Present**



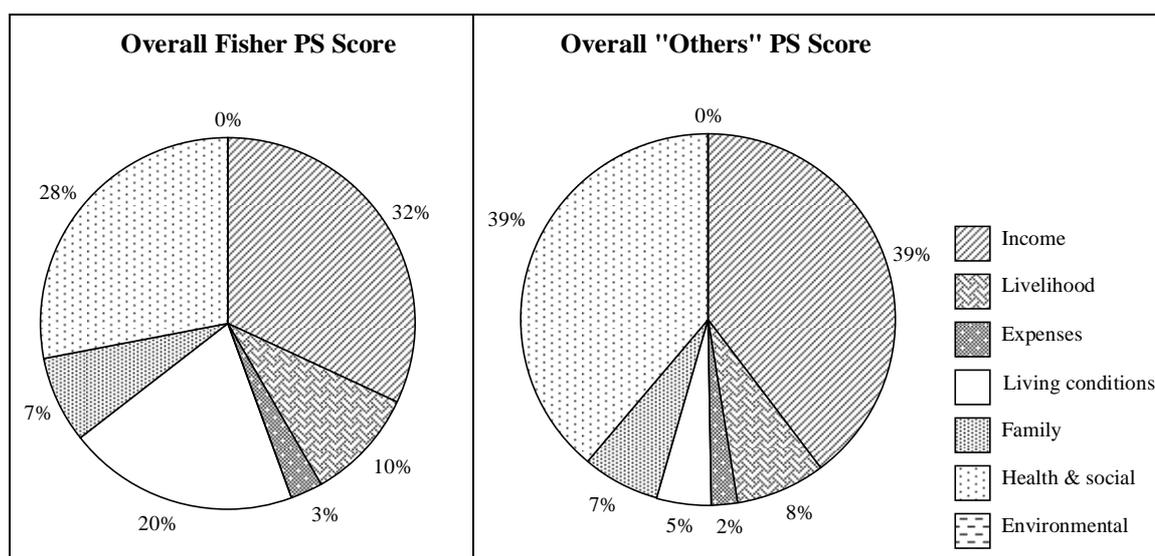
However, when assessing factors that contribute to an individual feeling negative, differences emerged in the two groups (Figure 7.9). For example while income related factors scored the highest amongst both groups, primary livelihood related issues scored highly (26%) in the case of the fishers, and for the 'others' category, it was health and social issues that scored highly (42%) not livelihood activities. Fisheries livelihood related issues therefore played a major role in determining how fishers felt about life, and the major reasons given were income being low due to poor fish or shrimp catch, not owning their own fishing boat or gear and having relatively low wages due to being hired help.

**Figure 7.9. Overall Negative Personal well-being Scores for Fishers and Others during the time of the survey**



In the case of those feeling positive, while income and the social and health issues categories scored the highest rankings for both groups, for fishers, living conditions also scored highly (see Figure 7.10). Owing their own house and land as well as having a completed house were mentioned as being particularly important to fishers.

**Figure 7.10. Overall Positive Personal well-being Scores for Fishers and Others during the time of the survey**



#### **7.4.5 Relationship between Present Personal well-being scores and other measures of well-being**

To determine how well the personal well-being index correlated with other measures of well-being, binary logistic regressions were undertaken with the PS score obtained at the time of the survey as the dependent variable. Different predictors were found to be important for the two genders. For the females, the best predictor of personal well-being was the STAS variable, followed by wealth rank (see Table 7.3). For males, wealth rank was the best predictor of personal well-being followed by the STCS and welfare variables (see Table 7.4). It was interesting to note that both long-term security indices were non-significant for males and females in terms of personal well-being. The  $R^2$  values were in general very low which meant that there was a lot of unexplained variability in the data. Also the  $R^2$  values were generally better (higher) for females.

In the case of both males and females, wealth rank, welfare and STCS variables show a negative correlation (as the B values were negative) and this suggested that individuals who were poorer, more food insecure and recipients of a government welfare scheme were more likely to feel negative about life than positive. Likewise, for both genders, the STAS variable shows a positive correlation, which meant that respondents that were more food secure were more likely to feel positive overall. Other well-being related variables such as income gave a significant result, in the case of females (indicating that those with a higher income were more likely to feel positive about life). For males however the income variable did not give a significant result, possible due to the very high level of unexplained variability in the data (low  $R^2$  value). Variables that gave significant results with wealth rank such as household and livelihood assets as well as house type, source of water, source of electricity (see Chapter 5, Section 4.3.3), were not included in this analysis as wealth rank was considered a composite variable that acted as a proxy for all these variables.

**Table 7.3. Logistic Regressions of the Female Present PS score Present as the dependent variable and other well-being related predictor variables**

Indices (Independent Variables)	Significance of model	Model correctly predicting % respondents	R square	B value
STAS	<b>0.000</b>	67.2%	16.9%	+0.851
Wealth Rank	<b>0.000</b>	63.3%	10.5%	-0.6287
Income	<b>0.000</b>	62.1%	11.2%	+0.000
Welfare	<b>0.025</b>	60.7%	3.7%	-0.732
STCS	<b>0.005</b>	57.4%	5.5%	-0.217
LTCS	0.253	58.6%	0.9%	-0.109
LTAS	0.109	58.3%	1.8%	+0.052

**Table 7.4. Logistic Regressions of the Male Present PS score Present as the dependent variable and other well-being related Predictor Variables**

Indices (Independent Variables)	Significance of model	Model correctly predicting % respondents	R square	B value
Wealth Rank	<b>0.000</b>	62.4%	12.0%	-0.650
STCS	<b>0.005</b>	60.1%	5.7%	-0.245
Welfare	<b>0.029</b>	60.1%	3.5%	-0.717
STAS	<b>0.007</b>	59.5%	5.1%	+ 0.386
LTAS	0.065	60.6%	2.5%	+0.053
LTCS	0.372	59.7%	0.6%	+ 0.079
Income	0.902	56.9%	0%	+0.000

#### **7.4.6 Relationship between Present Personal well-being Scores and some demographic, livelihood and policy related variables**

To determine whether there are any significant relationships between how individuals feel about life and other variables seen to have a positive univariate relationship with the PS scores, binary logistic regressions were undertaken (for male and female respondents separately). In the case of both genders, age shows a negative correlation (as the B values were negative) and this suggests that older respondents are more likely to feel negative about life than positive. Other demographic variables such as household size, dependency ratio, caste and being a female-headed household showed non-significant results, as did CZM policy related variables such as being involved in the SAM process or benefiting from SAM. It was interesting to note that variables related to livelihood type, specifically

fishing gave significant results for females but not for males. This is probably due to the higher levels of variation found in the male PS scores (lower R<sup>2</sup> values) than for females.

**Table 7.5. Relationship between Female PS score and some socio-economic and policy related variables**

Indices (Independent Variables)	Significance of model	Model correctly predicting % respondents	R square	B value
Age	<b>0.035</b>	59.2%	3%	-0.024
Fishing	<b>0.033</b>	58.9%	3.1%	+0.071
Dependency ratio	0.157	59.8%	1.5%	+0.970
Caste	0.449	59.5%	1.1%	-0.000
Female-headed household	0.123	59.4%	1.6%	-0.791
SAM involvement	0.104	59.4%	1.8%	+0.486
SAM benefit	0.429	59.4%	4%	+0.316
Natural resource use	0.115	59.4%	1.7%	-0.066
Other livelihoods	0.337	59.4%	0.6%	-0.035
Household size	0.510	58.1%	0.3%	-0.058

**Table 7.6. Relationship between Male PS score and some socioeconomic and policy related variables**

Indices (Independent Variables)	Significance of model	Model correctly predicting % respondents	R square	B value
Age	<b>0.049</b>	60.2%	2.7%	- 0.021
Dependency ratio	0.145	58.7%	1.6%	+1.037
Female-headed household	0.696	57.8%	0.1%	+0.325
SAM involvement	0.751	57.8%	0.1%	-0.095
SAM benefit	0.447	57.8%	0.4%	+0.300
Fishing	0.931	57.8%	0%	-0.003
Natural resource use	0.347	57.8%	0.6%	-0.040
Other livelihoods	0.356	57.8%	0.6%	+0.034
Caste	0.762	56.5%	0.4%	-0.318
Household size	0.128	56.4%	1.7%	-0.137

#### 7.4.7 Factors affecting Present Personal well-being scores

A logistic regression was undertaken to determine the relationship between the PS scores and the factors that may predict personal well-being based on the results obtained above (Section 7.4.6). The PS score was considered the dependent variable and in each case the models were run in the following sequence. I started with a general model:

- **PS Score VS SITE + VILLAGE\*SITE + AGE+ WELL-BEING + AGE\*WELL-BEING**

The age\*well-being interaction was included to test for any relationship between these factors, because of the a priori likelihood that an interaction might exist. Due to the low degrees of freedom, other interaction terms were not included in the general model. I included each well-being indicator as an explanatory variable in turn, to see which well-being indicator has the strongest relationship with PS score, when geographical and age-related variation has been accounted for.

Variables or interactions that showed non-significant results were removed from the model (by doing a backwards stepwise elimination). The summary results are shown in Table 7.7.

With the exception of the STAS variable for females, with all other well-being indicators for both males and females, site and village gave non-significant results which suggested that there were no significant differences in how people felt at the time of the survey in the two sites and also no systematic difference between how people felt between villages in a particular site. While differences were observed in terms of which well-being indicators gave a higher degree of explanatory power for the two genders, in both cases wealth rank and the STAS variable fitted the model better than welfare and the STCS variables. Therefore the concept of short term accumulation and wealth rank appeared to be better predictors of personal well-being and there were subtle differences between wealth rank and welfare as well as between STCS and STAS. The personal well-being index may be picking up on these differences. In the case of STAS for females there also appeared to be a significant difference in how females felt about life when site and age variations were taken into consideration. In both genders there was an interaction observed between age and the STAS, which meant that the effect of STAS varies with

age; for older respondents the STAS variable has a stronger effect on how positive they feel about life. No interaction was observed between age and wealth rank possible because wealth rank is a more stable condition experienced by the household than short-term security indices and people respond more to uncertainty. In the case of males, a similar interaction was also observed between age and STCS; indicating that the older the respondent the more strongly the STCS affected how negative they felt about life.

The results also indicated that in general for both males and females the well-being indicators developed in my study using participatory techniques (wealth rank, STAS, STCS) gave a higher degree of explanatory power of personal well-being than the traditional indicators of well-being such as income.

**Table 7.7. Summary of log regression results showing the significance of different well-being related variables and overall direction of results for Females and Males**

<b>Best STAS model for PS Female (PSF) = Site + Age + STAS + Age*STAS</b>								
Indices	Site	Site*Village	Age	STAS	Age*STAS Rank	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS F	0.021	NS	0.003	NS	0.000	<b>0.000</b>	70.2%	21.7%
B value	+0.780		-0.039		+0.021			
<b>Best wealth rank model for PS Female (PS F) = Age + Wealth rank</b>								
Indices	Site	Site*Village	Age	Wealth Rank	Age*Wealth Rank	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS F	NS	NS	0.032	0.000	NS	<b>0.000</b>	66.8%	14.3%
B value			-0.026	-0.659				
<b>Best welfare model for PS Female (PSF) = Age + Welfare</b>								
Indices	Site	Site*Village	Age	Welfare	Age*welfare	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS F	NS	NS	0.065	0.025	NS	<b>0.014</b>	64%	6.3%
B value			-0.022	-0.0745				
<b>Best STCS model for PS Female (PSF) = Age + STCS</b>								
Indices	Site	Site*Village	Age	STCS	Age*STCS	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS F	NS	NS	0.013	0.004	NS	<b>0.001</b>	62%	9.7%
B value			-0.030	-0.237				
<b>Best Income model for PS Female (PS F)=Site + Income</b>								
Indices	Site	Site*Village	Age	Income	Age*Income	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS F	0.061	NS	NS	0.000	NS	<b>0.000</b>	60.4%	13.7%
B value	-108.22			-114.22				

<b>Best wealth rank model for PS Male (PSM) = Age + Wealth rank</b>								
Indices	Site	Site*Village	Age	Wealth Rank	Age*Wealth Rank	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS M	NS	NS	0.047	0.000	NS	<b>0.000</b>	64.9%	14.5%
B value			-0.023	-0.668				
<b>Best STAS model for PS Male (PSM) = Age + STAS + age*STAS</b>								
Indices	Site	Site*Village	Age	STAS	Age*STAS	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS M	NS	NS	NS	0.009	0.063	<b>0.005</b>	63.2%	7.6%
B value				1.035	-0.014			
<b>Best STCS model for PS Male (PSM) = Age + STCS + Age*STCS</b>								
Indices	Site	Site*Village	Age	STCS	Age*STCS	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS M	NS	NS	0.085	NS	0.003	<b>0.001</b>	62.8%	10.4%
B value			-0.006		-0.019			
<b>Best welfare model for PS Male = Age + welfare + age*welfare</b>								
Indices	Site	Site*Village	Age	Welfare	Age*Welfare	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS M	NS	NS	NS	0.106	0.006	<b>0.001</b>	60.1%	9.8%
B value				1.237	-0.042			
<b>Best Income model for PS Male (PS M) = NS</b>								
Indices	Site	Site*Village	Age	Income	Age*Income	Sig. of Model	Model correctly predicting % respondents	R <sup>2</sup>
PS M	0.091	NS	NS	NS	NS	0.060	63.8%	9%
B value	0.736							

*In Table 7.7 the dependent variable is PS Present and explanatory variable age plus the different well-being variables (wealth rank, STCS, STAS and welfare).*

#### **7.4.8 Relationship between Past Personal well-being scores and other measures of well-being**

To determine whether there were any significant well-being related variables contributing toward how people felt about life 10 years prior to the survey, logistic regressions were undertaken for PS scores from the past for males and females separately (see Table 7.8 and Table 7.9). For females only the LTCS index gave significant results while for males only wealth rank gave a significant result. As expected the short term food security indices (STCS and STAS) were not significant as they reflected the household security and vulnerability in a present, short-term context. The R<sup>2</sup> values were in general much lower than those for present PS scores, indicating higher levels of variation in the data

**Table 7.8. Logistic Regressions of Females' Past PS score as the dependent variable and other well-being related Predictor Variables**

Indices (Independent Variables)	Significance of model	Model correctly predicting % respondents	R square	B value
LTCS	<b>0.043</b>	55.4%	2.9%	-0.192
LTAS	0.708	55.1%	0.1%	+0.012
STCS	0.062	54.8%	2.5%	-0.139
STAS	0.701	53.4%	0.1%	+0.012
Wealth Rank Past	0.076	52.6%	2.2%	-0.291

**Table 7.9. Logistic Regressions of Males' Past PS score as the dependent variable and other well-being related Predictor Variables**

Indices (Independent Variables)	Significance of model	Model correctly predicting % respondents	R square	B value
Wealth Rank Past	<b>0.027</b>	63.6%	3.5%	-0.392
LTCS	0.154	60.3%	1.5%	-0.133
STCS	0.965	59.1%	0%	+0.004
LTAS	0.982	59%	0%	+0.001
STAS	0.828	58.5%	0%	-0.029

#### **7.4.9 Relationship between personal well-being scores and aspirations and goals**

To determine whether there had been any major shift in an individual's goals and aspirations at present and 10 years ago, respondents were requested to indicate what their current goals and aspirations were and whether these had changed from previously. A majority of the 388 respondents (68% of males and 70% of females) stated that their goals in life had changed over the past 10 years. The changes in aspirations reflected the changes in their own situation and also their age. For example, most of the adults interviewed (both males and females) from the different wealth groups hoped to provide their children with a better education so that they could secure stable employment with good incomes as well as arrange suitable marriages for them. They also stated that they hoped for better living conditions (buy land, build well-equipped houses) and assets that would assist them to perform their livelihood activities better (for example buying fishing

boats, fishing gear). The youth interviewed aspired to get well-paying jobs and complete their education. Elderly respondents were mainly concerned about engaging in religious activities and not being a burden to their children.

## **7.5 Discussion**

From a methodological point of view, the main objective of the simple personal well-being (PS) index that I developed was to determine how the way people feel about life can be incorporated into a natural resource use context as this has been rarely done in the past. When individual PS scores were averaged at the village-level to give the mean PS score, it provided a useful way of comparing overall personal well-being and well-being between villages and sites. This could help identify particular issues that exist at a village or site level that could broadly influence how people in the area felt about life. From the responses to the questionnaire it was possible to broadly identify 7 categories or domains of life that influence an individual's PS score. Not all these domains appeared to be equally important. Interestingly the domain on social, psychological and health related issues that was least amenable to statistical analysis, featured as most important to both genders.

Results of the logistic regressions illustrated that participatory methods were useful in gaining a better understanding of concepts such as personal well-being and that indices derived from participatory methods (for example wealth rank, STCS, STAS) were better at explaining personal well-being than traditional well-being indicators such as income. These indices therefore appeared to highlight aspects of personal well-being that could not be captured by the traditional indicators.

One of the main weaknesses of the methodology was that as only a two point scale was used (based on preliminary pilot testing), it forced people to chose two extremes, whereas in the population there may have been individuals who had a more moderate sense about how they felt about life. It would have been useful to have this middle group as well when running the analyses, to determine factors that contributed to their personal well-being. Another major drawback was that in terms of the PS score for the past, to recall accurately how one felt overall about life 10 years ago was difficult and people in general tended to remember the past in a more positive light relative to the present context, even

though this may have not been the case in reality. A summary of the major strengths and weaknesses of the method adopted are given in Table 7.10.

In terms of the study site, it appeared that overall more households were feeling negative at the time of the study as opposed to in the past. Similar categories or domains of life were highlighted to be important to how people felt in both the past and present. The categories that ranked the highest were the health, psychological and social issues category and the income category. It appeared therefore that personal well-being and satisfaction with life is achieved not only through income related aspects that could help reach a better standard of living overall, but also very importantly from social aspects such as better family relations and social safety nets.

There were gender differentials in terms of how people felt – with females feeling more negative overall than males. While females appeared to be more concerned about social issues such as arranging good marriages for their children, males placed more emphasis on primary livelihood related activities such as low fish catches or not owning a boat or fishing gear. Moreover, the livelihoods related domain was twice as important for males, when feeling negative than positive and this increase in importance was not observed for females. In addition, results of the logistic regressions showed that there were differences in respect to which well-being indicators gave a higher degree of explanatory power for the two genders. But although gender differences existed, at the household level, males and females were possibly influenced by each others' perceptions of life or both are shaped by the same determinants indicated by the high co-linearity of PS scores.

Age was also an important factor contributing to how an individual felt overall during the time of the survey – with the log regressions indicating that older respondents were more likely to feel negative about life than young respondents. This is possibly as a result of older people having more social and financial responsibilities to face. In relation to the past PS scores however, age did not appear to be a significant determinant – perhaps due to recollection of how respondents felt in the past not being accurate or the fact that some of the respondents may have been very young 10 years prior to the survey.

Depending on one's primary livelihood, categories or domains of life that influenced why one felt either positive or negative also differed. For example, while a similar percentage of respondents from the fisher and "other" livelihood groups felt negative about life at present, there were differences in reasons that contributed to how these two groups felt. The income related domain was the main priority for both groups, while the livelihood related domain was the next most important for fishers, and for the "other" livelihood category, it was the social, psychological and health related domain that was the next most important.

When logistic regressions were undertaken, no significant relationships were found between how people felt and the livelihood activities they engage in. This could be due to most individuals being involved in more than one livelihood activity or individuals belonging to one livelihood category also being spread over different wealth groups (wealth ranks). However even when this issue was investigated in one livelihood category (fisher sub population) there was no significant result – for example all those engaged in lagoon fishing were not all unhappier than those engaged in the coastal fishery using one-day mechanized boats. This was also possible due to fishers being spread over the different wealth groups similar to the overall sample. In addition it would be a complex combination and interaction of factors that gave an individual a sense of overall positive or negative well-being. For example, what kind of fishing an individual was engaged in, whether he was hired help or not, what type of boat and gear he owned, whether the fishery was productive or not, these would be just some of factors that would contribute to how a fisher felt overall.

In general while there was a relationship between wealth rank and how people feel (with a higher proportion of those in better-off wealth categories feeling positive overall), there are at the same time other factors that may over-ride this and influence people to feel in a certain manner, such as gender, age, and psychological health and social issues as mentioned above. There can also be heterogeneity in perceptions of life among people – and wealth rank may act as a good indicator of well-being for a majority of the population but not for everyone. Hence there were individuals who were in the poorest wealth group feeling happy while there were others who were in the better-off wealth groups but unhappy overall with life. The same applies to the other well-being indicators developed under this study in terms of heterogeneity of perception.

Participation in coastal zone management processes such as SAM did not appear to have any significant relationship with how an individual felt about life in general. It was clear that Individuals were more concerned about social, psychological and health issues they faced rather than natural resource management issues linked to SAM. For CZM policy makers it is important to take note when devising suitable activities to implement in the area that a holistic approach will have to be adopted that will not only address peoples environmental concerns but other issues as well that affect how they feel about life which in turn will impact their decision making process.

**Table 7.10 A Summary of the main strengths and weaknesses of the methodology adopted to assess personal well-being at the at the household-level**

Strengths	Limitations
<ul style="list-style-type: none"> <li>• Personal well-being proved to be a concept that people found easy to understand and were prepared to talk about with outsiders (such as researchers).</li> <li>• An individualized approach where individuals themselves specify and rank areas (domains) of well-being that influence how they feel about life. It is therefore sensitive to local socio-economic, cultural and value systems and thereby a more realistic representation of how people in the area feel.</li> <li>• It lends it self to comparative assessments between genders, sites and livelihood groups – for example the frequency at which different categories (domains) are identified and the rankings that they receive.</li> <li>• A useful approach to use to get a better understanding of less tangible dimensions of poverty, such as psychological and social aspects that affect individuals in a household.</li> </ul>	<ul style="list-style-type: none"> <li>• The use of a two point scale to measure an individual’s PS score forced respondents to choose two extremes, whereas there may have been individuals in the sample who had a more moderate sense about how they felt about life.</li> <li>• Since personal well-being is subjective and related to an individual’s own experiences and life conditions, there is heterogeneity in perceptions of life among people – and a set of factors that makes one individual unhappy may not have the same effect on someone else. It is therefore difficult to standardize factors that influence how people feel a certain way – i.e., happy or unhappy.</li> <li>• In terms of the past PS scores, the ability for respondents to recall accurately how they felt about life 10 years ago was questionable.</li> </ul>

## **7.6 Conclusions**

The simple personal well-being scoring system developed in this study has proven to be useful in getting a better understanding of certain elements of a household's livelihood system, which are less tangible and not easy to pick up through other tools used, such as conventional surveys. For example the more subtle and underlying issues related to the social, psychological and health category or domain, were illustrated to have a major influence on how people feel and their overall well-being. Logistic regressions illustrated that well-being measures designed under this study using participatory methods (wealth rank and short term coping and accumulation indices) were better at explaining personal well-being than more conventional measures such as income and thereby helped enrich the personal well-being concept. Therefore used in conjunction with other tools and indices, the personal well-being index can reveal useful and complementary information regarding livelihood sustainability at the household level.

In the next chapter I attempt to apply the tools and indices discussed in Chapters 5, 6 and 7 to assess the impact the Asian tsunami of 2004 had on the communities in my study site and the sustainability of their livelihoods.