Chapter 6

Summary, Conclusions, and Recommendations

6.1 Summary

When we look at the events of the world, environmental problems are many and varied. Floods, droughts, pollution, earthquakes and wars have violently terminated many lives. Many disasters the world has faced and still faces push mockingly aside even the most ingenious technologies perfected by humans.

There are multiple causes both of the increasing intensity and increasing destructiveness of such events. Human abuse of the earth's natural resources, unrestrained pollution, and the release of greenhouse gases do not actually cause natural disasters, but they have clearly made them worse and more frequent.

Destruction could be eased through short term early warning systems and long-term poverty reduction productions, but none of these were in place in Myanmar at the time of Nargis. Indeed, Nargis is the epitome of what can and does go wrong when humans disregard the delicate balance between nature and human consumption patterns, and fail to anticipate or prepare for the consequences. The study area, Irrawaddy Delta was the rice bowl of Myanmar and also the rice bowl of Asia before 1962. This study of the subjective well being of small scale farmers has shown that even the people who produce food cannot feed themselves; how then can one expect them to feed others? It was for this reason that cyclone Nargis was chosen as the case study for this thesis.

Human cultures, beliefs, social interactions and ultimately happiness are all deeply affected by disasters and a set of human resources that can be used to rebuild society after wards. Throughout Myanmar, the involvement of government, nongovernmental and economic development organizations in disaster recovery has brought needed support to the victims. Some organizations have entire programs dedicated to disaster-related issues, whereas others administer recovery funding only in a limited extent. Each country or organization has its own capacity and solutions for problems. Unfortunately, however, even international relief organizations often with conditionality, such as religious conversion, which put the victims into a no-win situation.

6.2 Goals of the Research

The social motivation of this study has been to provide a statistically rigorous assessment of the impacts of cyclone Nargis for use by districts, sub district and township councils and on a national level, in the hope that such knowledge would help them to better define their role in post-disaster recovery. In the absence of before-and-after data on the same community, the scientific goal of this study has been to infer, through contemporaneous comparisons of two study areas differentially affected by hurricane Nargis, the impacts of the hurricane on physical well-being, income, income distribution, happiness and social networking.

6.3 Methods

The research has intended to make a modest but concrete contribution to the New Economics of Happiness, which, along with closely-related behavioral economics, has become one of the most rapidly growing fields within the entire science of economics. There is thus no doubt that well-being, happiness and social

capital fall squarely with the nucleus, and are increasingly recognized as the ultimate objective, of all economics. Indeed, if economics cannot promote the happiness as well as the wealth of nations, then it will ultimately have challenge to improve social utility.

Economics also deals with risk and uncertainty as one of its major themes. Therefore the present research has added the ambition of contributing some meaningful interpretation of the impacts on individual and aggregate utility of one of the most extreme forms of uncertainty in economics. It has done so by looking at the distribution of relative and absolute levels of tangible and intangible well-being. Previous research has generally been limited to questions of money and income. However, Richard Easterlin has shown that true subjective well-being ("utility") does not rise significantly with income, except at the very low end of the income distribution. Therefore income is a very inadequate yardstick of utility, well-being or happiness; and limiting this research to a monetary formulation of the utility function would severely weaken its internal and external validity.

Indeed, economics is the queen of the social sciences in that it can integrate monetary and nonmonetary, tangible and intangible concepts of utility through powerful quantitative tools. This economic research, unlike that in most other social sciences, is therefore highly quantitative. It systematically applied at various steps of the analysis a) the Foster-Greer-Thorbecke-Schoch models of the precise incidence of absolute poverty, b) the Gini and Theil estimations of relative income distribution, c) tests for significance differences of means, d) correlation matrices with tests of significance, and e) regression analyses. Taken together, the application of all these methods has explored monetary income and poverty on the one hand, and subjective

happiness and unhappiness on the other by using the profiles and characteristics of small farm households' income/consumption, health, education, and empowerment related poverty and social networking data collected 27 months after the catastrophe were compared for the significance of differences between the slightly- and heavily-affected areas.

6.4 Questions and Hypotheses

As data were limited on the period before cyclone, the research compared the two areas with different level of affected by cyclone Nargis. This research asked the five following questions:

(1) Is two years enough for a heavily affected area to catch up with a slightly affected area?

(2) Do the people in both types of area still lack basic needs?

(3) What are the economic and employment possibilities for people in both types of area?

(4) Are households under the poverty line still relatively happy?

(5) What policy recommendations can be made for national, state, local authorities, civil societies, non-government organizations, and farmers to improve the living standards of the population?

In order to answer these questions, the research proposed 14 hypotheses for testing the determinants of objective and subjective well being. The first 8 hypotheses are for the objective well being:

(1) Current levels of net farm income and self-produced income in kind are adequate to supply 2100 calories and 95 grams of protein per day per adult

equivalent for the majority of small scale farmers only in slightly affected, but not in heavily affected areas of the Irrawaddy Delta.

(2) Relative poverty (as measured by the Gini and Thiel indices) is significantly higher in the heavily Nargis affected area than the slightly affected area.

(3) Absolute poverty (incidence) is the same in both areas, but the depth and intensity of poverty are significantly higher in the heavily Nargis affected area.

(4) The principal constraints facing agricultural households in the slightly affected area, Pyapon are those of weather, whereas in the heavily affected area, Bogalay are economic income.

(5) The relative share of various sources of income have changed significantly for the Nargis heavily affected areas as compared to the slightly affected area.

(6) The intensity of food poverty significantly increases with household size, total number of problems in farming, dependency ratio, age of household head, and the intensity of Nargis damage; and decreases with acres of farmland, total number of jobs in the household and the level of education of any household member. The negative determinants of the intensity of food poverty are the simple mirror image of the positive determinants of income per capita.

(7) The levels of drinking water, sanitation, building construction, and other physical determinants of living standards are as high or higher in the heavily- than the slightly-affected areas.

The remaining six hypotheses are for the evaluation of subjective well being.

(1) The subjective well-being (happiness) of the heavily affected area is not significantly different from the mildly-affected area, suggesting that human beings rebound rapidly from disasters.

(2) The internal weighting of the sub- components of happiness differs significantly between the two areas.

(3) Around similar mean happiness levels in the two areas, there are much more severe cases of unhappiness, and hence a much worse distribution of happiness, in heavily-affected Bogalay than in slightly-affected Pyapon.

(4) People living in households with female heads are significantly more likely to experience difficulty meeting their needs than people in household heads with female heads.

(5) The social capital of both types (bridging and bonding) in the Nargis heavily-affected area has increased significantly in comparison with the slightly affected area. This should give them higher protection from disaster in the future.

(6) Access to education and to health care is significantly less good in heavily-affected Bogalay than in slightly-affected Pyapon, especially since the latter is also closer to the major city Yangon.

6.5 Results of Hypothesis Testing on Income and Tangible Living Standards

The results of testing the eight hypothesis for objective well being have confirmed that current levels of net farm income and self-produced income in kind are adequate to supply 2100 calories and 95 grams of protein per day per adult equivalent to the majority of small scale farmers only in the slightly, but not the heavily, affected areas of the Irrawaddy Delta. Absolute poverty are far worse in the heavily affected area, Bogalay Township. Relative poverty (as measured by the Gini and Theil indices) is significantly higher in the Nargis heavily-affected area. The relative share of various sources of income has changed significantly for the Nargis heavily-affected

areas as compared to the slightly-affected area. The principal constraint facing agricultural households in slightly affected Pyapon are those of weather, whereas in heavily-affected Bogalay they are economic in nature. Finally, the intensity of food poverty significantly increases with household size, total number of problems in farming, dependency ratio, age of household head, and the intensity of Nargis damage; and decreases with acres of farmland, total number of jobs in the household, highest education of any household member, and the average number of meals per household member for a day in the past seven days. These factors are not the simple opposite of the factors that increase income.

6.6 Results of Hypothesis Testing on Happiness and Social Capital

In terms of intangible well being, the research has also found that the happiness of the heavily affected area is not significantly different from the slightly-affected area, suggesting that the human beings rebound rapidly from disasters. For both areas, spiritual happiness is more than twice as important as emotional happiness, and physical happiness is less than one-third as important as spiritual happiness. Because of the religion, they enjoy their life what they have and hold the motto “Hope for the BEST and prepare for the WORST. Most of the people think that they are still lucky because they still alive and have a place to live, farm to cultivate and family to enjoy life together.

However, the internal weighting of the sub-components of happiness differs significantly between the two areas. In the heavily affected village, a dark cloud of mental anguish lingers 27 months after the passage of Nargis and overall social, bonding and bridging capital are significantly lower. People living in households with female heads are significantly more likely to experience difficulty meeting their needs

than male-headed households in large part because of their lower social capital and the resulting exorbitant interest rates they must pay. Therefore, the spiritual value is the only one way to pass these hardships.

6.7 Conclusions

In conclusion, the comparison between these two areas has demonstrated that -- although the basic needs and economic possibilities for residents from the heavily affected area are insufficient and harder than in the slightly affected area -- Bogalay inhabitants are still happy under the poverty line and trying their best for their future. Actually, even without the cyclone Nargis, chronic poverty has always reigned in the Delta area. Even when a household enjoys food sufficiency, there are many difficulties in meeting other basic needs. When the small farm household confronts crop failure or sinks into debt due to high interest rates or lack of productive capital, they must sell their lands plot by plot to and gradually become a landless household. That is why they are facing food insufficiency even though they are farmers. The most frequently employed coping strategies are to eat lower quality food or to borrow money for food.

6.7.1 Implications of the Study for the People of the Irrawaddy Delta

Farmer motivation to achieve their desires and confidence that better farming and quality can be an instrument to progress are two important factors that may have a significant contribution for social reconstruction. Insufficient capital has imprisoned most farmers in a poverty trap that blocks them from improving their production. To break this vicious circle, credit availability is a determining factor. Under the new government that is likely to have a higher attention to agriculture in general, the provision of financial assistant including soft loans for farmers is expected to

increase. Farmer organizations are very improvement for delta agriculture in Irrawaddy Delta. They must empower their members by providing training on management/organization, negotiation, and capital support. Consequently, state and local economic development officials should focus their efforts on encouraging education and retaining and attracting better educated residents. The present research has established the correlation between happiness and income growth and social capital during the post-disaster period. Human capital investment has a stronger impact on income growth in informal sectors.

6.7.2 Implications of the Study for the Government and NGOs – Implications for Programs and Policy

Recommendations must be made to local and national governments, to NGOs, and to the affected communities themselves as to how to reduce absolute poverty; and to anticipate, protect against, and reduce the impacts of such natural disasters. Since the two study areas differ substantially, and the determinants of income per capita are not the simple opposites of the determinants of the intensity of food poverty, policy implications must be carefully targeted both geographically and in terms of the dimension of well-being. The government and non-governmental organizations should put into place new credit or loan programs to help farmers in reestablishing their livelihoods.

Support could also be provided to strengthening local seed production, community-based storage, and capacity of support service providers including extension and financial services. To assure minimum food and income security for cyclone-affected groups, farmers need to be taught how to implement and manage intensive backyard gardening and small fishpond cultivation.

Since human capital has a powerful impact on economic performance, state and local economic development officials should focus their efforts on encouraging education and retaining and attracting better educated residents. The resulting social capital will be the best gauge of the continued rehabilitation of the victims and the creation of individual and social resilience in case of any such event in the future.

6.7.3 Implications of the Study for those Interested in Disaster Relief

Based on the above findings of the impacts of a disaster, the present research proposes that further studies of disaster relief in Myanmar and elsewhere should also emphasize on the effectiveness of aid distribution and the performance of community-based organizations. Furthermore, to improve the real situation and provide solutions to the various problems enumerated in this study, the severe constraints to productive farming need to be alleviated. To prioritize the alleviation of those constraints, a production frontier study should be conducted for the agricultural sector.

6.7.4 Implications of the Study for Social Capital and Happiness Research

The impacts of a natural disaster tend to strengthen social capital; while assistant and aid, if poorly administered, can undermine it. This study has made new applications of several methods (Chiang Mai scale, Gini coefficient, Lorenz curve, Foster-Greer-Thorbecke indicators) to the study of the level and distribution of social capital and happiness. It is hoped that the methods used in this thesis can be applied to other studies in the future. This will provide comparisons over time and across space of the level and causes of subjective well-being.

Social capital has become more important than ever because of the critical significance of knowledge sharing to organizations, informal safety net during disaster play a pivotal role in helping people to access the resources such as credit.

The social capital study of this research presented the nature of the social capital of Myanmar. This will help the policy makers, researchers and community workers and non government organization as they work to identify and bring help to the vulnerable people. Thus, the social capital can play a strategic role in rehabilitation works of organization performance, productivity of farming, mental suffering of disaster. The attention brought in this research is to present the importance of social capital on subjective well-being. Social capital in its relation to happiness and its function within the local community were brought under scrutiny. Local economic development was also found to be driven by changes in labor demand, labor supply, and human capital. Human capital has a stronger impact on income growth of the region. Understanding the determinants of happiness of Myanmar can help both policy makers and researchers to promote quality improvements in post disaster research and relief.

6.8 Scope and Limitations of the Research

Due to the limited information of the pre-cyclone survey, this research has resorted to a contemporaneous comparison of two areas differently affected by cyclone Nargis. Despite the similarity of the two areas in other ways, no two townships are perfectly comparable.

Furthermore, due to the time constraint, the study could not thoroughly collect all the data necessary for the total evaluation of livelihood. Studying the impacts of a disaster on happiness takes a long time lay at the village level, and a long time in hours in a household interview. The researcher was only able to meet for one hour with each household to interview and collect data on happiness and social capital.

Many untold stories undoubtedly remain. Nor was there adequate opportunity to conduct focus groups into the opportunities, strengths, weakness and threats perceived by the inhabitants of each village; or to apply soft systems research methods to establish future development possibilities for them. The study should have a broader scope to look into all level of farmers, big-medium-small and related activities, markets and connections.

6.9 Suggestions for Further Research

However, this study has already contributed insights into the objective and subjective well being of the post disaster situation. Further study should be conducted using panel data on the affected area. That research should focus on the livelihood context and the development process for the farming households. One of its major objectives should be to determine the possibilities for farming and agriculture-related activities.

Much more work on coordination among researchers and between researchers and key disaster response decision-makers is also needed to realize the full potential of post-disaster mental health research. Several levels of coordination are needed for successful post-disaster research: coordination within inter-disciplinary teams of researchers; coordination between researchers and administrative agencies that have access to data that can facilitate research design and implementation; coordination between researchers and service providers; and, importantly, coordination among the many different sets of individuals and organizations that provide services, often with inadequate coordination, to disaster victims. These kinds of coordination need to be the focus of increased attention by disaster researchers in order to understand the determinants and consequences of service coordination.