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ABSTRACT

Market liberalization has enabled Vietnam to make substantial economic improvements, but it has also widened wealth disparities. My dissertation examines the process of social differentiation among shrimp farming households in Vietnam’s Mekong Delta. I use the ways these households perceive and experience risk and vulnerability as a lens for understanding their situation. The study finds that farming households across the socio-economic spectrum have experienced intensified risk and livelihood vulnerability even as significant economic gains have been made, turning the country from a net food importer in the late eighties to a major agricultural exporter in the world today. This pattern is rooted in the imbalance resulting from two simultaneous processes: (1) fundamental structural transformations in property and production relations resulting from promotion of an export-led growth model that typically transfers risks in the production process to poorer farming households; and (2) weakening and/or loss of social and physical buffers. The latter includes the breakdown of informal safety nets such as kin and neighbor relations, communal bonds, gender relations and integrated families; and the loss of access to common property resources. While both risk and vulnerability are socially differentiated, households that occupy the lower end of the wealth ladder have to bear a disproportionate share of the risk burden channeled down by commercial shrimp aquaculture engaged in by the rich and better-off. By juxtaposing and contrasting globalization-induced changes with a subsistence economy, this study highlights the ways in which rural households perceive and respond to the structural transformations and changes in their living environment, and the implications thereof for sustainable livelihoods.
Moral Economy Meets Global Economy
Negotiating Risk, Vulnerability and Sustainable Livelihood among Shrimp Farming Households in Vietnam’s Mekong Delta

By
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B.A. Hanoi University, 1991
M.A. Syracuse University, 2005

DISSESSATION
Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Anthropology in the Graduate School of Syracuse University
March 2012
ACKNOWLEDGEMENT

This journey would have not been possible without the support of many individuals and institutions. First and foremost, I am grateful to the women and men in Tra Vinh Province for their friendship, hospitality and kindness. They have made the Mekong Delta another home for me. In particular, I would like to thank the women who welcomed me to their social circle and considered me a little sister. Their ability to maneuver their constrained social space to fulfill the numerous demands by their families and communities humbled me. In particular, I am grateful to the community of women and men who migrated from the north of the country to Tra Vinh over twenty years ago. They welcomed me to their homes and invited me to their drinking sessions. Sharing their memories of northern immigrants in the south, they not only helped me understand their histories, but that of the province as well.

In Duyen Hai, I was fortunate enough to receive generous support from Oxfam Great Britain. While I tried to spend as much time as possible in the villages, my main home in Tra Vinh was the Oxfam House, which served both as an office and a motel for visitors and staff in Duyen Hai. It was here where I could find time and space to write up my field notes as each day closed. The Oxfam House also offered me the comfort of a home where the Internet enabled me to cut the distance and catch up with my family, friends and adviser thousands of miles away. My special thanks go to Le Tran Dung who managed Oxfam Great Britain’s Tra Vinh program. Dung’s hospitality was overwhelming. He not only ensured that my stay in Duyen Hai was problem free, but also offered generous advice and assistance to iron out bottlenecks in my fieldwork. I am also indebted to Tran Van Trung for his generous assistance with production of local maps. I
would also like to thank my research assistants Tran Van Sang, Nguyen Thi Bich, and Tran Van Bao for functioning as additional pairs of eyes and ears in the field and for helping with the challenging task of carrying out the survey with detailed questionnaires.

This work could not have been possible without the generous financial support from a number of institutions. A Goekjian Summer research grant enabled me to fulfill my preliminary research. My main fieldwork was generously supported by a Claudia De Lys fellowship and an NSF dissertation research grant. My write-up was supported by a graduate assistantship from the Maxwell School. As important as the financial support was the experience and insights I gained in the process of trying, failing, trying again and succeeding.

My intellectual growth has benefited from unfailing support and encouragement from my graduate advisor and mentors at Syracuse University.

First and foremost, my heartfelt thanks go to Prof. Peter Castro who has been a supervisor and a mentor throughout my graduate studies. Peter’s clarity of thinking helped me conceptualize this project. But he was more than a mentor and a motivator. His unending patience and the ways in which he lifted me out of difficult situations without passing judgment, not to mention giving me the confidence that he was backing me when the going got tough for many reasons, these will stay with me for life. Without his encouragement and patience throughout the ups and downs of this journey, I would not have crossed the finish line.

I am indebted to Prof. Susan Wadley who has helped me in many ways, big and small. It is no exaggeration to say that there are many things one learns from observing Sue, her generosity and affection and her strength. My thanks are due to her also for the
valuable comments and suggestions on various drafts of this dissertation. Sue’s quiet yet
decisive style was the most effective way of pushing me to try a bit harder. I am also
grateful to Dr. Cecilia Van Hollen who showed me the importance of finding a meeting
point between the trees and the forest. Cecilia’s critical comments and questions
reminded me of the value of details while not losing sight of structural integrity. I would
also like to thank Prof. Chris DeCorse who provided me with formal and informal
support too numerous to mention that enabled me to complete a journey I started out with
little understanding.

Away from Syracuse, I would like to thank Dr. Pamela McElwee, my non-Syracuse
committee member. Although we rarely had the opportunity to meet face to face to
discuss the project due to the physical distance between us, Pam has always been there
for me from the very beginning of this journey. As an advocate for a new generation of
Vietnamese researchers who are committed to the cause of social justice, Pam has been a
great source of motivation. Her words and actions constantly remind me that I need to try
harder and harder. I thank Pam for having been a true friend.

I owe my courage to embark on this journey to Prof. Michael Horowitz at
Binghamton University. Michael introduced me to anthropology and the values it offers
in making this world a fairer place. He and his family, particularly Sylvia Horowitz, took
me under their wing and have been a constantly nurturing force, and I will always cherish
their friendship, love and affection.

I would like to express my gratitude to Susannah Hopkins Leisher, my former
manager at Oxfam Hong Kong. I thank Susannah for showing me the difference it makes
when we pursue our dreams with passion. Susannah did everything in her power to
provide the Vietnamese staff at Oxfam Hong Kong an opportunity to become “internationally competitive.” She continues to be an example of love, compassion and inspiration.

This dissertation has also benefited from substantial assistance given generously by my friend Claire Saint-Rossy. Claire really demonstrated the Virgo attributes of meticulousness and attention to detail as she spent endless hours on cleaning up the SPSS data, and later on reading and editing my chapters. Towards the end of this journey, Claire also became my personal counselor whose presence was a tremendous help.

On a personal level, words alone cannot express the love and gratitude I feel for my friends and colleagues who have cheered me on from near and far and who have shared invaluable advice and encouraged my work throughout this project. It is not possible to mention them all, but I would like them to know that my thoughts and gratitude are with them.

At the same time that I grew intellectually in the pursuit of this degree, I also realized truly what family means. The completion of this project could have been unthinkable without the unbounded love, support, encouragement, and patience from my parents and my sisters Hai and Lan.

Just for being there no matter what, I am enormously grateful to my husband Hari and my son Shivhari. Hari’s love afforded me the freedom to pursue this dream, and his wisdom guided me through all the travails that this journey entailed. My son Shivhari was both the motivation for me to embark on this journey and the reason for it to become a meaningful and enriching experience. Hari and Shivhari’s presence made Syracuse a
second home for us, where we have met wonderful people and forged lasting friendships with so many people and families.

Finally, this doctorate’s completion is dedicated to my parents from both sides of the family. I believe it was their unstinting support, prayers and blessings that enabled me to persevere and complete this journey. I hope this will mean we, as a family, will be able to spend more time together than we have been able to do so far.
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*Social Pollutant*

Coping with uncertainty

*Purifying Water*

*Soil Purification*

*Shrimp Fries*

*Feed and Feeding*

*Better Prevent than Treat Diseases*

*Seasonality*

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<td>Description</td>
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<tr>
<td>AFTA</td>
<td>ASEAN Free Trade Agreement</td>
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<tr>
<td>ASEAN</td>
<td>Association for Southeast Asian Nations</td>
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<tr>
<td>BMPs</td>
<td>Best Management Practices</td>
</tr>
<tr>
<td>BTA</td>
<td>Bilateral Trade Agreement</td>
</tr>
<tr>
<td>COC</td>
<td>Code of Conduct for Responsible Shrimp Aquaculture</td>
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<tr>
<td>DARD</td>
<td>Department of Agricultural and Rural Development</td>
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<td>DOF</td>
<td>Department of Fisheries</td>
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<tr>
<td>DANIDA</td>
<td>Danish International Development Agency</td>
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<tr>
<td>EC</td>
<td>European Community</td>
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<td>GAP</td>
<td>Good Aquaculture Practice</td>
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<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
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<tr>
<td>IZ</td>
<td>Industrial Zone</td>
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<tr>
<td>LTTT</td>
<td>Land to The Tiller</td>
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<tr>
<td>MARD</td>
<td>Ministry of Agriculture and Rural Development</td>
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<tr>
<td>MOF</td>
<td>Ministry of Fisheries</td>
</tr>
<tr>
<td>MOFI</td>
<td>Ministry of Finance</td>
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<tr>
<td>MPI</td>
<td>Ministry of Planning and Investment</td>
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<tr>
<td>NAFTA</td>
<td>The North American Free Trade Agreement</td>
</tr>
<tr>
<td>NEZ</td>
<td>New Economic Zone Program</td>
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<tr>
<td>TNCs</td>
<td>Transnational Corporations</td>
</tr>
<tr>
<td>UNCTAD</td>
<td>The United Nations Conference on Trade and Development</td>
</tr>
<tr>
<td>VASEP</td>
<td>Vietnam Association of Seafood Exporters and Producers</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organization</td>
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</table>
**UNITS OF MEASUREMENT**

<table>
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<th>Unit</th>
<th>Description</th>
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<tr>
<td><em>hectare</em></td>
<td>2.47105 acres</td>
</tr>
<tr>
<td><em>công</em> (unit of land)</td>
<td>1,000 m² or equivalent to 0.247 acre or 10763 ft²</td>
</tr>
<tr>
<td><em>đạ</em> (unit of rice)</td>
<td>20 kg, or 44 lbs.</td>
</tr>
<tr>
<td><em>Km</em></td>
<td>1.61 miles</td>
</tr>
<tr>
<td><em>m²</em></td>
<td>10.764 square feet</td>
</tr>
<tr>
<td><em>chí vàng</em></td>
<td>3.75 g¹</td>
</tr>
<tr>
<td><em>cây vàng</em></td>
<td>1 teal of gold (37 g)</td>
</tr>
<tr>
<td><em>đồng</em></td>
<td>1 USD equals VND 16,000 at the time the research was conducted</td>
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<th>Event</th>
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<tbody>
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<td>1954</td>
<td>Geneva Agreement resulted in the North and South Vietnam Cooperative ownership of land introduced by Ho Chi Minh’s government</td>
</tr>
<tr>
<td>1962</td>
<td>First US combat mission against the Viet Cong occurred</td>
</tr>
<tr>
<td>1972</td>
<td>Diem government attempted to revive the agricultural sector and promoted the LTTT program that bought land from landlords and redistributed it to farmers in the South</td>
</tr>
<tr>
<td>1973</td>
<td>US soldiers withdrawn from Vietnam</td>
</tr>
<tr>
<td>1975</td>
<td>Reunification of North and South Vietnam brought by the victory of the Communist government</td>
</tr>
<tr>
<td>1976</td>
<td>Collectivization started in the South with low-level cooperatives State farms established in mangrove-forested areas of Tra Vinh</td>
</tr>
<tr>
<td>1978</td>
<td>Local resistance against collectivization in the South began</td>
</tr>
<tr>
<td>1981</td>
<td>Directive 100 sanctioned the “output contract” that contracted production directly to households, labor groups and individuals</td>
</tr>
<tr>
<td>1982</td>
<td>Decollectivization started beginning the return of land to previous owners</td>
</tr>
<tr>
<td>1983</td>
<td>Agricultural Tax Ordinance instituted to unify and rationalize the tax base across the country</td>
</tr>
<tr>
<td>1986</td>
<td>Doi Moi, or economic reform, turned a centrally planned economy to a market economy</td>
</tr>
<tr>
<td>1987</td>
<td>Partial liberalization of food trade created a national food market intended to meet planned food consumption targets by smoothing the flow of nationwide food distribution and overcome the food crisis</td>
</tr>
<tr>
<td>1988</td>
<td>Resolution 10 dismantled agricultural cooperatives and opened up a marketing system that transformed the existing structure into a diversified, commodity-based agriculture. The Land law allocated land to households for ten to nineteen years. Household became the basic production unit</td>
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1989  Trade and price liberalization adopted to end subsidy regime used in the economy and to promote the growth of market
1990  Record harvest in 1989-90 allowed Vietnam to become the world’s third largest rice exporter after Thailand and the USA
1992  Constitution recognized private land ownership
      Tra Vinh became a province independent from Vinh Long
1993  Rural financial reforms started to increase lending to rural households in 1993
1993  Land Law assigned land use rights to households, individuals and organizations up to 20 years. Owners of the Land Use Certificate are allowed the rights to exchange, transfer, lease, inherit and mortgage land use right.
      Prize Stabilization Fund of 1993 to stabilize agricultural incomes and consumer supplies during periods of sharp price fluctuations.
1995  WB-funded Mekong Delta Water Resource Development project completed to prevent salinity for rice cultivation
1998  Greater liberalization marked by Decision 250, that allowed private companies to export rice.
      Resolution 6 on the Farm Economy introduced that resulted in the legitimization of landholdings excessive to the land ceiling of a maximum of 3 hectares.
2000  Agricultural restructuring introduced to promote privatization in production.
      Industrialization and Modernization were fostered through farm economy agricultural policies geared towards development of large farms and greater intensification of cash crops with higher value
2001  Agricultural trade liberalization ended the rice export quota and the fertilizer import quota
2003  First Industrial Zone for shrimp aquaculture in Tra Vinh established

Sources: Compiled by author from various sources.
CHAPTER 1. INTRODUCTION

“The Americans fought us, we did not die; but if the shrimp fails, we will.” Chin made this statement as she removed her conical hat at Nam’s doorstep. Even before Chin settled down on the bedside in the main living room, Nam, Mrs. Nam and I had already been given a rushed but informative update on current affairs in the Mỹ Quý shrimp farming neighborhood: a theft that took place the previous night at the industrial farm across from her house, rising prices of shrimp feed, and unfavorable weather conditions. The list of events seemed to intensify the heat in the room, hardly dissipating as Chin fanned herself with a conical hat.

The characterization of Southern women as being “weak,” “passive,” and “dependent on their husbands” that I often hear from women in Trà Vinh does not fit Chin. At the age of 14, Chin was a messenger for the communist (Viet Minh) guerrillas. She later joined the local women’s group that provided logistical support for the Viet Minh. Chin also served in the local Women’s Union for over 20 years while supporting 14 children of her own. Today, Chin lives with her youngest son and daughter-in-law. On occasions, her neighbors and nearby villagers contract her to supervise feasts for weddings and other important family events. Although the job does not pay much, it takes her to other social circles, expands her social network and keeps her up-to-date on local current affairs. Through such travels, Chin learned the rice-casting technique for cleaning shrimp ponds that was successfully replicated in her village for a few seasons.

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2 Mỹ đánh thì không chết, mà tôm thất thì chết.
3 In rice cultivation, rice-casting is a less labor-intensive technique compared to transplanting. For the purpose of pond cleansing, casting rice paddies on the soft mud floor of the shrimp pond after water is
The hardship that Chin experienced during wartime is hardly relevant to the risks her household now faces under a market economy. Following the reunification of North and South of Vietnam in 1975, she and her late husband tried different livelihood strategies, such as migrating to other provinces to rent out their labor, investing in duck farming, and raising pigs, all of which failed. They finally had no choice but to return to agriculture. In June 2006, I arrived at Chin’s home to find her face pale. Leading me through the kitchen to an outdoor washing area behind the house, Chin pointed at two tombs painted in white at the end of her land. She explained how presumably large debts generated by failed investment in duck farming caused her husband to commit suicide in 1989. Soon after, one of her sons took his own life following a conflict while working as a laborer in Vinh Long province. In the meantime, her other children moved out with their own families, some to other villages and others to neighboring provinces. In 2005, a daughter who lived with Chin migrated to the city, leaving her with a debt of 25 million đồng related to a failed shrimp aquaculture investment to settle.

At 63, Chin no longer provides the main labor power in her family. Her youngest son and daughter-in-law now assume responsibility for the shrimp pond. But Chin is not retired. She constantly intervenes in the household’s production decisions, which she hopes will enable the family to save money and settle the debt of 25 million đồng (approximately 1,562 USD). The bank threatens to confiscate her land forcing Chin to consider selling the household’s final plot to settle the loan. The decision looms large

Drained offers a suitable solution to rid ponds of nutrients while enabling households to harvest rice for domestic consumption. However, this technique is not sustainable. In My Quy, the technique only lasted for a couple of seasons until the mud floor becomes too salinized to sustain the rice. After a couple of seasons, the paddies turned brownish yellow before they died. The rice plants may have bloomed, but the paddies never matured.
after Chin sought and failed to borrow money from her own children, kin and neighbors. Even moneylenders who charge predatory interest rates refused to lend her money because they were skeptical of Chin’s ability to repay.

Chin’s experience that shrimp failure carries a higher probability of death than war reveals the depth of her feelings of vulnerability. But Chin is not alone in being concerned about the impact of shrimp production on her livelihood. Her story is echoed by the fates of thousands of households across Vietnam’s Mekong Delta, where unsuccessful shrimp aquaculture has given rise to a new class of rural proletariat. Vietnam’s “open-door policy” that supports liberalization has also unleashed multiple processes of socioeconomic transformation that enabled Vietnam to earn praises from international institutions and investors for its rapid economic growth (IDA 2009). The same process has also resulted in rising indebtedness and loss of farming households’ land through distress sales, which contrast sharply with the claim of the benefits of economic globalization and trade liberalization. Hardships among these farmers caused by failed shrimp farming investment raises doubts about policy-makers’ claims that shrimp farming would lift everyone out of poverty.4

My dissertation documents dynamic global–local interactions as manifested through the experiences of Mekong Delta households since Doi Moi. I seek to understand what the transformations engendered by the shift from a command to a market economy and economic globalization mean for rural household livelihoods and their well-being:

4 I made this trip on behalf of Oxfam Hong Kong, one of the first NGOs to establish an office in Duyen Hai district of the province in order to help reduce the poverty that remained prevalent in the province.
whether these have indeed furnished a powerful means for development and poverty alleviation (Bhagwati 2004), or undermined local livelihoods and relations (Kugelman and Levenstein 2009).

This chapter outlines a framework for assessing Vietnam’s economic restructuring in the farming sector. I will first revisit the moral and political economy debate between James Scott and Samuel Popkin who represented opposite theoretical camps in peasant studies of the 1970s. I will then discuss the continued relevance of the moral/political economy debate for evaluating and understanding the impacts and implications of commercial farming and market integration for rural cultivators. Finally, I will present the case for using risk, vulnerability and sustainable livelihoods as viable concepts for assessing the social transformations under Doi Moi in Vietnam's Mekong Delta.

The ‘Moral versus Political Economy Debate’ Revisited

The story of Chin attempting to avoid losing her last plot of land, the main source of her livelihood, brings back images of Vietnamese peasants struggling to secure their subsistence under the French in the 1930s. Four decades later two competing theories emerged to explain the basis of Vietnamese peasant actions during that period. The foremost (and competing) works in this debate were James Scott’s Moral Economy of the Peasants: Rebellions and Subsistence in Southeast Asia and Samuel Popkin’s The Rational Peasant. The authors examined the connection between risk, risk behavior and the causes underlining social revolution. Since their theories addressed broader issues regarding the relationship between cultural values, economic motivations, and collective
action, they attracted widespread attention in the social sciences, particularly in peasant studies and economic anthropology (Wilk and Cliggett 2007).

Subsistence Ethic and Peasant Decision Making

Scott portrays the peasant’s lives as constantly challenged by uncertain weather, sickness of both people and livestock, changing crop patterns, and claims of outsiders. He argued that rural cultivators’ strategies in response to threats to their living environment were shaped by their fear of loss of subsistence security. Peasants therefore generally favored protection of their subsistence base over adopting innovation and investing in commercial crops. Given their poverty, peasants had to rely on collective action in response to uncertainty. They used social mechanisms based on mutual moral obligation and sharing to provide a buffer against shocks and to ensure subsistence security. This “moral economy” is embodied in cultural strategies and practices that protect the peasants from falling below the subsistence threshold. These strategies ranged from self-help practices such as livelihood diversification (engaging in trading, crafts, day labor, migration) and reducing consumption (having only one meal a day), to communal actions such as local common property management and enforcement of a “just price” in the market place. The peasants also resorted to their local social networks and institutions, including even powerful patrons such as landlords, for assistance. The rulers might help them survive difficult periods of illness or crop failure. This last observation about the relationship between the peasant and their landlords was a major characteristic of the moral economy. By requiring payments to higher authorities who were divorced from the local situation,
and who were not enmeshed in local social relations, colonialism and capitalist agriculture disrupted this moral universe by undermining peasant lives and setting in motion a number of reactions, including rebellions.

*The Rational Peasant*

Although the notion that peoples’ moral universe directly affects their choices and behavior has been a popular one in the social sciences, Scott’s analysis of the moral economy in rural Vietnam did not go unchallenged. The most direct argument against moral economists was Samuel Popkin’s theory of political economy in his work *The Rational Peasant* published in 1979. Based on historical analysis of peasant’s protests in three historical regions in Vietnam: Cochinchina in the southern Mekong Delta, Annam, home of the imperial capital in the central highlands and Tonkin in the Red River Delta, Popkin showed that subsistence economic levels was not necessarily the cause of peasant uprising. Popkin proposed that the peasant was rational decision makers who seek the most cost-effective means to achieve their goals. The peasants were not so concerned with maintaining the status quo as the moral economist suggested, but rather chose to maximize their utility. They were willing to gamble and take risks in order to secure a higher social level. The peasant’s behavior is always guided by economic rationality. Economic interests also shaped elements of competition and conflict over material gains, which had existed in peasant society well before the arrival of the colonialists and market economy. Economic interests made the peasant proactive and rational decision makers. Instead of being risk-averse, peasants take risks and engage in “free rider” behavior to
improve and consolidate their economic position when a viable opportunity presented itself.

_Beyond Moral Economy or Political Economy_

Both the moral and political economy perspectives have been subject to criticism from within and outside their camps (Wilk and Cliggett 2007). It was suggested that neither moral economy nor political economy was adequate as a theoretical approach to explain peasants’ behavior. Many studies from Bengal, Burma, Thailand, Southeastern China and Vietnam demonstrate how projection of peasant societies as rational or culturally-specific in orientation, cooperative or conflictive, self-interested or moral is too simplistic (see Keyes & Hrsg 1983; Feeny 1983; Brocheux 1983; Wilk and Cliggett 2007). Neither approach was sufficient to explain the history of markets, colonialism and peasant uprising in Vietnam (Keyes 1983). As much as the peasants uphold certain moral and cultural values, their behavior cannot remain unaffected by broader socioeconomic and political circumstances, especially in the turmoil of the 20th century Southeast Asian societies. Also unresolved is the question of how local notions of moral identity and self-interest are affected by contemporary processes of economic globalization.

The title “moral economy meets global economy” of this dissertation is not intended to take the side of either moral or political economists. Rather, I borrow the “moral economy” concept to illuminate the processes of rural transformation in Vietnam since Doi Moi. In particular, I want to show the relationship between changes in the macroeconomic structure with the reconfiguration of local institutions. The latter which
exist in the form of social bonds, community activities, common property resources, etc., provide a foundation for buffer for rural households. The transition from a command to a market economy introduced new social dynamics among actors who are affected differently by changes in local social institutions. Under collectivization, the emphasis on social equity that neglects productivity under collectivization could have been the cause of economic stagnation. However, the sole focus on the scale of production and growth without much attention to its social, economic and environmental effects can produce opposite outcomes and cause farm households to be more vulnerable.

From Market Economy to Neoliberal Globalization

*Great Transformations*

Regarding peasants risk behavior, scholars have been concerned with understanding agrarian capitalism’s role in fostering exploitation, inequality, and injustice. Scott viewed the goal of his moral economy project to be the search for a “phenomenological theory of exploitation” (1976: 161). He considered market economy the chief means for the consolidation of colonial powers across the Third World in the 20th century. The formation of the colonies, the promotion of commercial farming, and the development of world markets to absorb these commodities, were part of the imperial industrialization and modernization agenda. Scott saw the arrival of the colonial state and market economy as major factors contributing to the rise in subsistence insecurity among Southeast Asian rural cultivators. Rather than providing local people with new economic opportunities,
colonial agrarian interventions indeed weakened the peasant’s economic base and eroded their social mechanisms for risk mitigation.

Scott’s argument resonated with earlier work by historian Karl Polanyi (1944; 1957). Polanyi’s books *The Great Transformation* and *Trade and Market in the Early Empires* compared pre-capitalist societies with those relying on market-based economic principles. He argued that these societies differed in how the economic sphere relates to wider aspects of life. In pre-market society, economic goals are intertwined and embedded with social goals. However, under modern capitalism, economic behavior and institutions emerge as distinctive entities. He named these two contrasting systems formal and substantive. *Formal* refers to rational economic logic whereas *substantive* simply means making a living that does not necessarily involve monetary transactions. In pre-capitalist society, the economy is embedded in kinship relations, religious institutions, and other facets of life. With capitalism, the principles and institution of the market not only emerge as distinct entities, they become the integrative mechanism pervading all non-economic aspects of society (Wilk and Cliggett 2007). However, it is important to bear in mind that capitalism is a social process, rather than a state of being. The market’s integrative role therefore does not occur smoothly, evenly, or without contest. This is because the replacement of the embedded, pre-capitalist economy with capitalism entails “loss of a certain vital human quality that typified earlier societies” (Booth 1994: 656). Not everyone shares the same interest in the emergence and dominance of what has been called “the disembedded economy” (Wilk and Cliggett 2007).
Neoliberal Economic Globalization

Indeed, analyses of peasant societies in the previous eras provided a foundation for understanding contemporary economic globalization. Today's agrarian societies seem to be regurgitating yet another transformation identical to the ones depicted in Scott’s and Polanyi's work. Although today’s market economy is not sustained by colonialism and colonies and it is argued that farmers have greater autonomy in production, it has only changed in form, not in nature. Dominated by the neoliberal economic principles, market economy of the 21th century maintains many of the characteristics of colonialism. Policies guided by the neoliberal economic principles “typically focus on urgent macroeconomic stabilization, lower public borrowing, withdrawal of public subsidies, retrenching of public-sector workforces, privatization of state-owned enterprises, and market deregulation” (Heller 2009: 223). The spread of neoliberal ideology has been facilitated by the increasing interconnectedness of humanity through technological, political and other changes in recent decades. Neoliberalism refers to the resurgence of reliance on an unrestrained market economy for capital accumulation, the same principles which helped propel colonialism. The chief distinction of the market economy in the 21st century if any is its association with the neoliberal economic principles of privatization and liberalization to facilitate greater movement of goods, finance and services (Harvey 2005; also see McCarthy and Prudham 2004; Peck and Tickell 2002). This resurgent market-oriented ideology seeks not only to replace socialist economies, but also to supplant the Keynesianism that dominated Western nations since the Second World War (Parker 2005).

The controversy over the economic and social effects of economic globalization
remains unsettled. While proponents of neoliberal economics contend that its policies are essential for economic growth and thus poverty reduction (Krueger 1998), many social scientists argue that the neoliberal doctrine results in “uneven development” (Held et al., 1999) since it operates in favor of those in power, such as stockholders, financial operators, industrialists, conservative or social-democratic politicians for the sole purpose of enhancing their profitability and power (Bourdieu 1998). Global institutions such as the World Trade Organization (WTO), the World Bank (WB), and the International Monetary Fund (IMF) are portrayed as abandoning their original Keynesian missions in favor of fervent neoliberal policies regardless of the human costs (Stiglitz 2003). The ASEAN Free Trade Agreement (AFTA) and similar pacts are seen as mechanisms to support a small group of elite corporations at the expense of smaller economies, local enterprises and particularly workers (including small family-based farming enterprises). Economic globalization is seen as increasing risk and vulnerability on multiple levels (Harvey 2005), promoting a new kind of postcolonial imperialism characterized by widespread socioeconomic and cultural marginality (Stoler 2008).

Risk, Vulnerability and Sustainable Livelihoods

Commercial shrimp aquaculture as an economic growth strategy in many ways presents an important case for examining the effects of neoliberal globalization on rural households and communities through diverse and varied processes: trade liberalization that opens up national borders; decollectivization that puts in place private property and production relations; resources being channeled to commercial production; and modifications in rights and responsibilities at household and community levels.
Commercial shrimp aquaculture for export markets, while promising lucrative returns, also creates heavy environmental and financial burdens on local producers. Farmers who take on shrimp aquaculture as a new livelihood strategy face new vulnerabilities in part due to their reliance on consumer demands from distant markets, about which they lack detailed information and over which they have no control.

This section outlines risk, vulnerability and sustainable livelihoods as key concepts for examining the transformations in rural well-being in coastal areas of Vietnam’s Mekong Delta that have been affected by the shrimp boom. Much of the discussion of risk and vulnerability is located in analyses of poverty and social inequality, in particular in illuminating the conditions necessary for achieving sustainable livelihood as an acceptable level of social well-being (Chambers 1989; Chambers and Conway 1992). Drawing from this literature, this dissertation considers risk as the uncertainty and adversity brought about by unexpected external events, such as natural hazards, market factors and seasonality. Risk is socially differentiated due to differences in people’s and households’ ability to cope. On the other hand, vulnerability concerns the effect these unexpected events exert on an environmental or social system. Risk and vulnerability in turn define each other; they are mutually inclusive.

Shrimp aquaculture is most well-known for its ecological and environmental risks. Across coastal areas in the world that have been affected by shrimp aquaculture, thousands of hectares of mangroves have been lost only within the past several decades, causing disruption of coastal ecosystems, loss of biodiversity, and disappearance of fish stocks and seasonal lagoons. Furthermore, coastal communities have also experienced severe deterioration of land and water quality that are essential for productive agricultural
farming systems (Thornton et al. 2003; Stonich and Bailey 2000; Curan and Cruz 2002; Hall 2004; Cruz-Torres 2000; Dewalt, Vergne and Hardin 1996; Kleinen 2005; Derman and Ferguson 1995).

Since coastal ecosystems provide the foundation for local livelihoods, environmental degradation caused by commercial shrimp aquaculture has triggered social crises across coastal communities. These social crises typically take the form of protests and resistance of local residents against corporate power and the government (Luttrell 2005; Stonich 1991; Stanley 1998; Martinez-Alier 2001), and violence among the actors involved (Stonich and Vandergeest 2001; Peluso and Watts 2001). But social conflicts tend to intensify in intensive farming systems compared to extensive models that weaken social bonds. On the other hand, anger against private corporations dominating the industry through short-term investments and global marketing provides fertile grounds for collective action among local communities. This has been well documented in Ecuador, Honduras, Sri Lanka, Thailand, Indonesia, India, Bangladesh, the Philippines, Malaysia and elsewhere (for example, see Martinez-Alier 2001; Peluso and Watts 2001; Derman and Ferguson 1995; Stonich and Bailey 1998; Stonich 2000).

The social dynamics in shrimp aquaculture underlie the interconnectedness between the environmental, economic and social processes (Hewitt 1983; Adger 1999). Environmental risks are closely linked to social vulnerability. To provide a background for the analysis of risk and vulnerability as integral to the economic and social processes, this study will explore the institutional changes that serve to enhance or constrain livelihood decisions and outcomes (Scott 2001: Luttrell 2001; Sikor 1999). These institutional changes include property rights and regime, gender relations, and
community-level customs, which have been affected by the broader neoliberal restructuring. At one level, agricultural restructuring and the promotion of commercial farming that serve to channel the global neoliberal agenda down to the local level resulted from Vietnam’s reforms over two decades. Here, my analysis underscores two parallel processes. Focusing on the local social processes at the local level, my dissertation examines how these neoliberal reforms are perceived and acted upon by differential social groups. I will highlight how the risks associated with shrimp aquaculture rise; how they are perceived and responded to; and how they affect local social relations and livelihoods.

Thesis Outline

My dissertation is organized in three parts. The first section consists of Chapters Two through Four, which provide the background to the research project. Chapter Two introduces Tra Vinh province and My Quy and Cay Da villages featured in the study, as well as the Long Thanh Industrial Zone in Duyen Hai district town, a third research site. It also describes Vietnam’s transformation since reunification in 1975, leading to the shrimp boom in Tra Vinh. Chapter Three outlines the research methodologies, including research context, research questions, methods, and fieldwork experiences. Chapter Four portrays Vietnam’s gradual transformation from decollectivization to neoliberal restructuring. Its second section demonstrates how Tra Vinh’s agricultural restructuring offers a window for viewing neoliberalism in the Mekong Delta’s farming sector.

Part II, spanning Chapters Five through Eight, presents findings from my
ethnographic fieldwork. Focusing on the experiences of risk and vulnerability across households groups, this section demonstrates the complex relationship between risk, risk perceptions, response to risk and social vulnerability and how these provide unique insights into the processes of social differentiation.

Chapter Five, “Changing Livelihoods and Vulnerability,” demonstrates how investment in risky businesses has intensified social differentiation. The claim of shrimp aquaculture as the fastest growth engine only applies to a small minority whereas the large majority experience greater livelihood vulnerability. Economic restructuring that supports commercialization and economies of scale means “able” farmers and investors stand to win while subsistence farmers continue to be marginalized by the process. However, social differentiation is determined not only by households’ available assets, such as land, labor and capital (which provide them with the necessary conditions to take advantage of new economic opportunities), but also by the effectiveness of their coping strategies.

Chapter Six, “Risk Perception and Livelihood Vulnerability,” highlights the experience of risk and vulnerability among industrial shrimp farmers. The post-socialism and agrarian literature tends to focus on the dichotomy between the rich and the poor as an inevitable outcome of economic development. Little is understood about the dilemma of rich and better-off households. By focusing on the experience of risk and vulnerability among industrial shrimp farmers, I show how dealing with risky business is in itself a dynamic process. While the ability to persist in shrimp aquaculture is enviable for some, this does not guarantee a leap in wealth. In most cases, persistence in risky shrimp farming, even among the better-off, has left many households with large debts and more
vulnerability than ever. Where a household’s resources are dwindling, continuing to pursue risky business indicates an absence of alternatives.

Most notable in the politics of risk perceptions is how the psychological effect of shrimp farming provokes farmers to engage in irrational coping strategies. Farmers’ adoption of risky business as a rational decision is balanced by their engagement in irrational behavior as a way to deal with the fear of crop failures, indebtedness, and eventually loss of livelihood sources. While industrial shrimp farming requires rigorous adoption of technology recommended by experts, taboo-watching and frequent temple visits as the most common ways to offset the psychological effects of risky shrimp aquaculture have also been on the rise. This also shows how what is considered rational economic choice is not necessarily disconnected from the supposedly irrational sphere of cultural and religious beliefs.

Chapter Seven, “Women and the Environment,” analyzes how agricultural restructuring has redefined household production and gender relations. Shrimp farming ushers in changes in use of household resources as well as production and reproduction rearrangements. The shrimp boom appears to perpetuate traditional patriarchal norms, to the disadvantage of women. This chapter also illustrates the difference in coping strategies employed by men and women. However, overall, this chapter describes a rise in women’s burden as an outcome of the shrimp boom.

Chapter Eight, “Crisis in the Commons and Social Vulnerability,” portrays the environmental problems resulting from the shrimp boom in Tra Vinh. Loss of mangroves, the commons, land and water degradation, loss of biodiversity and permanent damage to
the coastal ecosystem (Adger 2001) means loss of livelihoods and a way of life. This chapter also examines vulnerability from the perspective of subsistence farming households whose livelihoods continue to depend on access to common-pool resources. Their vulnerability has only intensified as environmental damage continues to escalate season after season. This chapter demonstrates the interconnectedness between environmental and socioeconomic vulnerabilities.

Together, Chapter Six and Chapter Eight underscore the relationship between environmental risks and social vulnerability. While the risks that threaten the well-being of individual households contribute to collective vulnerability, what helps an individual household to recover from shocks does not elevate collective well-being. The coping strategies employed by both the better-off and the poor have contributed to weakening social bonds. Crisis in the commons leads to social crisis and loss of communal bonds weakened coping mechanisms for rural households and communities in the past (Scott 1976; 1985) as well as at present (Scott 2001; McElwee 2004).

In conclusion, Part III summarizes the connection between agricultural restructuring, risk, social vulnerability, social differentiation and class and presents its implications of neoliberal reforms for collective action and social welfare.
PART ONE: BACKGROUND
CHAPTER 2. A HISTORY OF LIVELIHOODS AND MORAL ECONOMY

My first visit to Tra Vinh province took place in the latter half of 1998. Traveling the 200 km to Tra Vinh town from Ho Chi Minh City took about five hours via highways 1A and 53. The 50 km from Tra Vinh town to Duyen Hai district took another hour. Then, one could either catch the last bus or hire a xe ôm (motorbike) in order to reach Duyen Hai. Few xe ôm drivers were willing to make such the trip unless it was to return to their home in Duyen Hai or Cau Ngang. The most memorable details about a trip for me were the trying moments crossing bridges with wooden panels much too old to support a loaded passenger car. A couple of times, the driver had to stop the car before crossing a bridge and have the passengers get out and walk across for their own safety.

Even though Vietnam’s market reform, Doi Moi, had been underway for over a decade, Tra Vinh in 1998 did not show any sign of a connection to the outside world. Contrary to the common portrayal of the Mekong Delta as a rice bowl, rice farming in Tra Vinh could barely meet subsistence needs. The center of Duyen Hai district was scarcely populated with only a few thatched buildings. What is now the busy Long Toan market was comprised of a few shops selling locally produced food that closed by 2 pm. There were no hotels or guest houses. By 8:30 pm, the town was pitch dark and dead silent. The few hangouts for young people had also closed by this hour. What I saw was likely to be the reality that prevailed in the coastal district of Duyen Hai for decades before the advent of urbanization and a massive influx of consumer goods that drastically altered life and society in ways that have not yet been fully grasped.
Tra Vinh

*Ecology, Demography and Ethnicity*

Located between the Bassac and Hau Giang branches of the Mekong River before they meet the South China Sea, Tra Vinh sits on the higher elevations on the eastern coastal region that account for about 17.8 percent of the total mangrove areas in the Mekong Delta (Maps 1 & 2). This area of the eastern coast formed by silt accumulated from annual flooding has also experienced increasing salinity intrusion in recent decades due to rising sea levels (Nguyen Cong Binh et al. 1990: 262). Tra Vinh has a total natural area of 222,567 hectares, accounting for 5.63 percent of the total area of the Mekong Delta, and 0.67 percent of Vietnam. To the north, Tra Vinh is separated from Ben Tre province by the Co Chien River; to the southeast, the province’s 78.5 km coastline meets the South China Sea; to the southwest is Soc Trang province; and to the northwest is Vinh Long province (TVPC 2002: 1). Today, Tra Vinh is comprised of seven districts, including Cầu Kè, Tiểu Cần, Càng Long, Châu Thành, Trà Cú, Cầu Ngang and Duyên Hải, plus Tra Vinh provincial town (Map 3).

Before Doi Moi, like other eastern coastal provinces of the Mekong Delta, Tra Vinh’s economy was humble. Due to salinity and acidity, local farmers could only cultivate one rice crop annually. Its physical marginalization was the greatest constraint to its economic development. Before reunification in 1975, the province received scant infrastructure development, which helped to connect the region with markets and ports in Sai Gon. Administratively, Tra Vinh had long been concealed inside Vinh Long province. In 1955, under the Southern regime, Vinh Tra was split into Vinh Binh and Vinh
Map 1: Mainland Southeast Asia; Source: Philip Taylor (2007)
Map 2: Vietnam’s Mekong Delta  
*Source:* Philip Taylor (2007)
Map 3: Tra Vinh province and research sub-locations

Source: Prepared by author
Long provinces. From 1976 to 1992, the two provinces were merged together into Cuu Long\(^5\) province. A document in the early 1980s prepared in celebration of 250 years of Cuu Long province noted the two capital towns Vinh Long and Tra Vinh, of which Vinh Long was considered the “cultural, economic and political center” (Bui Quang Huy 1982: 8). It was not until 1992 that Cuu Long was split into Vinh Long and Tra Vinh provinces, thus enabling Tra Vinh to become a province in its own right. While this gave it autonomy over its own fate, the split meant Tra Vinh’s loss of human and material resources to Vinh Long province, which had always been wealthier due to its position upstream (Christoplos 1995: 27).\(^6\)

Within the past half century, the population in Tra Vinh has increased by many fold. In 1965, Vinh Binh had a total area of 2,880 thousand hectares and a population of 598,436, approximately 208 people/km\(^2\) (UN 1968). The immigrants who arrived in the province with the NEZ program traveled all the way to the coastal district of Duyen Hai.\(^7\) This group mostly served in local government positions. During the mid-1980s, when the economic situation approached a depression, many of these immigrants left for Ho Chi Minh City for better economic opportunities. It was also during this time that local government employees were encouraged to retire early with a lump sum buyout to cut

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\(^6\)Even today, Tra Vinh provincial officials often express frustration at the province’s geographical and political marginalities that have deprived it of economic development opportunities. The province names changed, but the administrative units below the provinces remained the same. Cau Ngang and Duyen Hai districts and their accordant communes and villages on the coast were the most marginal.

\(^7\)No statistics could be found on the number of immigrants to Duyen Hai district. Some suggested that the data might be available in Vinh Long province, as it and Tra Vinh province made up Cuu Long province before the split in 1992.
public spending. Yet, a dozen immigrants from the north chose to remain in Duyen Hai and consolidate their base by accumulating land and facilitating the migration of other family members to the district. After all, with a small population, life in Duyen Hai was far more comfortable compared to their home villages, where the weather conditions were harsh and land was shrinking due to rapid population growth.

Tra Vinh’s population has increased slightly from 1,007,000 people in 1999, 1,015,800 in 2004, to 1.1 million in 2010, twice the population in 1965.\(^8\) Approximately 30 percent are ethnic Khmer, a mere 5-6 percent are ethnic Chinese, a very small percent are Cham minority, and the majority are ethnic Kinh (OGB 1999). In 2004, Tra Vinh’s economy remained largely agrarian with income from agriculture accounting for 64.44 percent of provincial GDP (Tra Vinh GSO 2000-2004).

Research Sites

Three locations were selected for this study (Map 3). The two villages of Cay Da and My Quy, from the districts of Cau Ngang and Duyen Hai, respectively, were selected. In addition, I surveyed a number of households in the Long Thanh Industrial Zone near Duyen Hai district town. Cay Da is one of the three villages in Hiep Thanh commune located by the Bassac River’s mouth. The other two villages are Ap Cho and Ap Bao. Hiep Thanh is approximately 7 kilometers from the national Highway 53. Prior to the construction of the road that connects the commune with the national Highway in 2002, access to the district market was difficult.

Cay Da has over 500 households, the large majority of whom live on fishing and shrimp farming. Agriculture plays a minor role here. Social inequality is less prominent compared with the other villages. In the past, the commune had about 500 hectares of mangroves coverage. Following Vietnam’s reunification in 1975, some mangroves were converted into state farms. Starting in the late 1980s, state farms were disbanded and land was allocated to local households. Labor shortages led some households to abandon the land and others to give it away in exchange for just a few da of rice per cong. It was during this period that households from surrounding areas migrated to the commune, obtaining and clearing land for housing construction and extensive shrimp farming. Since 2000, migration has slowed down, but local residents continue to practice extensive shrimp farming. In 2000, when industrial shrimp farming became popular in neighboring Duyen Hai district town, only four households adopted the model in Cay Da. In 2000, Cay Da received a new road and school from the National Poverty Reduction Program that was designed for the poorest communes across the country.

My Quy village is located further inland where agricultural farming has long been the main livelihood. The village benefits from immediate access to the national Highway 53. My Quy is about 42 kilometers from the Tra Vinh town and 7 kilometers from Long Toan, Duyen Hai District town. My Quy has 162 households, 24 of whom are land-poor.

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9 According to a report in preparation for the implementation of the five-year plans 1976-1980 and 1981-1985, there were to be 13 specialized cultivation zones (vùng chuyên canh) and 123 state farms in the Mekong Delta. During this time, the total area of the region was 3,470,000 ha, of which 1.5 million ha was abandoned land (đất hoang) to be used for state farms. Among the 123 state farms, 40-50 were to be under military control. These farms were to range from 5,000 to 10,000 ha. State farms would provide employment for 1.8 million laborers and receive investments of 22.5 billion VND (Đề thảo báo cáo tình hình và kết quả công tác thẩm tra việc chia đất dai, quy hoạch các vùng chuyên canh, các nông trường, làm trung quốc doanh để phục vụ việc triển khai kế hoạch 5 năm 1976-1980 và 1981-1985) (National Archive III Hanoi)

10 A da is equivalent to 20 kg or 44 pounds.
or landless. In 1995, My Quy fell within the perimeter of the World Bank-funded Mekong Delta Water Resource Development Project, generally referred to as the South Mang Thit project, which was designed to prevent salt intrusion by regulating the inflow of fresh water for agricultural production. However, with the shrimp boom starting in the late 1990s (almost a decade after Cay Da), My Quy saw a distinctly different scenario of land and resource transformation for shrimp aquaculture. By 2006, over 50 percent of the land in My Quy’s Tam Du field had been dug up for shrimp farming. The dike that was built to regulate water for agricultural farming was converted to supplying brackish water for shrimp farming. Due to limited land, most of the shrimp ponds in My Quy adopted the industrial farming model. My Quy experienced the fastest rate of land transfer from locals to outside investors due to diseases and lost investment. By 2008, approximately 70 per cent of the ponds in My Quy belonged to outside investors.

The Long Thanh Industrial Zone (IZ) is located on 200 hectares of land that belongs to the territory of Long Toan commune in Duyen Hai district. It was the first industrial zone for shrimp farming to be established in Tra Vinh province. Construction of roads, waterways, dikes and electricity networks to the standards of industrial farming started in 2000. In 2003, 80 industrial shrimp farms came into operation. The social structure within the zone is highly stratified. Over 40 households occupying the buffer

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11 Tra Vinh province received the greatest share of the South Mang Thit project, which covered an area of 225,682 hectares. The project was designed to prevent salinity by building up fresh water in areas that had been affected by salinity near the coast to facilitate agricultural production. The South Mang Thit project was also designed for strengthening mangroves as a buffer, consolidating the sea dike, cleaning water, and improving rural roads and supplying water for rice cultivation. However, the system supported rice cultivation for only a brief period of a few years before the shrimp boom reached coastal areas. In the village of My Quy located at the heart of the South Mang Thit the canals dug for transporting fresh water for agricultural production have now been converted to supplying brackish water for shrimp aquaculture.
zone beyond the dike are poor, while two thirds of the 80 shrimp farms are owned and operated by outside investors, mainly government employees.

**Justification of Site Selection**

Market liberalization and the promotion of commercial farming for export enabled even a remote province like Tra Vinh to participate into the global economy. As such, Tra Vinh offers interesting contrasts for an examination of the global-local interaction. Since the shrimp boom starting in late 1980s, the province has experienced great transformations in the use of its land and resources with vital changes in its production systems and demographic patterns. Large areas of mangroves and agricultural land have been shifted to shrimp aquaculture. The fluctuations of the shrimp boom have also led to greater demographic mobility. As a destination for shrimp investors, Duyen Hai district experienced an increase in total population in the 1990s. At the same time, a large number of the district’s residents have emigrated to other provinces in search of new livelihoods. While young people prefer urban centers where they can find factory jobs, families usually opt for distant provinces with agricultural land, such as Dak Lak, or where off-farm employment were available such as Long Khanh and Binh Duong.

The choice of the three locations is to enable intra- and inter-village comparison in terms of changes in resource use, local livelihoods and coping capacity among groups located at different distances from the coast, in areas with differing land characteristics (mangrove forests vs. agricultural land), and who adopted shrimp aquaculture at different times. Geographical location, livelihood history, market access and history of
engagement with aquaculture development in each village may explain the different processes and paths that shaped changes in local livelihoods, coping strategies and vulnerability. What are the factors that help to shape livelihood patterns among households as resources are shifted to shrimp farming, and livelihood decisions are increasingly dependent on market factors?

Traditional Livelihoods

The Mekong Delta’s history of engagement with the world market through its export activities facilitated by the French and later the Americans meant that the region has long been acquainted with infrastructure and technology development and introduced to a wide variety of cash crops, chemical fertilizers, and mechanical equipment in farming.

*Rice Intensification*

The history of the Mekong Delta is one of progressive resettlement and rapid land clearance for the expansion for rice cultivation. Initial land clearance in the Mekong Delta was accomplished by slash and burn (Son Nam 1959: 82-84; Gourou 1940: 285-286). Two methods of rice farming were noted: in Chau Doc and Long Xuyen the rice broadcasting technique was common in flooded fields; for other land types, the transplanting method was used. While the former was labor-intensive during harvests only, the latter was more labor-intensive throughout the course of the season for sowing, transplanting, and harvesting. The French brought with them technology to clear land for cultivation and to transform agricultural production in general. The area for rice farming
increased from less than 400,000 ha in 1879 to more than 1,800,000 ha in 1924. During these four decades, despite of intervals of economic depression,\textsuperscript{12} successions of land clearance continued to take place to form dikes, ditches, and canals.

The French attempts to bring innovations to improve rice productivity could not claim to be a success. In both newer and older occupation zones, farmers had to use mostly manual labor with native plough tools such as the \textit{cái cày} and \textit{cái bừa} to prepare the soil (Brocheaux 1995: 55). Due in part to the custom of using organic fertilizers and manure on a soil with high fertility, the French efforts to introduce fertilizers to the region were not well received by rice growers who were more concerned about the quality of the seeds. By 1930, farmers’ resistance to new technology was described as follows:

On the eve of the Great Depression, the sometimes considerable efforts to improve seed selection, both private and official, had not resulted in any notable progress. Fertilizers were never used, and the complete mechanization that some had dreamed of had not been realized. The most popular explanation for this at the time was psychological. The Vietnamese and Cambodian peasants were attached to their traditions, it ran. They were routinized, if not simply lazy (Brocheaux 1995: 60-64).

In spite of the French willingness to subsidize foreign tractors for an eighth of their cost, which could help landowners cut their substantial spending on importing water buffalo from Cambodia, local farmers persisted with traditional rice farming methods. Their creativity was reflected in the tools they used in cultivation. Conducting fieldwork during 1958-1964 in Khanh Hau, a village in Long An province approximately 55 km away from Sai Gon, Gerald Hickey (1964) noted how farmers used a wide range of tools collected from different cultures, including harrows, waterwheels, Khmer plows, water

\textsuperscript{12} The region experienced three economic downturns, in 1907, during 1917-1920, and yet another one in 1922 and 1923 (Brocheaux 1995: 56).
scoops, knives, sickles, threshing sledges, baskets, winnowing machines, granaries, and rice mills. Even in Khanh Hoa, where chemical fertilizer had been used for 20 years by 1958, apart from the widespread use of the Khmer plow, manual labor in rice cultivation was still common. Farmers only hired labor to help with soil preparation and transplantation in the beginning of the season.

Of the three villages selected for this study, only My Quy had rice as the main source of livelihood. In the past, households cultivated a single rice crop annually during the rainy season, from May to November. In mid 1990s, the completion of the World Bank-funded Mekong Delta Water Resource Development Project solved the problems of fresh water shortage for irrigation year round. However, rice farmers could barely take advantage of the project before the irrigation system was taken over by the shrimp boom. The lucrative profit that shrimp farming promises now serves as the justification for many to ignore the value of rice. Considering how little income a rice harvest can bring, the combined costs of hired labor for transplanting, weeding, tending, and harvesting and other inputs make the effort hardly worthwhile. Investing in rice has thus become seen as a waste of opportunity.

_Mangroves and Subsistence Livelihoods_

The concentration on rice cultivation in the western region of the Mekong Delta meant the economic significance of aquatic resources on the eastern coast, especially the wealth vested in its mangroves, was largely neglected. This could be discerned from a 1965 UN report on the share of the fishing industry in the GDP:
32

11 percent of Gross National Income comes from fishing industry. But it is only a subsistence operation and a poor source of foreign exchange. Almost all the catch is consumed locally, half of it as fresh fish. About 80 percent comes from the maritime provinces. Saltwater fishing is most prevalent along the meridional coast. Sai Gon is the most important market for fish (UN 1968: 172).

In provinces on the eastern coast, mangroves helped to fulfill much of local food, nutrient, and construction material needs. Mangroves, swamps, waterways and canals formed a rich biodiversity and a foundation for local subsistence needs. From Hau Giang to Ca Mau, mangroves were the main supply of local building materials. The leaves of địa nước, literally translated as water coconuts, or nipa water palm (Hickey 1964), provided the most popular roofing and walling materials. Hickey described this most well-known palm species of the Mekong Delta as follows:

This palm has no trunk; the fronds sprout directly from the soil, and in order for them to be thick and sturdy, fresh, soft mud and fresh water are necessary. After approximately one year, the fronds reach a height anywhere from 10 to 25 feet; they are then cut, dried, and used as thatch (Hickey 1964: 153).

Furthermore, mangrove swamps provided food items such as bird feathers, snakeskins and tortoise shells, which the imperial court and the nobility demanded for consumption and for sale. Forest products, along with hunting and fishing together supplemented yields from new fields satisfied the subsistence needs of new settlers in the region (Son Nam 1959: 82-84; Gourou 1940: 285-286). People collected honey, wax, charcoal water palm, and varied aquatic fish species. In Ha Tien province, fishing, rather than rice, was the principle livelihood. But fishing was done mainly near the shore, in canals, creeks and ponds (Brocheaux 1995: 81-2). The region’s biodiversity consisted of 78 plant species …in the melaleuca forest, individually, of them several species served as medicinal and other use to the local communities. The Dat Mui
mangrove forest possesses 21 plant species. Most of them are valuable resources for construction, charcoal, firewood, tannin, medicine, forage, fuel...[out of 51 total plant species found in the mangroves nationwide]" (Phan Nguyen Hong and Hoang Thi San 1984).

Thick mangrove coverage enabled coastal residents in Tra Vinh to maintain their subsistence livelihoods through the resistance war. A grandmother recalled the pristine conditions of the mangroves in the state farm in Hiep Thanh until 1980s:

My husband and I went to the forest to measure the land. The trees were so high that we lost our direction as soon as we stepped into the forest. Surrounding us were trees so tall that you won’t be able to see anything just a few steps away. My husband and I had to use a rope to measure the land. He would hold one end of the rope and I the other. We had to call out to each other so we know which direction the other was. Now all the trees are gone… (Grandmother, 80, Cay Da, November 2006)

Hidden away from the province’s economic center, mangroves were its most important buffer for households in Hiep Thanh commune. Mangroves protected the area from soil erosion and provided materials for roofing and lodging. The most common mangrove species included nipa water palm (dừa nước), mắm, giá, and trà là. Nipa water palm and trà là are commonly used in housing construction. Trà là has a rough but strong and durable trunk that is used for housing frames. Nipa water palm leaves are collected, dried, and paneled into sheets for roofing. These leaf panels also were used for partitions inside a house. Before the introduction of modern construction materials, making nipa leaf panels was a source of livelihoods for many landless households. Some even rented land from which to harvest nipa leaves. Although nipa leaf panels have largely been replaced by modern materials and with massive mangrove clearing driving up their costs, these leaf panels continue to be regarded as the ideal for roofing. No other material can offer the nipa palm leaf’s heat-proof quality. Senior residents in Hiep Thanh commune
shared a special intimacy with this leaf as they recalled how mangroves provided shelter and protection for the Việt Cộng, many of whom were their own family members, their husbands and sons.

Although My Quy is located further away from the coast, to a lesser extent poor forests (rừng tap) provided an important source of food and shelter for local villagers during the war. Households cultivated rice and vegetables and raised livestock for domestic consumption. A villager in My Quy shared her fond memory of the forest:

During the 1960s, the village had only 70-80 households living on rice, yam, and a rich supply of wild vegetables and food. Many vegetables were collected from the field rather than bought from the market. Rice was cultivated for domestic consumption. We never produced enough to sell. In those years, people used clay pots instead of metal vessels [like now]. We also harvested cane (gông mai gióc) from the forest to make bamboo poles (đòn gánh). We call it cane (cây mây). We had to collect rubber to make vessel mats (đế nơi); tires were cut out to make sandals because there were no plastic sandals. We used water coconut (nipa) to build houses. The same leaf was used for housing construction, to make a large vessel for rice storage, to create bags, to form water collectors and to build bathrooms. At the height of the resistance war (Vietnam War), most people had to evacuate. In 1965, there were only 40 families in this village. Then, My Quy was a strategic hamlet. We still grew rice as the staple crop. Watermelon and herbal medicine (thuốc lá) were cultivated on a smaller scale. People raised pigs. Buffalo and cows were the main animals. Cows were also used to plough the soil.

(Woman farmer, 50, My Quy, July 2006)

Many of these forest products are no longer available but wild vegetable, fish and crabs are still collected for domestic consumption among the locals. However, it is hard to measure the share these resources contribute to a household’s income. As will be discussed in Chapter 8, the biodiversity of mangroves and poor forests has diminished due to rapid deforestation since Doi Moi and the shrimp boom. Many of these features
have become part of the region’s history that can only be retrieved from older people whose identities were tied with that of the land.

_Fisheries_

Fisheries, done in numerous ways, make up an important feature of livelihoods in the Mekong Delta as noted an author:

In the Mekong Delta, fishing can be done all year round, especially in the water receding season. Everyone, from young children to the elderly, knows how to fish. There estimated a total of 35 methods for in-field and river fishing... There must be 49 fishing tools, consisting of 19 fishing poles, 22 nets, and 8 net-less tools... (Nguyen Cong Binh et al., 1990: 295).

Rice-farming communities upstream of the Delta use their paddy fields as a breeding ground for fish that flow into the field along with tidal waters, while coastal populations harvest fish from the sea and brackish bodies of water. Some distinctions in the fishing practices in rice farming and mangroves areas can be made by examining the tools used. In rice farming areas, people used traps to catch fish in small water bodies and paddy fields such as _ong mieng thoï_ for catching small prawns and crabs, _cai thoï, cai nom, cai bung_ and _cai rong_ were used for catching small fish (Hickey 1964: 159-165). Coastal populations, on the other hand, used large standing nets, bow nets and square dropping nets made of bamboo and rattan (Brocheaux 1995: 82-85). But the most important distinction lies in local production organizations. Rice cultivators in the Mekong Delta are known for their long tradition of sharing labor (_đàn công_), where groups of ten households organized and helped one another out to prepare soil, transplant, weed and harvest. In these communities, fishing brought supplemental income. On the
other hand, fish folks fished collectively from January to May to take advantage of the progressive drying of the small waterways and marshes. They shared the catch at the end of the day.

In Hiep Thanh commune, rice cultivation used to be an important source of livelihood. However, constrained by a small area of agricultural land, fishing has always been a prominent feature of local livelihoods. Before Doi Moi and especially before the arrival of the shrimp boom, Hiep Thanh residents enjoyed plentiful supplies of wild fish. Local people also collected wild vegetables for domestic consumption. Residents in Ap Cho, located on the outskirts of Hiep Thanh, practiced dozens of fishing techniques. Fishing in waterways, canals and creeks used to be a household activity whereas offshore fishing required cooperation among a few households to share the costs of expensive equipment. Starting in the second half of the 1970s, national economic policies that looked to mangroves as a resource for economic development threatened this way of life became. During 1977-1983, the state farm movement marked the first wave of mangrove clearance in the region to make way for rice cultivation and coconut plantation (Hopkins 1995: 6). In 1979, Hiep Thanh’s mangroves became the target for the formation of the Anh Duong coconut state farm, one of the dozens of state farms established in coastal areas of Tra Vinh. Since coconuts did not yield their expected economic value, farmers harvested wild fish in the canals that were created for coconut. Some of the harvested fish were sold to local processing factories and exported to former socialist markets.
Cash Crops

In the upper region of the Mekong Delta where fresh water supplies were available for rice cultivation, industrial crops, fruits and vegetables were promoted for export. The Vietnamese Agricultural Statistics report produced by the US Operations Mission to Vietnam in Sai Gon (1959: 28) reported corn, tea, cassia (cinnamon), coconuts and copra, coffee, tobacco, sweet potatoes, manioc jute, cotton kapok and peanuts to be the main export crops cultivated in the region in the late 1950s. In the western region of the Mekong Delta, pepper was the only sizable commercial crop cultivated in Ha Tien and the canton of Hon Chong where Cambodian, Vietnamese and Chinese landowners had settled in the valleys. Most of these pepper growers were Chinese and other foreigners (Brocheaux 1995: 85-7).

Some areas of the Delta were devoted to rubber plantations. 87 percent of the total production of rubber in 1965 came from estate plantations typically over 500 ha in size that centered north and east of Saigon in Phuoc Long, Binh Long, Bien Hoa, Long Khanh, Binh Duong and Tay Ninh (UN 1968: 58). A total of 75, 297 ha of land were used for plantations. In Quang Tin, Lam Dong and Pleiku in the Central Highlands, tea, coffee, cacao and coconuts were cultivated. Fruit trees were concentrated in the southern region and accounted for 84 percent of the total planted area of 37,225 ha. Bananas were grown in Vinh Long, Bien Hoa, Dinh Tuong and An Giang. Coconut groves were found in Binh Dinh, Kien Hoa. Cacao was also cultivated in the southern region and central lowlands (UN 1968: 58).
If vegetables and fruits were the mainstay of the economy in the west, fisheries and mangrove products provided the core of the economy on the east coast. In Khanh Hau, fruits were said to bring great profits. Better-off villagers even converted paddy fields into fruit groves along the national highways. They grew different varieties of bananas, oranges, grapefruit, and limes for local markets. Although fertilizers were used for these fruit trees, farmers preferred to use ash to keep the soil fertile. Supplies of fresh water remained the greatest challenge for agricultural production in the region. Some families accepted the high cost of well digging to ensure a water supply for their crops. Coconut was also a common tree, though they take many years before yielding fruits (Hickey 1964: 148-153).

The French, and later the Americans, attempted to promote agricultural production in the Mekong Delta by fostering the region’s contact with new seeds, technology, and chemical fertilizers. According people in Tra Vinh, corn seeds were first introduced to My Quy in 1963 by people coming from Long Khanh. The seeds that first arrived in Duyen Hai were cultivated in the silt accumulated from annual flooding. Such soil is ideal for crop cultivation since it is fertile and requires no irrigation. During 1965-1968, the region experienced a burgeoning of new cash crops, including watermelons, gourds, sugar cane, and peanuts, which contributed to an economic boom. People could cultivate more crops for sale. Some households became wealthy enough to send their children to study in the Tra Vinh provincial town and the Cau Ngang district town. In 1967, construction of a dike started in My Quy to prevent salinity intrusion in the Tam Du fields for rice cultivation. However, most of these efforts were piecemeal and scattered, due in part to the lack of support from local villagers who evacuated for safety.
Towards 1972, with foreign aid drying up, the Diem government had no choice but to look more closely into ways to generate revenue from the agricultural sector that had declined to the point that Vietnam had to import food.\textsuperscript{13} Diem government’s agricultural advisors called for the revitalization of a large number of crops for export. These include rice, rubber, bananas, tea, coconuts and peanuts for making oil, coffee, vegetables and fruits, herbs, meat, agro-forestry products, cinnamon, wood, and seafood.\textsuperscript{14}

\textit{Diversification}

Against the backdrops of war, resettlement, and the lure of cash crops, livelihoods in Tra Vinh remained highly diversified with income from both on- and off-farm activities. Even though the environment saw drastic changes, vegetables, fish and many items could still be collected wild for domestic use. It was also common for households to keep a few chickens and ducks for domestic consumption. Other animals such as buffalos and cows were kept to work the land. Families also raised pigs as a form of savings. \textit{Mản muộn} or renting out labor had long been a tradition for landless and land-poor households in the Mekong Delta. In the past, people provided labor for agricultural farming. Many also chose to earn extra cash by maintaining small groceries and teashops. Many of these

\textsuperscript{13} The same article notes a loss of revenue from export as follows: “In the past 10 years, the Republic of Vietnam export revenue has seriously declined. Vietnam exports increase from 42 million USD in 1956 to 81.5 million USD in 1960 to fall again to 34.3 million USD in 1965 down to 10 million USD in 1969. The main export crops of rice and rubber have reduced significantly. From 340,000 tons of rice exported in 1960 worth 27.2 million USD, the rice export has reduced gradually. In 1964, Vietnam had to import rice.\textsuperscript{14} \textit{Hiện tình và triển vọng xuất cảng nông sản của Việt Nam Cộng Hòa – Nguyễn San Cải Tiến Nông Nghiệp Phỏ Thông. Trang 25-30. Ngày 26 tháng 3 năm 1972.}
features of rural livelihoods in the Mekong Delta continue to make up an important part of village life today.

Traditional Social Structure

**Landlord-Tenant**

Reading the history of the Mekong Delta leaves one with the impression of a highly stratified society, where a large number of tenants were subordinated to a few landlords who had control over the large majority of land and agricultural outputs and other resources tied to the land. In Tra Vinh, the relationship between landlords and tenants goes as far back as 1847 when King Thiệu Trị the Third and Nguyen Tri Phuong set up plantations in Cau Ngang and Tra Cu (districts) to collect rents. Son Nam offered the following explanation of the landlord-tenant economic arrangement:

Villagers had to register in the land book (sổ bô) for tax collection purposes. Villagers here meant men. Everyone had to register regardless of what profession they had. That was the rule, but in reality, many refused to register. They were illegal residents (đàn lãu). In the end, it was the new landlord who had to register and pay tax… Illegal residents (residents who are not registered) without power or money to clear new land, and became tenants renting land from the landlords. As tenants, they had to create a document called tờ tá or rental agreement to rent land for rice cultivation. At harvest time, they made payments to their landlords in paddy… Under feudalism (and throughout the French domination) the state did not provide any clear regulations on the amount of rice (tá túc) or ratio of the harvest that the tenants had to pay their landlords. Tenants had to rely on the landlord’s kindness. The frequently cited Confucian principle of “collecting virtue” was directed at a landlord’s treatment of his tenants. Tenants themselves, even with kin, occupied the lowest place in society, having nobody below them (Son Nam 1973: 27-8).

For much of the Mekong Delta’s history, landholding was highly unequal. Under the Diem regime, landlords rented out 40 percent of the land. In the Mekong Delta, 6,300
big landowners, accounting for only 0.25 percent of the rural population, owned about 45 percent of the rice land. 600,000 tenants cultivated two thirds of this area (Porter 1993: 59). Before the revolution, Tra Vinh farmers often rented land from landlords. The latter relied on locally hired managers (cả biên) to manage the land for them. This period displayed great disparity in landholding as Table 2.1 demonstrates the situation in Tra Vinh in 1956.

Table 2.1: Disparity in Landholding in Tra Vinh in 1956

<table>
<thead>
<tr>
<th>Holding size (acres)</th>
<th>Number of owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 5</td>
<td>13,010</td>
</tr>
<tr>
<td>5-10</td>
<td>1,860</td>
</tr>
<tr>
<td>10-50</td>
<td>1,120</td>
</tr>
<tr>
<td>50-100</td>
<td>210</td>
</tr>
<tr>
<td>100-500</td>
<td>102</td>
</tr>
<tr>
<td>500-1000</td>
<td>2</td>
</tr>
<tr>
<td>1000-5000</td>
<td>1</td>
</tr>
</tbody>
</table>

*Source: Land, households and farmers in South Vietnam – Update on the land reform up to May 31, 1956 to be used as the basis for Land Clearance Program in 1956.*

Existing records provide conflicting information on the landlord-tenant relationship. It is fair to suggest that precolonial paternalistic model was more complex than it was recognized. In some cases, these relationships were described to be a moral

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15 Bảng Khai Ruộng Đất, Gia Biểu và Nông Dân Tại Nam Việt Nam - Bảng kê khai về tình hình cải cách điền dặm tối ngày 31-5-1956 để ngài tổng thống quyết định về Chương Trình Khai Hoang Khẩn Điển năm 1956.
economy model (Scott 1976). For example, Sansom (1970: 29) quoted a landlord in Dinh Tuong province as saying:

In the past, the relationship between the landlord and his tenants was paternalistic. The landlord considered the tenant as an inferior member of his extended family. When the tenant’s father died, it was the duty of the landlord to give money to the tenant for the funeral; if his wife was pregnant, the landlord gave money for the birth; if he was in financial ruin the landlord gave assistance; therefore, the tenant had to behave as an inferior member of the extended family.

However, James Hendry (1964: 211) noted a quite different situation in Khanh Hau, another province of the Mekong Delta, where “the villages still tend to characterize the pre-war landlords’ attitude as having concern only for collecting their rents, but not in aiding measures which might improve the living conditions for the tenants.” This latter depiction of the landlord-tenant relationship appeared to be more common. In Tra Vinh, according to a grandmother who migrated to Hiep Thanh in the 1940s, most of the landlords in the area were wealthy Kinh or Chinese who had immigrated to the commune and hired Khmer laborers to work for them. Newcomer had no choice but to rent land and pay the landlords in rice.

In the beginning, we had to rent land for 5 dã (221 lbs) per công. At harvest time, we had to transport the rice to the landlord’s house. Since we did not use any chemical fertilizer, production was very low. We could harvest 10 dã (442 lbs) of rice per công at the most and had to pay the landlord 5 dã. That is why we never had extra. People could work 100 công (24.7 acres) of land and were still hungry. This is because some years the weather was not favorable, but the landlord did not consider that factor and still taxed tenants the same rent as other years. (Grandmother, 80, Hiep Thanh, July 2006).

In My Quy, some local villagers still remember by name the landlords who relied on locally hired managers (cà biên) to manage their land and collect rents. Rental arrangements varied from region to region, but regardless of the model adopted, farmers
still had to pay back every year at harvest time. Two villagers in My Quy detailed the arrangement between landlords and tenants in the village as follows:

We had to rent land from landlords and pay them back in rice at harvest times. Usually, we had to harvest the rice, clean it, then hire transportation to ship the rice to the landlord’s storage after keeping enough rice for a whole year consumption. Those who needed more had to borrow from the landlord. One had to return 15 đạ for a 10 đạ of rice borrowed from the landlord. That is reasonable. If you had to borrow money, the interest was much higher. Say, if I had no money to buy food for my children, I had to go and ask the landlord for some advancement. I would only receive 15 dông for my labor instead of someone who need not take the advance payment. If you are poor, that was how it worked. You are dependent on the landlord and you have to work the whole year round. We never had enough to eat, but the landlords always had extra to lend to the commoners for high interests. The poor households had to work their lifetime in order to pay back because they could never settle the interest. The landlords lent you rice because you supplied labor (Woman farmer, 52, My Quy, July 2006).

For tenant farmers, life went on like this until the early 1970s when, under the Land To The Tiller Program (LTTT), the Southern government redistributed land to tenant farmers that had been bought back from landlords. The LTTT ended the decades-long exploitation of tenant farmers while intensifying the conflict between the Communist and the Southern governments. By the time the Diem government issued land use certificates to farmers, the Communists had already set up a solid base, well supported by local people in mangrove-forested areas of Tra Vinh. The lack of cooperation between the Southern government and local villagers could be discerned by how the latter were not even aware of the LTTT program until Communist representatives brought them the news. However, land redistribution under the LTTT program only served to restore social equality briefly, until 1975 before a new pattern of inequality set in. Villagers who had to evacuate during the war missed the opportunity to obtain land and thus became a new group of landless for decades to come.
Communal Land

Whether communal land is a traditional source of buffer is a controversial question since its functions seemed to vary greatly depending on specific geographical location, and political and economic circumstances. Under the French, the communal land budget was significant, accounting for a large portion of the total land. Communal land accounted for two fifths of the total land in Ha Nam province, one third in Thai Binh province, and two-thirds in Thua Thien province. Bac Giang had the smallest share of 1/23 (Truong Chinh and Vo Nguyen Giap 1974: 77-8). In theory, communal land should be used to generate income for the village. The income would then be used for communal causes and to provide tenants and those in need with land. Discussing the role of communal land, Scott noted that:

Occasionally, where the communitarian tradition was strongest, most notably in Tonkin, Annam, and Java, the subsistence ethic took the form of village rights over land. An average of roughly 25 percent of the land in Tonkin and Annam was communal land, and in Quang Tri and Quang Binh provinces the figure was over 50 percent of paddy land. Some of this land was allotted more or less on the basis of need to poor villagers. The rent from communal land was deployed in part to help the poor pay taxes and to support noncultivating widows and orphans. Elsewhere, rights to cultivate local wasteland within the village domain, grazing rights, gleaning rights, and the customary rule that no outside tenants or laborers be engaged if a needy villager could be found, all served the same end of enabling the village poor to scrape by. (Scott 1976: 43)

In the Mekong Delta communal land was an important traditional socio-economic institution that was maintained to “limit the influence of private property concentration while at the same time creating a society of small peasants” (Nguyen Dinh Dau 1979: 180). However, this was not the case in Tra Vinh, where local notables (hương chúc và thân hào) who had exclusive power over communal land which belonged to the village.
Unable to sell the land did not stop them from renting it for a lower price and re-leased it to tenants at a higher rate to garner a profit. The abuse of communal land for personal gains meant that tenants received no benefits from communal land. Son Nam (1973: 28) described the abuse of communal land in Tra Vinh as follows:

The landlord in the past could benefit from the “buds” (lộc) provided by tenants as an expression of gratitude, because the landlord had provided the tenant with land for farming, for building a house, and a place to borrow money from in the event of illness. The borrower had to provide the landlord who was the small king of their land where the tenant was the subject of the little kingdom. The landlord forced the tenant to work for him as a contribution, a few days in a year (depending on the kindness of the landlord) for death ceremonies, at weddings, or to celebrate their longevity. In preparation for Tet, the tenant had to come and clean grass, cut firewood, husk rice, or sailing boat. Apart from the amount of rice noted in the land leased, the tenant had to make an in-kind contribution called “public offering” (công lễ) of a few liters of glutinous rice wine, a basket of white glutinous rice, a couple of duck for death ceremonies or Tet at the landlord’s house (theo kiếp chợ đầu công sử cho thiên tử). In return, as a moral deed to accumulate mores for their offspring, many landlords wanted to show their generosity by burning off the tenant’s debt paper – the kind that had already passed due years ago due to crop failure or illnesses.

In the studied villages, no communal land is available. In My Quy, a small stretch of land forming the boundary around the village’s đình was considered communal land. This land could be used as a burial ground for local villagers. Today, no communal land is left, arable or burial. Instead, people bury their deceased family members on family land, usually in front of the homestead. In Hiep Thanh, although landlords used to own most of the agricultural land, the system was discarded early in the 1970s. Until about ten years ago, to find a piece of land in the mangrove forested area was relatively easy. But strictly speaking, no communal land was available that function as a safety net for those in need.
Communal Bonds

Analyses of the social structure in the Mekong Delta appear somewhat contradictory. On the one hand, some scholars depicted rural communities in the south as possessing “the spirit of close mutual affection and assistance, the realization of communal strength, the exchange of lessons between members of the Vietnamese community coming and working here” (Huynh Lua, cited in Taylor 2001: 93). As pioneers to a new land, communal bonds are essential for people to overcome the uncertainty in a dangerous environment. Elliott (2003: 16-17) noted that it was altruism and idealism of the faith in collectivity and the sacrifice of individual interest that provided an extraordinary level of social cohesion for a society dislocated by colonial rule and wartime stress.

On the other hand, others hold the opinion that Mekong Delta villages displayed less solidarity in comparison with their northern counterparts. Rambo attributed weak communal bonds and kinship ties in the south to the lack of cultural complexity. He wrote:

Despite the great growth of population and the spread of chronic insecurity in rural areas of the lower Mekong Delta since the 1940s, no tendency has appeared on the part of the Southern peasants to place greater emphasis on lineage or village organization as a risk-spreading strategy. Responses to wartime pressures continue to be made at the level of the individual and the nuclear family. (Rambo 1973: 397)

Loose communal bonds and greater independence are often seen as features of rural communities that have long been engaged in the market economy. Rural households in the South display greater independence in their production arrangements and their use of hired labor and credit from private moneylenders charging high interest (Hickey 1964; Hendry 1964; Sansom 1973). Furthermore, while sparsely populated, the Mekong Delta
is blessed with over a third of the country’s good farmland. Favorable natural conditions explain why there is little need for the “intricate and tightly woven web of village organizations found in the Red River Delta, which was poor, and more densely settled and more often subject to natural disasters” (Rambo 1973, cited in Jamieson 1991: 28). The south was also known to have been in frequent contact with French and foreign mass media propaganda, which explained its more individualistic cultural orientation that dominated Saigon during 1954 -1975 (Jamieson 1991: 28).

Unlike northern corporate villages that were often carefully fenced off from the outside world, the Mekong Delta villages were not restricted by their physical boundaries. The vast landscape afforded southerners with greater freedom and mobility (Rambo 1973). The ease of obtaining land required little need for competition over land and natural resources. A less recognized possible explanation for weak social bonds in the south is the effects of political instability, resulted from competing political forces that caused local people to be more cautious. An attempt to document local organizations during the war revealed the absence of indigenous organizations for mutual support while most formal, political and religious organizations were vested with their own agendas (Donoghue and Vo Hong Phuc 1961).

In spite of such depiction of southern villages as lacking communal bonds, mechanisms of exchange and reciprocity in Mekong Delta villages were found to exist in many forms. Mutual aid was most common through family, kinship ties and village law. Under stressful economic circumstances, people relied on families, close neighbors and friends for assistance. In rice cultivation, cooperation was most common during transplanting and harvesting, a pattern that had long existed in the Mekong Delta,
particularly among smaller groups of poor households (Hendry 1964: 65-76; Hickey 1964). In certain areas like Khanh Hau, Ong Ke Hien, a venerable even made contributions in rice to be distributed among the needy (Hickey 1964: 63, 201).

It was through examination of mutual support networks that a class-based society was revealed. In Khanh Hau, cooperation was most evident among those in lower socioeconomic classes, comprising of laborers, barbers, tailors and shopkeepers, who called on one another for assistance in preparing the fields, transplanting, irrigating, and harvesting (Hickey1964: 244). Kin and close neighbors also assisted one another in house repairs and other agricultural tasks (Hickey 1964: 267). But the strongest social cohesion was associated with religious ties. For example, Cao Daists could borrow waterwheels from a fellow Cao Daist, which is unusual for other areas (Rambo 1973: 397).

Life and Livelihoods under Collectivization

*Production Organization under Collectivization*

An aspect of the Mekong Delta’s history that has left ambivalent feelings among the locals is associated with the socialist era that lasted less than a decade following reunification in 1975. Soon after the collapse of the Diem regime, the Communist government introduced collectivization in the South. By this time, collectivization in the

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16 Elliott (2003: 929-936) and Sansom (1971: 130-131) argue for a connection between labor-exchange teams and political motive, particularly in relation to the Viet Cong operation in the South. For example, the slogan “sharing one’s food and clothing campaign” was to mobilize support for the laborers and small-scale tenant farmers. Similarly, “work exchange team” or the “labor-exchange association” were designed to encourage farmers to work together on projects such as ditch cleaning, instead of working as individuals hiring labor from one another. It is also noted that such “team” organization was to discriminate against landlords and rich farmers in accessing labor.
North had already reached a high status (hợp tác xã bắc cao). During 1961-1965, about 90 percent of all peasant households in the North had joined the cooperative, of which 72 percent were high-level members (Boothroyd and Pham Xuan Nam 2000: 12). In the South, pre-collectivization pilot models called tô hợp tác or hợp tác xã bắc thấp were tried out. Despite pressure to give up land and productive resources to the cooperative and to join the work-point system, Southern farmers resisted collectivization. A low number of households joined the cooperative. A meeting held by the Southern Agricultural Reform Committee in 1979 reported that:

The provinces had formed an addition of 4,000 production groups, adding to a total of 12,437 production groups with 491,364 households and accounting for 28 percent [of the total number of households] that collectivized 453,400 hectares of arable land. An addition of 61 cooperatives has been established adding to the total of 271. Both production groups and cooperatives account for 31.2% of the total of farm households participating and 24% of the land collectivized (Hanoi National Archival III).

Among the Mekong Delta provinces, the collectivization experience in the eastern provinces was distinctive from that in the western provinces. Since the design behind collectivization had focused mainly on rice cultivation, the model suited rice cultivation regions but not coastal areas where both land and population were scattered. In Tra Vinh, collectivization was sporadic and unevenly implemented. Of the studied villages, My Quy’s experiences with collectivization, in particular production organization within tô hợp tác left the most profound scars. A retired farmer in My Quy recalled the changes in production organization under collectivization as thus:

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17 Tập đoàn (brigade), or low level cooperative, was first introduced in the Mekong Delta after 1975 as a form of training. Households in these groups shared land, drought animals and machines. It was expected that as households learned to farm in groups, they could move to the higher level of hợp tác xã (cooperative). My Quy, which was part of Giong Dai village, had six tập đoàn, each having about 50 households.
The reunification in 1975 brought about major changes to land use in the area. The government sent cadres down. Soldiers who served the Southern government were brought over to clear the mangrove forests, people immigrated according to the NEZ program; the state provided land to the people; and the Mũi Rùa and the April 30 state farms were created for fish rearing. The government also built dikes, dug canals and planted eucalyptus. Few households raised buffalos and cows to work the land. It was not until 1978 that a few plough machines were introduced along with the introduction of brigades (tiếp đoàn). This village had six brigades, each consisting of about 50 households. The brigades allocated land according to the number of members. For poor soil, each person received four công. If you had four persons in your household, you received 16 cong. Although the brigades were formed in 1975-76, work was not shared yet and the work point system was not applied until 1984-1985. Then cadres were sent to the area to implement the work point system. In those years, the shortage of every basic daily necessity was severe. Not even the most basic goods were available to buy. Life was miserable. Those with connections would be given priority while those outside this circle had to buy these necessities on the black market [for higher prices]. (Retired farmer, 74, My Quy, February 2006)

In Hiep Thanh commune where land, mangroves and livelihoods were affected by the mobilization to build state farms, the situation was markedly different. During 1978-1983, the coastal areas of the Mekong Delta became the target of the New Economic Zone program with the slogan of “our hands build everything, with human power, we can turn rock into rice” (bàn tay ta làm nên tất cả, có sức người sói đá cũng thành cơm). Groups of youth volunteers arrived in Duyen Hai to help build four state farms on 4,200 ha of mangroves. These were comprised of the Thông Nhất farm with 1,000 ha, April 30th farm with 2,000 ha, Cây Dương with 1,000 ha and Đi Dân Kênh Xáng with only 200 ha (Duyen Hai People’s Committee, cited in VNRP 1995: 49). These farms were set up to produce both cash and food crops. Some were devoted to coconut planting, the harvests of which would be exported to former socialist European markets in hopes of reversing the situation of food shortage of the 1980s. In those years, state farms like these made considerable contributions to national GDP. Lam Quang Huyen (1985: 200) wrote:
By 1982, the South had established 250 state farms under the control of four ministries: Ministry of Agriculture, Ministry of Defense, Ministry of Food and Industry and The Rubber Company. The farms managed 180,000 ha of land, accounting for 3 percent of agricultural land, providing 6 percent of agricultural values, and 20 percent of national export values (100 percent of rubber exports and 50 percent tea exports).

However, in Hiep Thanh, the attempts to promote coconut farming resulted in failure due to unsuitable soil conditions. Instead of coconuts, farm households discovered wild fish as an unexpected source of income. The farm was then converted into a fish farm for a brief period before state farms were disbanded altogether and land was redistributed to local farm households.

**Village Life under Collectivization**

For a population that had always enjoyed the freedom of making their own production decisions, coerced into giving up one’s productive assets and making a living under the rigid structure of the cooperative required considerable sacrifice and adjustment. Collectivization therefore received strong resistance from local people, especially landowners. Production within the cooperative was so poor that farmers across rural Vietnam had to rely on the five percent of land they had control over outside the cooperative, which actually provided about 40 percent of households’ cash income (Kerkvliet and Selden 1998:42). Except for the few landless farmers, most landowners in the studied villages

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18 Economic desperation urged the Cuu Long provincial government to focus on coconut farming in coastal areas regardless of recommendations from a group of scientists from Can Tho University against it due to the high level of acidity in the soil of the coastal area. The coconut tree prefers brackish water. After 10-15 years, coconut trees only reached the height of 1.5 – 2 meters and bore waterless small fruits. The movement of state farms also caused the destruction of 14,000 ha of mangroves in Ben Tre and most of the 14,000 ha in Soc Trang province (VNRP 1995: 50-1).
recalled collectivization as a time of economic hardship and misery, when quality of life deteriorated rapidly following loss of control over productive assets, prolonged food scarcity and lack of virtually all daily basic necessities, such as meat, sugar, fish sauce, fuel, soap, and fabric - items that were rationed at subsidized prices (Porter 1993: 55). Le Dang Doanh (2009: 171-2) noted:

The state provided rations of basic necessities at stable prices, but the supply was scarce and not sustainable... Despite significant aid and assistance from the socialist countries, the notorious shortage and imbalance between the demand and supply of basic necessities forced the government to implement a complicated hierarchical system of rationing... of rice, textiles, health care, housing, furniture, cars, motorbikes or bicycles, even tickets of soccer games,” which led to a highly stratified society with widespread discrimination and favoritism.

Although life under collectivization was not easy, the communist government’s attempts to deliver on the socialist ideals of equity did narrow the wealth gaps among the landed and landless. According to a report on the situation of agricultural cooperatives prepared by the Southern Agricultural Reform Committee (Ban Cải Tạo Nông Nghiệp Miền Nam) in 1978, the cooperatives helped to maintain a mechanism of fair redistribution. Resolution 29 of the Central Party Secretary noted that the cooperative had to guarantee 60 percent of income for members and a monthly rice portion of 18-28kg per person. The cooperatives also redistributed income according to the number of laborers while ensuring basic needs for those households that lacked labor (neo đơn không nơi nương tọa), those who lost labor and those who were too young to work.

In Tra Vinh, subsidies and cooperative production were welcomed by just a small number of landless households while the majority of the landed considered collectivization a dark chapter in their lives. Even three decades after reunification,
memories of collectivization still ignited anger among some villagers in My Quy, whose families had lost land to the government and considered the lack of compensation and acknowledgement of their parents’ sacrifice for the cause of the Communist Party intolerable. Moreover, local people have not yet forgotten their suffering through food shortages during 1976-1978, when, people had to eat unhusked wheat (bobo). To make matters worse, a trade restriction policy known as the “block the river, ban the market” (ngăn sông cấm chợ)\(^1\) prohibited the transportation of goods across provinces, districts and even villages. Anger was also directed towards local cadres who took advantage of their political power for economic gain as a lifetime resident of My Quy recalled:

Unless you were from a family with roots (dòng họ có gốc rễ), life was very hard. Some people moved back home after the war, could not survive and had to return to Tra Vinh town. Rice cultivated was just enough to eat, but everything else you grew did not yield anything. In those years, if you transport a cart of watermelon to the tax station, the tax alone would kill you. [Describing the scene at a check point] The five us stood in a row, held our hands together [in a praying position] to beg the tax collector for a reduction. You see, we had to contribute until nothing was left (đồng khùng khác). The government levied heavy sale taxes. The traders had no choice but to deduct it from farmers (đu đạnhduc, đức đánh xăng). Say, without tax, the trader could pay you 2,000 đồng/kg. With tax, they only gave you 1,500 đồng/kg. It was not until Nguyen Van Linh became the Party Secretary that tax was reduced. (Retired farmer, 74, My Quy, November 2006)

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\(^1\) A resolution of the Party Committee IV in December 1976 noted, “In the South, to promote socialist commercial system and commercial cooperatives, the state has to control wholesale trading while managing retail trading, manage the national market, erase capitalist trading, and shift petty trading to large production.” However, by 1978, socialist trading only controlled 40% of industrial goods and 15% of agricultural goods. The free market was still too large. The socialist trading system expanded, including companies under level 1 and 2 and state shops across rural and urban areas. The labor force increased from 50,000 in 1977 to 90,000 in 1978. The trading cooperatives established thousands of buy and sell cooperatives (hop tac xa mua ban) in 90% of the communes in the South (1985: 209-211). The communist restriction of the mobility of goods could be discerned from the communist anti-entrepreneurship attitude. In the South trade restriction was part of the policy agenda against the Southern Government. To prevent money from flowing into the pocket of the Southern Government, the communist government also collected rents and taxes from farmers (Sansom 1971: 222-227).
While collectivization helped to restore social equality by the redistribution of productive resources and outputs, in return, it triggered a different kind of social conflict. In My Quy former landowners resisted local authorities and disdained the landless. By the early 1984-5, resentment among landowners reached its climax across the country causing conflicts among landowners and the landless. Instead of focusing on production, people protested collectivization. Instead of working, people focused their energy on gossiping, comparing the prices of basic goods in the black market (chợ đen chợ đỏ). They expressed jealousy towards those in power with access to much needed goods. As conflicts intensified, the government had to let go of the brigades and cooperatives and land to be returned to former owners. In 1986, the collapse of the state farms resulted in state farm land being redistributed to local households. In Hiep Thanh commune, each household received 20-30 công (0.5 to 0.74 acres). Unlike the North, where people still recognize the various welfare functions of the cooperative (Sikor 1999; Scott 2001; Luttrell 2001), Southern farmers see little value in the role of the cooperative.

Conclusion

Before Doi Moi, livelihoods in coastal areas of Tra Vinh were largely self-subsistence. Fisheries rather than rice made up the main source of livelihoods and income. Further away from the coast, rice farmers supplemented their income with wild vegetables and fish from creeks, canals and paddy fields. The rich biodiversity of the wetland ecosystem provided coastal villagers with a relatively secure livelihood throughout the hardship of the anti-American resistance war. Instead of “weak communal bond” within the Southern
village, social relations in Tra Vinh fluctuated in response to broader economic and political changes.

The anti-American resistance war, particularly the tactics employed by the Southern government and the Communist forces against each other, left deep scars on village life and society. However, the Communist government’s failure to improve the economic situation, particularly following the collapse of collectivization triggered major resistance from local people in the Mekong Delta. This partly explains Southerners’ enthusiasm towards market reforms. The effects on local farmers of market reforms especially through agricultural restructuring will be the focus of Chapters Five to Eight.
CHAPTER 3. RESEARCH QUESTIONS & METHODOLOGY

In 2006, when I returned to Tra Vinh to conduct my fieldwork after an absence of six years, Duyen Hai was almost unrecognizable. All the wooden bridges on national Highway 53 had been replaced with concrete ones. Along the highway, many monkey bridges typically made of bamboo and melaleuca trunks, connecting people’s houses with the main road, had been replaced with concrete ones. A great number of motorbikes had joined the roads filling the once quiet countryside with constant noise throughout the day. Duyen Hai town had become a dynamic district market center. The in and out flows of people and goods kept the town busy throughout the day. The market itself must have been ten times larger than it was in 1998, offering an exuberant amount of consumer items. At least a dozen new stores had been opened selling cell phones, calling cards, accessories and other mobile services. Many guest houses had been introduced to provide accommodation to students who came from far away villages to attend the only high school in the district. A new hotel emerged adjacent to the market. Farmers can also access bank loans from a larger number of credit options. Apart from the Agricultural and Rural Development Bank branch, farmers can now apply for loans from new private banks such as the Mekong Delta Housing Development Bank. Signs of economic and cultural globalization were also evident in the number of new internet cafes in town serving mainly young local customers who come to play games in the night.

The changes in Duyen Hai are attributed to Doi Moi, but most importantly, it was the shrimp boom that is credited for the positive economic development. These changes contributed to Tra Vinh’s impressive annual growth of over 10 percent during 2000-2005. Over the same period, poverty dropped from about 50 to 13 percent. Of this, income from
the agro-forestry sector accounted for over 50 percent of the GDP (Le Anh Vu and Ngo Van Hoai 2006). In Duyen Hai district and elsewhere in Tra Vinh province, few discussions would be considered complete without a shrimp story.

The Shrimp Boom

In Tra Vinh, adoption of the export-led growth strategy\(^{20}\) is considered the deciding factor for improving material wealth. For coastal households, shrimp aquaculture offers greater advantages compared with rice in terms of foreign exchange earning capacity. Such a perception contributed to exponential expansion of shrimp aquaculture in both area and productivity. During 1999-2006, Vietnam’s shrimp production increased by six times from 57,000 tons to 354,600 tons, contributing to a substantial increase from half a billion USD in earning from export in 2001 to well over 2 billion in 2010.\(^{21}\) Tra Vinh’s earning from seafood exports in 2000 was 14 million USD, a threefold increase from 5 million USD in 1996, putting the province in the 9\(^{th}\) rank in the Mekong Delta. Output volume increased from 4,928 tons in 2002 to 21,182 tons in 2005. The target for 2010 is 33,158 tons (TVPC 2004b: 45). In 2006, despite the large areas that had become shrimp farms, the province continued to expand areas of production towards the target of 50,000 tons in 2015.\(^{22}\)

\(^{21}\) According to the Vietnam Seafood Exporters and Producers (VASEP), earning from fisheries in 2010 reached 4.5 billion USD. Shrimp accounts for over half of this amount (www.sggp.org.vn)
\(^{22}\) Vn.stockbiz.vn, retrieved Thủy sản xuất khẩu: mạnh nhà máy, yếu vùng nguyên liệu, June 7\(^{th}\), 2010.
But Doi Moi in general and the shrimp boom in particular are not all about economic gains. In spite of the region’s impressive growth record, the Mekong Delta provinces continue to score low on most social indicators. The region has the highest number of farmers losing land with the lowest education enrollment rate (Taylor 2004). According to Vietnam’s national living standard survey, during 2004 and 2008, the poverty rate in the Mekong Delta area reduced, from 15.3 percent to 11.4 percent, against a national average of 18.1 and 13.4 percent, respectively. However, during the same period, although 32 percent of the households surveyed expressed a significant improvement in their lives compared with the national average of 41.3 percent, the remaining 68 percent reported little change, and 7.8 percent felt that their lives had even worsened in 2008 compared to 2001 against the national average of 5 percent. In 2008, apart from health care, the region scored low on every other social indicator, including education enrollment, housing, running water, and social protection (GSO 2009).  

These social indicators have to be understood as part of the broader socioeconomic processes. For coastal areas like Duyen Hai, there is little doubt that the shrimp boom facilitated by Vietnam’s open door policy and driven by demands from overseas markets since late 1980s has resulted in radical transformations in both its physical and social landscape. The shrimp boom was seen as the most important change contributing to the growing wealth disparity in the region with 80 percent of rich people being shrimp farmers and 80 percent of poor having lost their investment to failed shrimp farming (OGB 1999). Amidst such a forceful wave of socioeconomic transformation, a

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23 This figure is based on comparison of poverty across six regions nationwide. These include the Red River Delta, Northern Midland and Mountain areas, North Central and Central Coastal areas, Central Highlands, South East and the Mekong Delta (GSO 2009).
people accustomed to agricultural production also have to adapt to fundamentally different cultivation techniques.

Research Questions

My research project examined the dynamics of social changes associated with the shrimp boom in Vietnam’s Mekong Delta. In understanding who has benefited from commercial shrimp aquaculture, and who has not, I explored how rural households’ livelihood decisions are facilitated and constrained by globalization-induced structural reforms. In doing so, I probed the complex processes through which the rural environmental, social and economic landscapes are being transformed. In assessing whether these processes strengthened or weakened a household’s ability to deal with the risks of shocks and stress, I mapped the processes underlying different livelihood trajectories. Specifically, the study was designed to:

1. Evaluate how the use of land, water and labor has changed with the expansion of shrimp aquaculture at the expense of the traditional rice-based agricultural system since the early 1990s;

2. Document household responses to opportunities and challenges presented by shrimp aquaculture in socially differentiated groups with variables of gender, ethnicity, class, and access to resources;

3. Examine how household responses have altered household structure, in particular the gender division of labor, and how this, in turn, impacts livelihood decision making;
4. Assess how changes in local institutions - formal and informal - have supported or inhibited household livelihoods; and

5. Study how global market imperatives and national policies shape options and responses of households.

Research Methodology

My research combined qualitative and quantitative methods, including mapping resource use at the research site, household and informant interviews, participant observation, focus group discussions, historical analysis, and policy analysis. Fieldwork conducted from January 2006 to July 2007 consisted of multiple trips to the villages sandwiched with visits to the National Archive III in Hanoi and National Archive II in Ho Chi Minh City. The initial meetings with the villages provided a foundation for subsequent steps in the research, including the identification of key informants and households for a questionnaire survey.

Collection of historical data for Tra Vinh was particularly challenging during fieldwork. Archival research in Hanoi and Ho Chi Minh City provided an historical background to land use and farming systems in the South. No archival records in Hanoi and Ho Chi Minh City could be located for resource use settlement patterns, and livelihood trajectories in Tra Vinh.24 This information gap could not be filled with data

24 National Archives II in Ho Chi Minh City contains data on agricultural policies under the Diem administration, especially documentations of the Land to the Tiller (LTTT) program conducted by the Southern government. However, much of this data were available for provinces that easily accessible by road from Saigon such as Long An and Can Tho. No historical record could be found for Tra Vinh specifically.
from the Tra Vinh public library due to its complicated administrative background. To fill this gap, I collected life histories of senior residents in the studied villages.

During the initial stage of fieldwork, I identified key informants using the "snowball sampling" technique. Key informants were selected based on different experiences in the community (Johnson 1990). In the first stage, selection of respondents sought to capture diversity. During the second stage of data collection, I selected a number of households from the first survey. Samples selected for in-depth interviews were to reflect the range of experiences among shrimp farming households. I paid multiple visits to these households. For each of the selected households, interviews were carried out with one or more household members. For other households, adaptation to changes in the recent past was elicited through memories. This permits conclusions as to the type of access on which the livelihood portfolio is based; how this access has shifted in the face of change; and what this shift has meant for livelihood vulnerability. I used the “studying up” approach by interviewing local traders, processing factories, government officials from the provincial Department of Fisheries (DOF) and the Department of Agriculture and Rural Development (DARD) and their affiliates at the district level, research institutes in charge of agricultural development in the region, as well as regional and national policymakers, to examine the motivations and expectations of these policies from the meso and macro perspectives (McElwee 2004).

Focus-group meetings provided an overview of the history of resource use, settlement patterns and changes in local farming systems and land-use, which contributes

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25 Local officials suggested that Tra Vinh’s separation from Vinh Long province in 1992 probably resulted in all the data being kept in Vinh Long province.
to an understanding of the social and environmental processes occurring in the region. Participants discussed historical changes in property rights and resource use and access over self-created maps. Using maps enabled participants to visualize historical changes in property rights and access to resources (Miller 2003). Focus group meetings with women filled the gap in understanding of changing gender roles in relation to the shrimp boom that is often obscured in data collected from other sources.

While focus groups offered the synergy of collective memories on social events, these meetings were not easy to organize due to a number of reasons. First, since households are located in pockets, villagers socialize with those living in their proximity and are often not aware of new arrivals.26 This means that any focus group meeting risks over representation of only one small social group across the village. Second, most of the group meetings in the villages in Tra Vinh are typically dominated by local authorities, including the village head who is often the Party secretary, representatives of the Women’s Union and the Farmer’s Association, and senior villagers who do not work and can be more easily available. This indicates the biases in the information collected from group meetings. Third, while focus group meetings can bring the most valuable information from those who involve directly in production activities, it was very hard to gather this group due to their busy work schedule. The most productive focus-group meetings during my fieldwork turned out to be spontaneous gatherings of local villagers for casual conversations over tea and drinking sessions. These offered the most reliable information because the setting was informal where participants were not distracted by

26 This contrasts sharply with a typical Northern village. My visits to Northern and Central provinces showed that the largest number of household in a northern village had 80 to 100 households. Very few exceed 120 households. They live in closer proximity due to limited land.
other activities and the sharing of information was voluntary. Group meetings organized by members of local credit groups under local Women’s Union’s initiative provided another spontaneous opportunity for data collection.

To strengthen qualitative data though interviews and participant observation, a questionnaire survey was administered. The questionnaire covered a wide range of issues, including household income and expenditure, investments in shrimp aquaculture versus other crops, land ownership, and gender roles in production and access to resources such as land and bank loans. The selection of households for the survey was purposive to include and maximize the following variables: household size, ownership of land, labor and capital as key assets, and gender. Samples included households that have engaged in shrimp aquaculture, that have quit shrimp farming, and that have never participated in shrimp aquaculture. These households also represented different social strata in the studied villages. The households were initially selected with assistance from participants in the first group meetings.

While the questionnaire survey offered the opportunity to collect systematic information on a larger scale that could not possibly be accomplished by other qualitative methods, many issues emerged during the administration of the questionnaire survey that questioned its reliability. Information on household income and expenditure is personal and requires voluntary participation. However, this kind of information can only be sought from the most able laborers in the household who are often overloaded with other household responsibilities and have little free time. Households whose livelihoods come from multiple minor sources that do not maintain a written record of income and expenditures cannot fill out this important section. When they rely on their memories to
fill out the information, the data consistency is questionable. On the other hand, better-off and rich households may maintain better financial records, but are also discrete about their income and expenditures, which resulted in inaccurate information. This explains why it is usually easier to collect such data from poorer households. Finally, the questionnaire was too long to keep participants engaged. This was true of both the interviewers and interviewees.27

After the first round of collecting questionnaire survey, thirty semi-structured interviews were conducted among a smaller group of households to compile data on the characteristics of different household groups, including size and composition, landholding, access to resources and market information, income and consumption levels, production decisions, and gender roles. Fifteen households were visited and interviewed multiple times to gather more in-depth information on livelihood strategies and coping strategies. One female-headed household was selected in each village for an in-depth interview. However, this last group was too small to make up an important sample.

The value of participant observation as a classic ethnographic research method cannot be overestimated. Participant observation was a particularly useful tool in providing information on gender relations and household decision-making not accessible by questionnaire surveys. Observing body language also helped to identify subjects that are rarely touched upon verbally. However, although rural households in the Mekong Delta are registered households with fixed land, the decreasing significance of agricultural farming in local livelihoods and the increasing importance of diversification

27 I conducted about two thirds of the questionnaire surveys. The rest was assisted by locally hired fieldworkers.
for income means that rural livelihoods are experiencing greater mobility and uncertainty, making it harder to conduct participant observation (Lewellen 2002: 56). Population mobility and livelihood instability in the research sites were translated into the lack of reliability of certain data. In order to maintain my observation with certain households and individuals, on occasions, I had to make multiple visits to one place. Persistence required time and great flexibility. However, the practical challenge of fieldwork in approaching informants can place great pressure on both the quantity and quality of the information collected. Since ethnographic research is dominated by qualitative methods, fieldwork requires the ethnographer’s conscious effort at all times in different places and social settings. All in all, I found informal interactions with people in local social spaces such as markets, café, and other social gatherings a more effective method in data collection than structured interviews. Besides, the absence of a notebook or recorder makes an ethnographer appear less threatening.

Fieldwork Experience

In January 2006, my first exercise in the field was to hold a meeting in each village with a group of approximately ten persons, including men and women from different social groups. The exercise was designed according to the PRA method (Chambers 1994) to draw on local people’s understanding of the history of changes in the landscape and demography and to identify issues relating to local socioeconomic development. I also took the time to test the questionnaire and in the process identify key informants and research assistants.
The second phase of fieldwork started a month after my first visit. I recruited and trained two research assistants to help me administer the questionnaire. I also looked for key informants who could help me understand various activities in shrimp farming. Initially, the idea was to spend as much time as possible on shrimp farms with shrimp farmers. Contrary to my expectation, it soon became evident to me that women were not welcome on shrimp farms due to the association of women with bad luck. The difficulties I encountered in accessing the shrimp ponds/farms alerted me of the gendered implications of household livelihood strategies as well as in shaping social interactions among households engaged in different livelihoods. To maneuver my way through the challenging situation, I decided to select male assistants whose identity as local men could help ease my access to shrimp farms. To some extent, the male research assistants facilitated my access to male dominated social spaces.

Constrained by limited access to the shrimp farms managed by male farmers, I turned to women for help. The women who shared with me their experiences, knowledge, and advice came from different socioeconomic backgrounds; some were shrimp farmers themselves, while others were housewives. A few of these women held government jobs. These women welcomed me into their homes, included me in their meetings and social gatherings; some welcome me in their offices even without any prior notice. Interactions with women enabled me to see a different reality of the shrimp boom never revealed in conversations with men and government officials. The lessons I learned from my interaction with women provided the materials for Chapter 7 on Gender and Sustainability. It would be an understatement to say that unexpected challenges such as village and household size and identity of the researcher constrained the process of
fieldwork in some way. In fact, this chapter provides novice researchers with great insights into the importance of gender implication in the process of proposal development.

**Village vs. Household**

Doing research in the Mekong Delta in the 1970s, Rambo (1973) considered the unusually large village size in the Mekong Delta a challenge for ethnographic research. This remains the case today. Although attempts have been made to split the villages into more manageable administrative units, some of the villages remained very large, with over 500 to 1,000 households. For example, only a few years ago, My Quy was part of Giong Dai village with over 700 households. The current total number of 162 households in My Quy, although significantly reduced, was still large for sample selection. On the other hand, the village of Cay Da has over 500 households. While such uneven population distribution could have been the outcome of war and recent history of immigration to Delta, its implications for the quality of data collection and the purpose of fieldwork should not be overlooked. In the village of Long Thanh, for example, villagers know one another according to the sub-groups in their neighborhood. Villagers are not aware of the administrative arrangements for households located within the Long Thanh Industrial Zone. Such local administrative issues were translated into the difficulty in the

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28 Villages, communes, districts and even provinces in the Mekong Delta are currently experiencing some administrative reform. The province of Tra Vinh itself was separated from Cuu Long province in 1992. The second province is now Vinh Long. At the local level, given the increase in size of many villages due to population growth during the 1990s, some villages are currently being considered for separation to make administrative management more doable. The sizes of the villages range from 150 households a few hundreds, even over a thousand.
selection of households representing social strata in the village for the questionnaire
survey and in-depth interviews.

It is important to note here that my attempt to conduct a multisided fieldwork, as a
way to “meet the challenges posed by globalization to place-based studies” (Gille and
Riain 2002: 286) was not free of problems. It has been noted that, while comparative
research is increasingly valued for the data it can present in understanding changing
societies in globalization, it is better done by a team of researchers rather than by an
individual (Lewellen 2002: 59). Comparative research done within the framework of a
dissertation research is particularly daunting given the typically limited time and budget.
My attempt to conduct a comparative research encountered similar problems. Even
though the locations chosen were not very far apart - about ten kilometers from one
another – the time it took to cover all the locations was daunting. While ethnographic
research requires a lot of time concentrating in one place with one population group,
having to run from one village to another left me with little time to follow up on some of
the issues in-depth.

Doing Fieldwork “At Home”

Finding entrance to a research site in Vietnam typically happens at several levels. It
requires sponsorship from a host institution, followed by permission from the provincial,
district and commune authorities, before one can approach a village and households. The
lack of a tradition of ethnographic research and a preference for survey questionnaires
was translated into challenges for ethnographers in the field (Ambler 2001; Craig 2003;
Scott, Miller and Lloyd 2004). Researchers in Vietnam face with multiple challenges. They have limited access to government resources. Where published materials are available, their reliability is questionable. Foreign researchers in Vietnam face even greater problems. Their application for a research visa may be subject to lengthy wait times without any explanations. Foreign researchers continue to complain of the difficulties in obtaining permits for fieldwork and especially for staying in the villages, which marks an ethnographic research from research that rely mainly on questionnaire surveys (Craig 2003). Furthermore, some have expressed the problems of the “commodification” of research, where monetary compensation is attached to data collection (Scott, Miller and Lloyd 2004). Language presents another challenge to those who have to rely on local interpreters in conducting fieldwork. While their role is to transfer information from one language to another, interpreters may impose their own opinion. The problems faced by foreign researchers conducting ethnographic research in Vietnam places Vietnamese researchers at a special advantage, where the physical distinction between “we” and “the other” appears less evident. However, soon after my arrival in Tra Vinh, I realized that the question of “identity” in doing fieldwork is not one encountered by foreign researchers only because identity is not simply a matter of one’s national identity or physical appearance. Indeed, identity shaped by language, appearance, nationality, and other markers is more subtle and complex than one can imagine.

In *How Native is a Native Anthropologist?* Kirin Narayan (1993) points out that the colonial categories of dichotomy, including we/others, native/non-native, insider/outsider, native/non-native, and observer/observed are problematic. The "native"
label implies that the views presented by local anthropologists are more authentic than non-native ones. Instead, she suggests that:

The loci along which we are aligned with or set apart from those whom we study are multiple and in flux. Factors such as education, gender, sexual orientation, class, race, or sheer duration of contacts may sometimes outweigh the cultural identity associated with insider or outsider status. (1993: 671-2)

In other words, our identity as man, woman, young and old; our education and class can affect the kind of information we can access, which in turn affects our views on the culture we study much more than being a native or an outsider.

My fieldwork experience revealed the complexity of the “native” category. Beyond nationality and geographical features that can be identified by one’s appearance and accent, the way one dresses can affect how one is perceived by others. As a Northerner trying to find acceptance in the South, I discovered a different kind of “foreignness” in me. The geographical distinction between North and South of Vietnam only serves as a starting point for consideration of their historical and political contexts, particularly in association with the Vietnam War. The long history of separation between North and South, initially by the French, and later, the Americans, carries greater implications for fieldwork than any ethnographer can imagine. A Southerner may distinguish a Northerner by a different accent and physical appearance. But at a more profound level, these seemingly superficial details are ready to trigger a deeper feeling of anger, distrust and resentment associated with the Communist government that was responsible for the fall of Saigon in 1975, and for subsequent failure of the collectivization program imposed on the South leading to food shortage and hunger during the 1980s.
Such a history helps to explain the indifference that lingers on the border of North and South Vietnam. Northerners often characterize Southerners as being "generous but lazy" because life in the South is too easy due to favorable natural environment. On the contrary, Southerners think of Northerners as being "careful with money, stingy, and untrustworthy." In my presence, people often highlighted the good attributes of Northerner such as "hard working" and “being good students," but what they chose not to speak out affected my fieldwork in important ways. Prejudices against Northerners were filtered through the distance some people maintained and their avoiding any interaction with me. And while some warmed up toward me after having tested out my reliability, such empathy did not replicate easily. Constrained social network due to my identity as a Northerner, which could be easily detected by my accent, certainly limited data collection significantly.

Other social identities also carry important implications for fieldwork. As Radsch (2009: 97) has pointed out, “Access is dependent on the identity of the researcher, who is stuck with some identities like gender, age and race, but able to enact or invoke others depending on context, such as marital status and profession.” A woman traveling freely evoked pity among some while casting doubts among others as reflected in the remarks made by villagers and even government officials towards me. Although people often expressed concerns for my personal safety and admiration for my braveness verbally, such feeling was often mixed with a curiosity of what really happened to a woman who is free from the domestic sphere without the protection of a man. Some even blamed me for neglecting my responsibility as a wife and mother.
More often than not, my identity as a married woman being on my own was a constraint rather than an advantage for data collection. As discussed above, as a woman, I was automatically denied access to a male domain. I could not participate in male activities such as drinking (nhâu), the best venue for accessing information and knowledge on male economic activities. My under-preparation for this challenge due to my ignorance of the gender attribute of shrimp aquaculture cost me time and mental stress.29

This challenge was due to the fact that shrimp farming is a risky business. Repeated failures rendered shrimp farmers extremely sensitive. While the risk in shrimp farming is not quite the same as those experienced among war and conflict zones (Norman 2009; Martin-Ortega and Herman 2009), by no means does it make data collection easy. Risk make shrimp farmers overly cautious about letting outsiders get near their shrimp ponds. Shrimp farmers watch taboos associated with crop failures such as sharing their experience of success in the media or letting people take pictures of their farms. Women crossing shrimp ponds can also cause the shrimp to die. A Northern woman wandering around with a camera and recorder put me in the “unsafe” category. Although the types of risk I encountered were not quite the same or anywhere near what ethnographers face in war zones (Gallaher 2009: 136), they are noteworthy for the safety of the ethnographer as well as the quality of data collected.

29 The difference in people’s response to men was revealed when I was once accompanied by a male friend for some interviews. I found that farmers, both men and women, appeared far more comfortable providing him with information. While I was the one posing the questions, people turn to him with the information.
Conclusion

This chapter discusses the context for this dissertation research and outlines the research questions and methodology. The study seeks to contribute to and illuminate the global/local interaction by focusing on the socioeconomic dynamics among household and community in response to economic neoliberalism. In illuminating the ways production and reproduction relations are reconfigured at the local level, the study questions Vietnam’s slogan of a market economy with socialist orientation.

The study seeks to offer a fresh perspective on agrarian change under contemporary economic globalization. Building on the inquiries of political ecology, sustainable livelihood analysis, and economic anthropology, the study responds to the call of a “more direct engagement with the concept of sustainability [that] could be helpful to anthropological analyses of economic systems and development options” (McCabe 2003; Stone 2003: 93). The study provides up to date knowledge of the Mekong Delta region, given that the last comprehensive ethnography of the Delta was Hickey's Village in Vietnam (Hickey 1964), which is almost 50 years old.

Last but not least, my fieldwork experience offers some practical considerations for fieldwork. First, it is important to recognize the distance between methodology in theory and practice and the need to maintain some flexibility during fieldwork for better data collection. Second, some consideration of the compatibility of the research questions and identity of the researcher can help to improve the process of data collection in important ways. Overall, expectation of the known versus the unknown in fieldwork preparation and implementation is essential for success.
CHAPTER 4. NEOLIBERAL REFORMS & AGRICULTURAL RESTRUCTURING

To make investment in building and developing the Mekong Delta to become a Key National Economic Zone, with rapid economic and sustainable economic growth, for remarkable social and cultural achievements, to be politically stable and powerful, in terms of national security... Local authorities and people in the region need to implement the comprehensive solutions outlined in the Political Bureau Resolution and government decisions, by which focus should be paid on effectively implementing four breakthrough groups of solution so that the Mekong Delta can develop rapidly and sustainably, making contribution to successfully realize the course of industrialization and modernization for a wealthy population, powerful nation, a just, civilized and fair society – Deputy Prime Mister Nguyễn Tấn Dũng⁴⁰

Vietnam’s emphasis on turning the Mekong Delta into a Key National Economic Zone is rooted in its experience with a prolonged history of food shortage during the war and immediately following reunification in 1975. Then the country entered an era of peace with multiple challenges left behind by a long war, including inefficient production system and dwindling support from the socialist bloc.⁴¹ In response to economic depression resulting from the draining of aid from the former socialist bloc, the US embargo, and the US-led international isolation following Vietnam’s invasion of Cambodia to drive out the Pol Pot regime, in 1986, Vietnam adopted Doi Moi. Doi Moi was an economic renovation program that shifted Vietnam from a centrally planned to a

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⁴⁰Translated from the original Vietnamese version: “Đầu tư xây dựng và phát triển ĐBSCL để nhanh chóng trở thành một Vùng Kinh Tế Trọng Điểm của cả nước, có tốc độ tăng trưởng kinh tế nhanh và bền vững, có bước tiến vượt bậc về văn hóa và xã hội, ổn định vững mạnh về chính trị, vững chắc về an ninh quốc phòng... Chính quyền và nhân dân trong vùng phải ra sức thực hiện đồng bộ các giải pháp đã đề ra trong Nghị quyết của Bộ Chính Trị và các quyết định của Chính phủ, trong đó cần tập trung sức chỉ đạo thực hiện có hiệu quả 4 nhóm giải pháp mang tính đột phá để ĐBSCL phát triển nhanh và bền vững, góp phần tích cực cùng cả nước thực hiện thành công sự nghiệp công nghiệp hóa, hiện đại hóa vi mục tiêu dân giàu, nước mạnh, xã hội công bằng dân chủ, văn minh.” Phó Thủ Tướng Nguyễn Tấn Dũng (Tây Nam Bộ Tiến Vào Thế Kỷ 21, 2005).

⁴¹This followed the collapse of the Comecon market, which was often applied to all multilateral activities involving members of the organization, rather than being restricted to the direct functions of Comecon and its organs. This usage was sometimes extended as well to bilateral relations among members, because in the system of socialist international economic relations, multilateral accords—typically of a general nature—tended to be implemented through a set of more detailed, bilateral agreements.
market economy. Economic development of the Mekong Delta during 1981-1985 emphasized cooperation among the state sector, the collective and the household in order for agricultural production to meet domestic needs and create the foundation for Vietnam’s agricultural sector based on which to build a large and modern export-led economy. Ever since, Vietnam has taken numerous steps in negotiating its relation with and position vis-à-vis other bilateral and multilateral stakeholders in the global economic arena.

Over two decades of Doi Moi, pressure from bilateral and multilateral stakeholders forced Vietnam to further liberalize its economy, reduce state control, and consolidate market reforms towards a fully functioning market. Vietnam was to follow its neighbor in the North in adopting the neoliberal agenda. China was several years ahead of Vietnam in adoption of decollectivization, market reform, fiscal decentralization, reduced state role, adopting privatization of social services, among other forms of liberalization (So 2009: 51-2). In the same manner, Vietnam carried out decollectivization, monetary reform, privatization of property and production relation, trade liberalization and decentralization. In this section, I will discuss Vietnam’s reforms in two broad stages: phase one presents the search for a direction during which steps were taken to set the foundation for neoliberalism. Since 2000, there has been a speeding up of neoliberal reform. This chapter will focus on the reforms that have had the greatest impacts on the farming sector. In particular, under the rubric of agricultural restructuring, Vietnam has

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32 Kiến nghị về Bước Đi và Tổ Chức Thực Hiện Các Vùng 21 Triệu Tấn Lương Thực, Các Chỉ Tiêu Xuất Khẩu, Khat Hoang, Phân bố Lai Lao Đồng. (Archive III Hanoi)
consolidated property privatization, pushed for greater mechanization in farming that focuses on high-value commercial crops for export, and promoted of development of large farms for economies of scale.

From Decollectivization to Neoliberal Restructuring

*Decollectivization*

Like other post-socialist economies, decollectivization was the first of a series of structural reforms towards market liberalization. Collectivization, which started in the North in 1945, replicated to the South following reunification in 1975, was acknowledged as harbinger of production and a cause of food deficiency (Pingali and Vo 1992). Faced with food deficiency throughout the 1970s and economic isolation due to the US embargo, towards early 1980s, Vietnam was under great pressure to reform its rural economy. During 1979 and 1985, thousands of cooperatives across Vietnam were dismantled in search of improved productivity and economic growth. Decollectivization that spread out gradually over a few years sought to: (1) provide security of land tenure to individual households; (2) privatize output markets; (3) decentralize input supplies; and (4) enhance decisions making power for households regarding resources allocation, crop choice and management (Pingali and Vo 1992: 697). In reality, decollectivization had already started in 1981 with Resolution 100 that encouraged productivity through increased individual incentives. Resolution 100 did not really alter collective production but allowed farmers to hold the surplus they produced over the contracted output. In 1988, Resolution 10 on “All-sided Renovation of Economic Management in Agriculture”
was introduced as a comprehensive approach to Vietnam’s food deficiency problem. It redefined the roles of the cooperative and the household. Under Resolution 10, all land still belonged to the state, however, a large share of the cooperative land were assigned to farmers on a renewable 15 to 20 year term. Land was allocated according to household size and able labor power. A priority was given to the “most able peasant households” (Than Thi Thien Huong 2000). Resolution 10 radically transformed production organizations with more responsibilities transferred to the household. The cooperative moved from organizing production to providing services to agricultural production. Instead of making ends meet from its work points, the household now pays taxes in food grains. Resolution 10 also marked the beginning of trade liberalization with price control policy removed and private traders allowed to have equal right to state companies in purchasing agricultural produce directly from farmers. Following the 1993 Land Law, household is now entitled the autonomy over production, gaining control over what to produce, how to produce and market outputs (Kolko 1997; Pinagli and Vo Tong Xuan 1990).

Decollectivization was the first significant step that set the foundation for neoliberal reform in the coming decades. Along with recognition of the household as the basic production unit, the same year, the 1988 Land Law was introduced that entrusted land to individual and organization. According to this law, land-users could keep the entire output after fulfilling their tax and other obligations. However, land could not be bought and sold. Land-use-rights were not transferable and land could not be used as collateral for loans. The rights to sell and inherit land were not recognized either. Article
5 even prohibited the renting of land in any form. Production continued to be limited to prescribed purposes (Liliestrom et al., 1998: 9-11).

**Privatization**

_Privatization_ is broadly defined as a selective process by which the state provides legal recognition of the value of an asset, recognizes private property ownership, and at the same time strengthens legal protection for individual owners and firms (Mansfield 2007). Privatization requires that former socialist economies turn public assets into private properties and the enclosure of public properties through decollectivization, restitution, sales of state property, mass or voucher, and merging (Hann 1998; Leutloff 2002; Svasek 2002; Zerilli 2002; Brada 1996). It was through this process that enclosure of numerous forms of public properties became private ones.

Vietnam’s commitment to the Marxist ideology of social equality explained the anti-privatization mentality that was widespread prior to the market economy and the long path it took to fully incorporate this principle. The anti-privatization spirit was also common in Northern villages even where collectivization was in full swing (Kerkvliet and Selden 1995: 12). Party members and government officials in general were prohibited from taking part in any business for the purpose of profit making.\(^{34}\) Despite the lack of many basic goods and services, petty trading to meet such basic necessities was

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\(^{34}\) A different account suggests great tolerance of private enterprise in most sectors of the economy in the process of building socialism after 1975. This policy was illustrated by the announcement that for the foreseeable future the Vietnamese economy would be divided into five separate sectors: 1) state owned, 2) collective, 3) joint state-private enterprises, 4) private capitalism, and 5) individual ownership (Duiker 1980: 9).
considered “illegal” and “non-socialist,” and “in the cities, the small private traders were subject to moral condemnation, legally prohibited from trading and pursued by the administration” (Le Dang Doanh 2009: 170). Given this background, the recognition of the market economy as a change in the overall economic direction and hence political ideology, and acceptance of privatization as an economic principle was a gradual process for Vietnam.

A Market in Land

In Vietnam, legal frameworks have been introduced that recognize property privatization as well as provision of social services. The 1993 Land Law was the first document that officially recognized property privatization in Vietnam which has provided the foundation for the intensification of privatization in land ever since. According to the new law, individual households and organizations would be entitled land-use rights for a term of 20 years for annual crops and 50 years for perennial crops. The 1993 Land Law allows the issuance of land title with a land-use certificate called bàng khoán (in the South), and sổ đỏ (in the North). The Law allows owners to use their land-use certificates for sales, exchange, mortgage, collateral, and inheritance. However, according to this law, a land ceiling placed limit to the amount of land one can own to be two hectares in the North for annual plants and 10 hectares for perennial plants. In the Central Highlands and the

35 Anti-privatization spirit was particularly common in Northern villages where collectivization had a longer history (Kerkvliet and Selden 1995: 12). Before Doi Moi, members of the communist party and government officials in general were prohibited from taking part in any business for the purpose of profit making. On the other hand, despite the lack of many basic goods and services, even petit trading is considered “illegal” and “non-socialist,” and “In the cities, the small private traders were subject to moral condemnation, legally prohibited from trading and pursued by the administration” (Le Dang Doanh 2009: 170).
Mekong Delta where land is more abundant, the land ceiling was raised to three and 30 hectares, respectively (Article 5, Decree 64, 1993).

The 1993 Land Law consolidates individual property rights and facilitates the formation of a market in land by endorsing the so-called market-led land reform (MLLR). MLLR is a post Cold War land policy that advocates market as the solution to achieve economic growth and social equity. According to advocates of MLLR, “land reform [led by the market] is more likely to result in a reduction of poverty if it harnesses (rather than undermines) the operation of land markets and is implemented in a decentralized fashion” (Deininger and Hans 1999: 247). Barrows and Roth (1990: 268) explain the sequence of the MLLR as supporting both economic and social goals as follows: (1) Individualization of land tenure (leasehold and freehold ownership) increases tenure security of the landholder, thereby reducing economic costs of litigation over land disputes; (2) Improved tenure security and reduced transaction costs leads to increases in investment, thereby increasing the demand for capital (including credit) for fixed-place investment; and (3) A market in land will help to improve efficiency because land will be transferred to those who are able to extract a higher value of product from the land as more productive users bid land away from less productive users. However, greater efficiency can only be achieved by giving market forces greater power by reducing state interventions. Without existing restrictions on the land market, land transactions can be made at low costs to encourage those who rely on off-farm employment to sell it. Land markets, therefore, will free up land among less able producers while providing capable farmers and investors the opportunity to invest in economies of scale. In essence, MLLR
advocates suggest how privatization in land helps to strengthen individualization, tenure security, and efficiency that benefit both buyers and sellers.

*Trade Liberalization*

Trade liberalization constitutes another key element of neoliberal restructuring. Trade liberalization is argued to be the most effective engine for growth since it builds on the comparative and competitive advantages among participating economies. After decades of food shortage and trade deficit, Vietnam’s attraction to trade liberalization was undeniably due to initial gains from its open door policy, which enabled its export earnings to increase rapidly from 733 USD in 1988 to 1,782 USD in 1990 mainly from rice, oil and marine products, and achieving trade surplus for the first time in 1990 (Porter 1993: 54). In due course, Vietnam has made steady reforms to open its market for imports of foreign goods and to expand markets that absorb its produce through bilateral, regional and multinational channels. Vietnam’s path towards neoliberalism has been consolidated in the numerous steps Vietnam has taken to integrate into the global market by joining Francophone in 1986, the ASEAN following the removal of the US embargo in 1995, The United Nations Conference on Trade and Development (UNCTAD) in 2000. Most important of all, Vietnam becoming the 150th member of the WTO in November 2006 has meant that not only production but also provisions of public services have to abide by the rules of competition and privatization (Bousquet 2002). Vietnam has also embarked on agreements with APEC, ASEAN-China Free Trade Area, and US Bilateral Trade Agreement (MARD 2003). Due to their rigid deadlines, the reforms fostered by the
Bilateral Trade Agreement (BTA) with the US, application of substantial tariff reductions for goods to implement the ASEAN Free Trade Agreement (AFTA), and the BTA plus requirements in accession to the WTO carry heavier weight than Vietnam’s own modernization project (Park 2009). However, the WTO is nothing more than an “enforcement mechanism of market rules for the dominant global states and corporations” (McMichael 2003: 74). Since these trade agreements ostensibly promise concrete economic gains, their deadlines served as forceful motivations for Vietnam to adjust its laws, regulations and administrative procedures, to conform to the international standards. Park summarized the content of Vietnam’s trade reforms as follows:

These reforms include tariff reductions, removal of various quantitative restrictions and quotas, further liberalization of export and import licensing requirements and the establishment of first the stock exchange market in HCMC in 2000 and many others mainly in Hanoi and HCMC since. Vietnam policy will be increasingly characterized by market forces, private and corporate economic organization, a more systematic and transparent rule-of-law with a stronger judicial system capable of resolving commercial disputes and protecting property rights, and increased international trade and investment. Conversely, the state will be increasingly less involved in directly administrating or controlling economic activity, and owning commercial enterprises.

From roughly 2002-2006, most laws and regulations affecting commercial activity in Vietnam were rewritten to support a market economy and to conform more closely to international standards. Also, market access for most goods, services and investment were put on a course over the decade to be substantially liberalized. (2009: 200-201)

By accepting the conditions set by the various trade agreements, Vietnam’s commitment to trade liberalization could possibly subject every sector of the economy to greater competition. However, given Vietnam’s reliance on the agricultural sector, major
concerns are rooted in the WTO Agreement on Agriculture.\footnote{This was a result of a Uruguay Round - the Agreement on Agriculture signed in 1994 and came into effect on January 1\textsuperscript{st} 1995.} This agreement strengthens regulations and laws that demand adjustments of agricultural policies of member countries in: (1) market opening; (2) domestic subsidies; and (3) subsidies for export. First, countries are to ratify all non-tariff measures and tariff-related commitments, tariff is considered to be the only measure for domestic production protection. Second, all member countries are to declare the rates of subsidies by their governments to agricultural production, according to which only policy incentives that do not distort trade are encouraged. This means that state subsidies are restricted to funding scientific researches, training, agricultural promotion and infrastructure development. On the other hand, subsidies that distort trade are to be cut by 36 percent by all developed countries within 6 years and 24 percent by all developing countries within 10 years of their total subsidies (MARD 2003: 8) including domestic subsidies to agricultural producers. These are supposed to reduce by 20 percent for developed countries and 13.3 percent for developing countries (Mol 2003: 89). Third, countries are not allowed to provide subsidies to export and to cut subsidies by 36 percent in terms of value and 21 percent by volume. In particular, these rules are stricter for acceding countries versus member countries. This practically means that as soon as Vietnam became an official member of the WTO, all subsidies to farm export were to be removed while restrictions on import volumes and license eliminated (MARD 2003: 8). Moreover, the WTO provision on intellectual property rights that prevents farmers from freely multiplying seeds and animals that are patented while countries are to open their doors to foreign agribusiness companies means
that trade liberalization will only increase farmers’ dependence on foreign supplies of inputs. As such, trade liberalization is feared to cause more “threats than benefits” for Vietnamese producers (Vo Tong Xuan 2005).

Over the past decade, it has become increasingly clear that trade liberalization that claims to facilitate comparative advantages for economic gains is more about protecting the interests of the corporations rather than that of rural producers. McMichael has noted that trade liberalization makes agriculture “less an anchor of societies, states and cultures, and more and more a tenuous component of corporate global sourcing strategies” and:

Transnational corporations stand to gain overall from free trade regime, since it would enhance and reward capital mobility and facilitate it by reducing institutionalized costs. Food companies, grain traders and the chemical industry all generally favour using the WTO to phase out farm programs, eliminating supply management and driving down prices by exposing producers to world-wide differential labor costs. By reducing price supports, the corporations maximize their ability to structure comparative advantages in the world market, and to source their inputs from the variety of producing regions incorporated into the “free” world market” (McMichael 2003: 72).

In effect, the free trade regime frees up big players to dominate and manipulate the market, introducing market distortions that have had far reaching effects on production relations. These changes have often been detrimental to smaller players like farmers whose land, labor, capital and social resources are below the point from where they can participate and take advantage of market liberalization.
Aquaculture Export

The shrimp "gold rush" in the Mekong Delta in general and in Tra Vinh in particular was facilitated by increases in shrimp prices in international markets since mid 1990s. Prior to the 1990s, Vietnam’s major export market was restricted to the former socialist block in Eastern Europe. From an item of little value, as a Tra Vinh trader recalled, "the factory returned even large black tiger shrimp," shrimp has become "the single most important export commodity in Vietnam," with an increase from 8,500 tons in 1985, to 70,000 tons in 1991, and 155,000 tons in 2001 (Kagawa and Bailey 2006: 311-2; Lebel et al. 2002: 312). Export earnings from aquatic products increased from US$551.2 million in 1994 to US$ 2.5 billion in 2005 and are expected to reach US$ 2.8 billion in 2006.37

Acceptance of economic globalization as inevitable has only encouraged Vietnam to speed up the promotion of the export-led growth paradigm. In the 1990s, as Vietnam was more closely tied to bilateral and multilateral trade agreements, rice - a signature export commodity – lost its advantages, greater emphasis was placed on commodities with higher values. Shrimp, which boasts a market value approximately 15 to 20 times higher a ton than rice, now tops Vietnam’s export commodity list (EJF 2003). Accordingly, Government Decision 21 in 1998 sets out the goals for the aquacultural sector as follows:

To quickly develop the aquatic product economy into a spearhead branch in the economy of the country, create many more jobs in order to help raise the standard of living of the people, bring about a face-lift of the rural coastal areas and contribute to living problems of the ecological environment to develop shrimp farming; to gradually move from extensive shrimp farming to improved extensive

farming, semi-intensive farming to encourage the forms of inter-farming while forming areas of concentrated intensive shrimp farming (EJF 2003: 5).

Apart from shrimp, other aquatic species have also been identified. These include fresh and brackish waters species, such as tra and basa fish, crayfish, crab and clam and fresh fish to meet growing consumer demand. Growth in cultivation area and productivity has resulted in aquaculture making the lion share in Vietnam’s foreign exchange earnings. During 1995-2009, although national aquaculture export ratio has gone down, from 11.4 percent in 1995 to 10.1 percent in 2000 and further down to 7.4 percent in 2009, actual outputs have grown substantially, from half a billion USD in 1995, to 1.5 billion USD in 2000 and 4.25 billion in 2009 (see Appendix 2). Of this, the Mekong Delta accounts for approximately half of the income from aquaculture exports nationwide, and half of earnings from aquaculture exports came from shrimp. The Mekong Delta is consistently responsible for over 80 percent of shrimp production nationwide during 1991 and 2006 (Tran Van Khang 2008: 17-18).

Changes in the structure of the export markets have emerged as a new challenge to exporting companies. During the early years of the shrimp boom, Vietnam’s main export markets were the US, Japan and EU. Due to the bilateral trade agreement with the US in October 2001 and the tumbling of import tax levied on shrimp from 20 percent to 5 percent, Vietnam’s shrimp exports to the US reached to 27,000 tons in 2001 and worth 317 million USD, accounting for approximately 43.2 percent of the country’s total shrimp export revenue (EJF 2003: 5). In 2010, the scenario has changed. According to the

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Vietnam Association of Seafood Exporters and Producers (VASEP), Japan is now the largest market for Vietnam’s shrimp. Export earnings from Japan reached 550 million USD, followed by the 450 million USD and the EU 290 million USD. Together, Vietnam’s earnings from shrimp exports should reach 2 billion USD, accounting for 41.7 percent of the country's combined seafood export of USD 4 billion from January to October in 2010.

However, now that Vietnam is fully committed to the trade agreements it has signed onto, it can no longer ignore the conditions set forth and the demands made by importers on the quality of its produce. One of Vietnam’s hard-earned lessons is the cost of defending its position in the US anti-dumping lawsuits. Another expensive incident involves the returns of large volumes of shrimp contaminated with toxic antibiotic by Japan importers has caused huge loss to Vietnam’s exporters while threatening the loss of future export markets. Ultimately, the disputes to be resolved between importers and exporters, or other national legal bodies have often resulted in changing quality control, modifications in farming practices and adjustment in prices, the cost of which are levied on farm producers. Many of these costs are unaffordable to farmers. For the soil, water and ecosystems that have been contaminated by excessive use of toxic chemicals and antibiotics such as trifluralin, to abide by the international standards of BMP, GAP, and COC requires changes that are potentially costly, especially where the top-down approach in extension services has been the norm.

40 Trifluralin, a commonly used pre-sowing herbicide used to control grasses and broad-leaf weeds, is said to be a harmful substance that can cause cancer, a toxic residue, thousands of tons of shrimp to be returned by importers. Toxic residues could shrivel shrimp exports. Vietnam News. Nov 13 2010. http://www.dztimes.net/post/business/toxic-residues-could-shrivel-shrimp-exports-experts.aspx
Furthermore, under the WTO Agreement on Agriculture, Vietnamese producers are no longer prioritized recipients of government subsidies. This means, producers have to be fully responsible for the additional costs in farming. In the face of growing pressure from importers, who demand improved quality produce, recent government subsidies have been directed towards companies and enterprises involved in shrimp production and export rather than small-scale farmers (see Appendix 7). Despite all the disadvantages, including disease outbreaks, environmental degradation, rising prices of inputs, declining output prices and growing pressures from buyers, farmers continue to persist with shrimp farming.\(^{41}\) Some explanations to this trend are addressed in Chapter 6.

**The Shrimp Boom**

The shrimp boom is the single most forceful factor that contributes to environmental degradation in the Mekong Delta. During 1985 and 1993, shrimp aquaculture alone increased by 3,500 percent, from 32,000 ha to 173,500 ha respectively in the region (Graff and Xuan 1998). In 1995, Mekong Delta’s total aquaculture and fresh water capture was 274,500 tons, making up for 67 percent of national production. In 2002, the Mekong River Delta contributed 50 to 55 percent to Vietnam’s national production, and 70 to 80 percent of the Vietnam’s shrimp export (Le Xuan Sinh 2003: 5). Given its favorable natural conditions, shrimp aquaculture is expected to accelerate its growth in both production areas and export volume. Decision 173/2001/QD-TTg on socio-economic development in the Mekong River Delta region states that by 2005, the

\(^{41}\) During 1999-2006, shrimp prices dropped by 4USD per kg (Trang khang 2008: 25)
aquaculture areas in the whole region shall reach over 700,000 ha; aquaculture output expected to be 1.7 million tons and export value to be over USD 1,500 million.

Earlier in the shrimp boom, shrimp farming in Vietnam was characterized as “unplanned and unregulated small-scale development” (EJF 2003). During this first stage, farmers started to dig canals and ponds in rice farming areas. Due to the lack of mechanical equipment, farmers had to take a few years to dig a shrimp pond manually. Although some started to convert rice paddies into shrimp ponds, most of the land clearance took place in mangroves area. Since 2000, the farm economy policy that promotes industrial shrimp aquaculture fueled acceleration of land clearance. A 2003 survey revealed that, approximately 90 percent of farmers in northern Vietnam and over 50 percent of farmers in the south were expected to further intensify shrimp aquaculture (EJF 2003: 6).

In Tra Vinh, the magnitude of changes in land use as an outcome of the shrimp boom can be assessed by examining the number of households engaging in shrimp aquaculture, the land area being converted to shrimp farming, and the growth volume that this commodity has generated. Within a short period of time, the total area of shrimp aquaculture in Tra Vinh increased from 21,250 ha in 2000 to 23,258 ha in 2002, 30,976 ha in 2005 and is expected to reach 40,000 ha in 2010 (Figure 4). 80 percent of the total shrimp farming area in Tra Vinh belongs to Duyen Hai coastal district. That is 7,887 ha out of the total of 10,445 has (TVPC 2002: 25). This area accounts for approximately 50 percent of Duyen Hai’s 16,111 ha of total natural area. This rapid transfer of land corresponds with the growing number of households engaging in shrimp aquaculture in the district. From 15 households farming shrimp in 1990, the number has increase

Figure 4: Growth in Shrimp Farming Areas and Production 
Tra Vinh Province (1992-2001)

Source: Tra Vinh People's Committee Master Plan for Aquaculture Development to 2010 (October 2002:24)

Land clearance has intensified along with the promotion of shrimp farms since 2000. By early 2001, Tra Vinh had 2,922 farms with over two hectares of land, of which 1,505 exceeding the land ceiling (The Communist Journal 2003). By 2006, approximately 40,000 ha were used for shrimp farming. In 2006, Duyen Hai district alone had a total of 1,585 farms (trang trai),\(^{42}\) most of which were for raising *monodon* Black Tiger shrimp. Along with the conversion of another 444 hectares to shrimp aquaculture during 2006-

\(^{42}\) A shrimp farming area is qualified as *trang trai*, or farm if it is located on at least two hectares of land, with a pond for storing and processing water apart from the main pond.
2010, productivity was expected to increase significantly from 2,074 tons in 2002 (TVPC 2002) to 24,750 tons in 2010 (TVPC 2004: 5).

Technology plays a critical part in the destruction of the commons. Local farmers attributed the uprooting of their ecosystem to widespread utilization of new technology in industrial farming. A host of prescribed practices in shrimp aquaculture are particularly harmful to the reproduction of fish. For example, during the months of November through January, shrimp farmers dredge ponds to clear their bottoms of nutrients accumulated from industrial feed and other chemicals. The requirements of local farmers to follow that calendar strictly either demonstrated ignorance or a total disregard of the importance of the breeding seasons for fish reproduction among experts and policy makers. For three continuous months, farmers pump mud that is contaminated with residue from the shrimp ponds into public waterways, causing them to be muddy while depriving the fish of their breeding ground. Instead of returning to a still water for breeding, the fish are pushed back to large water bodies which are not suitable for them to breed. Furthermore, the formation of earth boundaries around shrimp ponds and farms to prevent the shrimp from escaping during tidal waters has also prevented water from flowing in circulation, and prohibiting wild fish from navigating their living environment for breeding.

Agricultural Restructuring

Regardless of the challenges of the export-led growth model, the government continues to place great emphasis on economies of scale. The goals for agricultural restructuring are
packaged within the Resolution 09/2000 on Economic Restructuring and Consumption of Agricultural Produce (chuyển dịch cơ cấu kinh tế và tiêu thụ nông sản). The Resolution focuses on: (1) application of new scientific technological development in agricultural production on large scales; (2) development of contracts with farmers to combine production, processing and consumption of agricultural produce; and (3) expansion of overseas markets by improving information and marketing capability. It states:

In order to build a strong and sustainable agriculture, the application of new and high technologies shall step by step modernize and advance agriculture into large-scale commodity production, increase competitiveness in the process of international integration, with higher productivity and income per unit of land acreage, satisfice the population's food and foodstuff demands, supply sufficient raw materials for the industries, rapidly increase the export turnover, protect the ecological environment and thus contribute to improving farmers' life and ensuring the country's economic and social stability.43

The Resolution provided the most comprehensive guideline for development in rural areas in the second phase of Doi Moi. In October 2003, reports from the Mekong Delta provinces highlighted the achievements of economic restructuring in four areas: (1) Fast growth in agriculture, forestry and fishery production; (2) Diversified production and increased productivity in agri-forestry-fishery; (3) Agricultural commodity production; and (4) Improved livelihoods and poverty reduction in many regions in the Mekong Delta.44 However, the same reports also noted that agricultural restructuring is still constrained by many factors, including natural hazards (flooding and drought), unstable

43 Resolution No. 09.2000/NQ-CP of June 15, 2000 on a number of undertakings and policies on economic restructuring and consumption of farm produce signed by Prime Minister Phan Van Khai.
44 Báo cáo sơ kết kết quả chuyển dịch cơ cấu sản xuất nông nghiệp làm nghiệp vụ DBSCL. Bộ NNPTNT tháng 10 năm 2003 presented at a Conference organized by the Ministry of Agriculture and Rural Development in Tiền Giang on Agricultural Restructuring Towards Fields of 50 Million VND in value per hectare and Farm Households Harvesting Annual Income of 50 Million VND in the Mekong Delta and South East Region (chuyển đổi cơ cấu sản xuất nông nghiệp hướng tới xây dựng cánh đồng 50 triệu đồng/ha (3,125 USD) và hộ nông dân thu nhập 50 triệu đồng/nam ở DBSCL và Đông Nam Bộ).
market prices, low productivity and quality, uncompetitive prices, and rapid environmental degradation. They suggested maintenance of rice farming areas along with the expansion of regional potentials. Specifically, economic restructuring in the Mekong Delta should: (1) sustain the area for rice farming: 1.85 million hectares and 17-17.5 million ton/year, in which 3-3.5 ton of rice for export/year for national food security; (2) boost the value in agri-forestry-fishery production to 30 million đông /hectare/year (1,875 USD), in which 450,000-500,000 hectares to harvest a minimum income of 50 million đông /hectare/year (3,125 USD); and (3) achieve an annual growth of 6.5-7 percent in agri-forestry-fishery in 2004-2005.

Agricultural restructuring is designed with the vision of modernization and industrialization.45 To improve the value of the agricultural sector, reforms promote land concentration for the formation of larger farms and production of hybrid crops with greater export earning values.46 Thus far, the value of agro-forestry-aquaculture production from the Mekong Delta is still low, “only reached 28 million đông (2,850 USD) (only 15 percent that of Taiwan). Shrimp productivity (key aquaculture product) only reached 500kg/ha year (only 20 percent of Thailand)” (Nguyễn Tân Dũng 2005: 23).

45 In 2001, the 9th Party Congress decided that Vietnam had to “enter an era of industrialization to lift the nation out of the ‘underdevelopment’ status by 2010 and become an industrialized and modernized nation by 2020” (Dang Kim Son 2001: 341). Indeed, Industrialization and modernization have long been on Vietnam’s development agenda. Even under collectivization when the country was struggling to achieve food security, the banner great socialist production (sàn xuất lớn xã hội chủ nghĩa) was widespread reflecting the desire to scale up production, which could then support the cause of industrialization and modernization.
46 IPSARD on Building A Modern Agriculture, May 2008 notes As the Central Party Resolution 15 issued by the 5th Central Party Congress Session IX on March 18, 2002 articulates, the vision of a modern agricultural sector for the 2001-2010 entails reorganization of key productive factors. It states: Economic restructuring towards improving the value of products and labor in industries and services; reducing the value and labor in the agricultural sector, building socio-economic foundation, building a masters plan for rural development, protecting the environment; reorganizing production and production relations; building a democratic, fair, civilized rural society, to continue improving the material and cultural life of rural folks.
To realize the potential of the region and make it the National Strategic Economic Zone (vùng kinh tế trọng điểm của cả nước), measures need to be taken to radically modify agricultural production and organization, to boost productivity and growth. Nguyễn Tấn Dũng, the then Deputy Prime Minister, also recommended four measures for the realization of the National Strategic Economic Zone. First, investment priority should focus on the development of roads, water transportation, ports, airports and rails. Second, irrigation systems need to be comprehensive to satisfy the needs of production in both agriculture and aquaculture. Third, more investment should be made in education and vocational training. And, finally, technological advancements should assist the replication of new seeds and cultivation techniques.

To sharpen the contents of agricultural restructuring, Government Resolution 03 on the Farm Economy (về kinh tế trang trại) came into effect the same year. The Resolution defines farm economy to be, “a form of agricultural commodity production organization, mainly based on the household, to expand the scale of production and improve productivity in agriculture, animal husbandry, aquaculture, forestry, matching production with processing, and marketing agro-forestry-aquaculture produce.” The Resolution also suggests that farm economy can assist effective use of land, technology, capital and experience for sustainable development, employment generation, increasing income and poverty reduction. And although farm economy entails land accumulation, this will contribute to labor restructuring and move labor to off-farm sectors and promoting the process of industrialization in rural areas and agricultural sector. Towards this, the farm economy resolution approved some policy incentives that contradict provisions of the WTO agreement. It provides incentives for land clearance, tax
exemption, favorable loans, use of hired labor, development of technology, and marketing. According to the Government Decree 51/1999, farm owners are exempted from income tax, land use tax, land rent, and land use fee. Farm owners also receive special protection for their assets, which will not be subject to administrative confiscation.

Farm Economy in Tra Vinh

The farm economy policy was welcome with great enthusiasm among government officials in Tra Vinh. Within a year of the introduction of Resolution 03/2000 on the Farm Economy, dozens of policy documents were introduced to outline specific plans and activities towards the promotion of farm economy (Appendix 1). Accordingly, the provincial People’s Committee’s Decision 13 on the plan for carrying out the farm economy policy the 2001-2003 outlines criteria for farms that are eligible for government support. Policies provided incentives regarding land use, tax and credit incentives, extension services and other technical supports, and infrastructure development towards the realization of an economy of scale in the province (TVPC 2001). Eligible for government support include farms that grow perennial trees, annual plants, pepper, forestry, animal husbandry (cow, buffalo, pig, goat), livestock (chicken, duck, duck and goose), and aquaculture. These farms vary significantly in size and scale of investment. Although the decision covers a wide range of farms, the main focus in Tra Vinh is shrimp aquaculture. In 2000, as compared with farms of other crops, shrimp farms received the most substantial financial and technical supports for different stages of production. For example, for rice seed production on farms of one hectare in area, a farmer receives one
tool and a small dryer. A cow farm with 10 to 14 cows is entitled to a free male cow (bò đực giống) and half a kg of grass seed. A farm qualified as industrial could receive 100 million đồng in loan, and 10 million đồng for farm construction (6,250 USD vs. 625 USD). Supports are also provided for support businesses for the shrimp industry, including development of hatcheries, supplies of feed and chemicals, etc. All in all, farm economy development depends upon a set of institutional support, including land polices, taxation, credit, extension services, infrastructure development and market access.

Changes in Land Use

Towards the development of farm economy, Tra Vinh encourages land accumulation by expanding land use rights to owners of farms larger than the prescribed limit under the land law. The provincial People Committee’s Decision 57/2001 encouraged farmers to exploit unused land, mudflats, and recently formed sand dunes (cồm môi nội ven biển), convert unproductive rice fields for integrated farming that combines aquaculture, fruit trees, cash crops, and cow feed. Farm economy and the promotion of industrial shrimp farming fueled rapid mangrove cutting and clearance of agricultural areas, a trend that had been predicted (EJF 2003; Adger 1999). In 2001, the provincial government further supported this trend by sending a proposal to concerned ministries including MARD, MOF, and MPI, the National Cadastral Office, MOFI to seek permission for the transfer of rice paddies for the construction of “a garden economy and aquaculture for the production of high-value commodities for export, to increase productivity and income for
farmers.”

The decision to shift large areas of rice paddies into shrimp farms was justified by the conditions of salinity and acidity that had only been exacerbated following the expansion of shrimp ponds and farms. Further discussion of changes in land uses is located in chapter nine.

**Technology & Extension Services**

It is the authority of the Department of Agriculture and Rural Development (DARD) to oversee technological transfer, through extension services for the production process, preservation of produce, processing technology according to the small and medium scales. Mechanization in soil preparation, water pumping, rice harvesting, and transportation were also encouraged. Unlike the general trend of privatization of extension services following decollectivization in agricultural farming (Christoplos 1995), the DOF made great effort in extending technology to shrimp farmers through its services. Farm owners are the main beneficiaries of state subsidized extension services. Extension workers would be sent out to farms to help farmers in improving technology in the production process. They can attend meetings to exchange experience and participate in study tours. The provincial extension center increased its staff from 33 in 2002 to 51 in 2005. It also expanded its network to 4 communes where the shrimp boom was most dynamic. The center also helped organize 971 training courses to 43,619 participants, providing 43,900 documents, organized 41 workshops for 1,400 farmers to exchange

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47 Báo cáo định hướng quy hoạch chuyển đổi từ đất lúa sang nuôi trồng thủy sản và trồng cây ăn trái tỉnh Trà Vinh 2010

48 According to Báo cáo định hướng quy hoạch chuyển đổi từ đất lúa sang nuôi trồng thủy sản và trồng cây ăn trái tỉnh Trà Vinh 2010, a survey in 1991 reveals that up to 56 percent of the area is affected by salinity and 27 percent are acid land.
experience. The center was able to organize 21 study tours for 941 leaders from districts, communes, and owners of hatcheries. The center also provided technology to farmers via the local radio station (DOF 2006). In 2006, the province had 111 shrimp hatcheries that could produce 1.5 billion seeds annually. Another 164 services imported seeds for shrimp and fish from outside to meet local needs. A total of 1,727 shrimp farms, in which 596 industrial shrimp farms, 636 semi-industrial shrimp farms, 128 forestry aquaculture farms, and 90 farms that produced shrimp feeds (DOF 2006).

A type of technology development that was rarely mentioned in the provincial official report was the general proliferation of mechanization in farming. Shrimp farming which received the most support from the provincial and district level also absorbed a large number of mechanical equipment. The speeding up of land clearance was made possible with used Kobe excavators imported from Japan. Following the introduction of the farm economy model in 2000, hundreds of excavators were estimated to arrive in the area to assist a new wave of land clearance for the expansion of shrimp farming. These machines helped to expand existing farms and ponds as well as digging new ones. Giant excavators were transported through the waterways to remote areas such as the mangroves wing of Hiep Thanh, where not too long ago, only human foot could navigate.

Financial Incentives

According to the regulation on the implementation of the policy incentives for farm economy in 2001 commissioned by the Tra Vinh People’s Committee, farms that are qualified for a farm economy loan automatically benefited from an interest subsidized
loan. The Bank for Agriculture and Rural Development provided interest subsidized loans.

Table 4.1: Changes in Loan Activities at Duyen Hai Bank for Agricultural and Rural Development

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment Focus and Loan Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>Focusing on development of farms. 169 billion đồng (10,562,500 USD) in loans provided for farms. Outstanding loan of 184 billion đồng (11,500,000 USD)</td>
</tr>
<tr>
<td>2002-2005</td>
<td>25 percent increase in annual investment. Interest-subsidized loans for farms while non-farm loans were subject to a monthly interest ranging from 1.05 to 1.3 percent</td>
</tr>
<tr>
<td>2005</td>
<td>Outstanding loan of 325 billion đồng (20,312,500 USD) mostly for shrimp aquaculture</td>
</tr>
<tr>
<td>2006</td>
<td>VBA provided loans to 10,000 households farming shrimp. 90 percent were outstanding loans, indicating a high failure rate</td>
</tr>
</tbody>
</table>

Source: Combined interviews and local statistics by author

In 2003, a favorable credit package was introduced to promote industrial shrimp farming. A farm on two hectares of land is qualified for a loan of 100 million đồng (6,250 USD), three times higher than the largest loans ever extended for agricultural farming. The size of the loan was justified as necessary for the construction of farms. Households eligible for this loan also received an extra bonus of 10 million đồng (625 USD).

Attracted by the loans with favorable conditions, thousands of farmers in Duyen Hai applied for the loan. Some even gathered their siblings together to increase their farm size for greater loans.

49 Interview in a staff at the Agricultural and Rural Development Bank in Duyen Hai on November 9, 2006.
At the Duyen Hai Bank for Agricultural and Rural Development, over 90 percent of the loans were labeled “shrimp loans” (vay tôm) (see Table 4.1). In 2006 and 2007, the Bank had about 30 staff whose job was to screen applications for shrimp loans, to monitor payments of interests on these loans, and to handle bad debts. At the beginning of the shrimp boom, farmers recalled the friendly approach of bank staff that would come to their doors to offer favorable loans. However, as shrimp failed and bad debts accumulated, the situation turned around. Nowadays, farmers see bank staff as a source of threat rather than help. Many try to escape by avoiding coming face to face with bank staff because they are in no position to pay back bank loans. On the other hand, bank staff complained about the lack of trustworthiness among borrowers.

**Infrastructure Development**

Poor infrastructure has been identified as one of the greatest shortcomings that constrain development of the Mekong Delta (Taylor 2006). Since early 1990s, various infrastructure projects have been proposed and put in place. In particular, water control received special attention where rice cultivation was the main source of income for the economy. In 1996, Decree 99 was issued that called for public funding and external financial support for water control for multiple purposes. In particular, to improve key water control infrastructure, to prevent seawater intrusion, improve irrigation, drainage, flood control and drinking water supply systems. As part of this plan, the World Bank-funded Mekong Delta Water Resource Development Project was created to increase the region's agricultural output, reduce rural poverty and improve the living conditions of
farmers. Aiming at improving agricultural production and local living conditions by supporting sustainable water resource development and management in the Mekong Delta, the project was geared towards integrated water resource development by combining irrigation, drainage, flood protection and salinity intrusion control. The project covered five sub-areas in six provinces on 535,000 ha in area (14 percent of the Mekong Delta total area). Five sub-projects included the South Mang Thit, Quan Lo Phung Hiep, Barang-Talim, Tiep Nhat and Omon-Xano. Each project covered a unique hydraulic unit, but four of the five subprojects are located in the lower Mekong Delta.  

Prior to the completion of the My Thuan Bridge that crosses over the Bassac River (Tien Giang) in 2000, the trip to Tra Vinh required the crossing of two ferries. In 1994, it was reported that 78 percent of the communes in the Mekong Delta provinces had no road access compared with 87 percent in the northwest region, making it the second poorest region in terms of road access (AusAid 2004: 76). Improvements of roads and electricity thus became the focus of infrastructure development for the Mekong Delta and Tra Vinh province in national poverty reduction programs. Tra Vinh province in particular has received substantial investments from the national poverty reduction programs to improve infrastructure and road conditions (CPRGS 2002). As a result, by 2001, approximately 90 percent of Tra Vinh communes had road access (AusAid 2004: 77). However, the same cannot be said with electricity. In 2001, only 40 percent of the households in Tra Vinh had electricity despite a high percentage of 90 percent of communes having access to electricity (AusAid 2004: 76).

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Table 4.2: Investment in Irrigation for Agricultural Restructuring 2003-2010

<table>
<thead>
<tr>
<th>Sub-regions</th>
<th>Objectives</th>
<th>Total Investment (in billion đồng)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supplement in-field irrigation</td>
<td>178.7</td>
</tr>
<tr>
<td>2</td>
<td>Extra in-field irrigation system in areas that are being transferred to rice-shrimp, provide fresh water for intensification of rice, prevent salinity intrusion in the dry season</td>
<td>454.8</td>
</tr>
<tr>
<td>3</td>
<td>Rebuild the entire irrigation system</td>
<td>744.7</td>
</tr>
<tr>
<td>4</td>
<td>In-field irrigation system</td>
<td>1,733.9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2,112.1</td>
</tr>
</tbody>
</table>

*Source: Tra Vinh Report on Agricultural Restructuring 2003-2010*

In addition, other irrigation projects were supported under the provincial development plan. By the end of 2000, five years after the implementation of the QD99/TTg, Tra Vinh had accomplished the main irrigation projects of Nhà Thờ, Bà Trâm-Diệm Thạch, Chà Và, Thảo Râu, Trà Cú, Vàm Buôn, Bắc Trang-Trẹm, and February 3rd canal. Together, these supply fresh water for 80,000 ha in south Cần Chuông (TVPC 2001: 6-7). Further, Tra Vinh 2003-2010 Masters Plan for Economic Development emphasized improvement of existing irrigation systems. Estimated investment for six projects totaled 1,733.9 billion đồng from both the national and provincial budgets. However, local contribution accounted for a smaller percentage of the finance and labor required (TVPC 2004: 65-6). Investments in existing irrigation systems was allocated to four sub-regions: (1) freshwater region; (2) saline region; (3) coastal region; and (4) Cu Lao Hoa Minh-Long Hoa.
In the past decade, Tra Vinh has also benefited from new infrastructure development. Under the National Poverty Reduction Program 135, new roads, electricity supply, schools and clinics were constructed for remote areas. In 2006, Duyen Hai district reported a total of 36.9 billion dong in investment for infrastructure development. Of this total, 12.4 billion dong was from the national budget, 4.6 billion dong from the provincial budget, and the District covered the remaining of 5.2 billion dong. Apart from new infrastructure, the province also received other supports under the rubric of agricultural restructuring. The province received 12 billion dong (or 14.9 billion dong) from the national budget for the construction of the Long Thanh Industrial Zone (DOF 2006). Some of the investment was allocated to the promotion of industrial shrimp aquaculture. The province used fund from its own budget to subsidize interests for loans dispersed by the local agricultural bank for 85 industrial shrimp farms that approximated 600 billion dong in 2001 and 1,480 in 2003. According to the province, these farms occupied 2,610 ha of agricultural land and 1,700 ha of water surface. The district claimed that these farms would fetch an average income of 180 million dong annually while creating 3,600 jobs (DHPC 2002b).

Market Economy with a Socialist Orientation

The first decade of market reform can be characterized as confusing as the communist government attempted to clear ambivalence as to which direction to take so that adoption of a market economy does not hurt its reputation as it had preached against capitalism all

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along. During the first decade of market reform, the term “peaceful evolution” was popular in state and party messages as a caution against ill intentions from outside forces to replace the old socialist system with capitalism without bloodshed. Deep down, such messages reflected the Party’s lack of clarity and insecurity in its pursuit of a market economy. In 1991, to emphasize its socialist attributes of a market economy, the Seventh Party Congress adopted the slogan - a wealthy people, a strong state, a democratic society in equity and civilization - and specified six characteristics of seven fundamental orientations for a socialist society. It emphasized people as the center of development, advanced culture, improvements in people’s lives, ethnic equality, and mutual assistance (Le Dang Doanh 2009: 176).

Despite the Party continuing to preach its socialist values, some have expressed concerns over the slow pace of neoliberal reforms and privatization of SOEs and trade liberalization and other areas (Le Dang Doanh 2009: 177). An understanding of Vietnam’s commitment to socialist values can be further understood by examining the rhetoric of a “market economy with socialist orientation” (kinh tế thị trường theo định hướng XHCN). The policy focuses on provisions for social welfare for vulnerable groups. For example, the National Poverty Reduction Program 135 targets poor and ethnic minorities in remote areas. However, various forms of social safety nets that were previously available through collectives to assist disadvantaged households have now been eliminated. The shift in the economic structure from a planned to market economy has shifted health and education services from a controlled redistributive to a market-led system, which is often referred to as socialization. It is recognized that the cooperative used to fulfill a wide range of safeguard functions critical for rural well-being and removal of these mechanisms are
hurting the poor. This was particularly true of northern farmers, where the connection between institutional shifts and declines in coordinating mechanisms for collective action are closely linked to increasing vulnerability (Scott 2001; Sikor 1999).

In coastal areas, property privatization facilitates rapid invasion of the individualistic shrimp aquaculture enterprise and caused communal mechanisms to erode and disappear. For example, Luttrell (2001) found in Nam Hai commune, Thinh Dinh district, Ca Mau province, that while illegal destruction of the dikes that used to protect rice farming forced the whole community to covert to shrimp farming, it has also marginalized subsistence farmers. She concluded that:

Social inequalities have increased as a result of the dismantling of the institutions of socialism. Increased landlessness and land concentration are a by-product of land allocation and the development of a market in land. These inequalities have been further perpetuated by the ability of those with capital to monopolize access to credit and hence to diversify into more profitable livelihoods. … On the one hand, institutional change has had an enabling effect allowing increased opportunities for some elements of society who can invest in new livelihoods, whereas on the other hand the poor have suffered from exclusion and increased vulnerability resulting in dependence on the importance of open-access, resources and increased landlessness. (Luttrell 2001: 538-9)

Xã hội hóa, or the socialization of health and education has undermined social welfare. Under the old system, the provision of housing, food, utilities, health, education, etc., was organized around cooperatives, SOEs and the arms of the state. But cooperatives largely disappeared and previous social obligations carried out by the SOEs were also removed in the transition to market operations. Steps to adjust social services to the new economy only started after 1992 (Engel 2009: 88-89). Nguyen (2001: 200) noted a decline in enrollment rates, in privatization of health services, a decrease in the number of
beds in hospital, decline in medical assistants and nurses during 1986-1992. The costs of these services are progressively shifted to households. By the year 2000, households directly covered approximately 43 percent of the costs of education and 35 percent of public hospital costs. This is most hard hitting for the poor, for whom a public hospital visit costs on average around 45 percent of their annual non-food expenditure (Nguyen 2001: 251-54). In short, agrarian transformations in post-socialism revealed that, in the face of loss of supports from the cooperative, rural households have to fall back on micro-level mechanisms for buffer. Writing about the lives of workers in a Forest Enterprise in the North following decollectivization, Liljestrom explained the unequal social outcomes of the removal of state support in an attempt to turn farmers into their own “masters” (làm chủ):

The abolition of the total state involvement benefits workers and others who are not dependent on subsidies and who have both the knowledge and the capacity to adapt to a self-management system. In this system the family plays an increasingly important role as the base for social, economic and cultural security (Liljestrom et al 1998: 172-3).

Conclusion

Vietnam’s economic restructuring since Doi Moi has been gradual, but steady, with each step furthering the neoliberal economic principles. While farm economy clearly promotes economies of scale, a vision of modernization and industrialization, it also contradicts Vietnam’s claim of adhering to a market economy and socialist orientation. State interventions to promote economies of scale carries characteristics of a command economy also pose the danger of creating the conditions for social inequality and livelihood insecurity. The government’s commitment to social justice by maintaining the
National Poverty Reduction Program 135 appears to counter policies that are likely to enhance social inequality such as the privatization of basic social services and enforcement of the social austerity.

Whether Vietnam’s pursuit of a market economy is compatible with the socialist orientation claims depends on whether the export-led growth model supports broad-base poverty reduction and improvement of the living conditions of the population in question. In examining whether the export-led growth model has supported households across the board and what lessons can be learned from the challenges for households across the board will be discussed in Chapters 5 to 8. The chapters will explore the dynamics of livelihoods negotiation within and across households engaging in commercial shrimp aquaculture. The chapters also look at the social interaction among household groups affected in different degrees by commercial shrimp farming.
PART TWO: FINDINGS FROM THE FIELD
CHAPTER 5. CHANGING LIVELIHOODS & VULNERABILITY

During mùa gió chưòng (the dry season) from November to March when storm-like winds blow constantly for two months, scooping the sand off the roads, sending it in all directions and coating the entire landscape with dust, My Quy looks even poorer. Yet, I was surprised when Sang, a daughter-in-law in the village told me, “Sister, this village has gotten much better-off now as compared with when I first came here [7-8 years ago]. [Then] the village was poor as dirt and in tatters (nghèo xơ nghèo xác). There was nothing.” Even though there was not much to count as material wealth in My Quy, I had little doubt that Sang’s feelings were genuine. Her sense of improvement in the living conditions in the village of My Quy resonated with a period during which Vietnam observed steady economic growth and poverty reduction. Outside the village boundary, signs of material wealth were indisputable as compared to even less than a decade ago.

The rapid pace of urbanization has introduced Tra Vinh to luxury consumer goods and household items. As recently as 2000, the district town of Duyen Hai was still relatively quiet. The Long Toan market occupied only a quarter of the market today and sold mainly locally produced food items. Today, the same market has expanded ten times to accommodate the busy flow of market goers flushing in by boat, bicycle, and mostly motorbike. Inside the market, one can enjoy a wide range of food and consumer goods, including fabric, kitchenware, soaps, and clothing. Immediately at the main entrance of

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52 Gió chưòng is only found in the southern coast. The wind is usually very strong blowing from the east to southeast at the speed of 2.5-3m/s and can reach 11 – 17 m/s at its peak. Since the wind blows against the flow of the Tien Giang and Bassac Rivers, it pushes salt water against the river flow and increases salinity intrusion. Gió chưòng is particularly unfavorable for the Winter-Spring rice crop. In Tra Vinh, gió chưòng comes when mango flowers are turning into small fruits. The wind is usually so strong that it can shake the young fruits off from the trees.
the market, dozens of food stalls serve a new generation of consumers who have adopted the new habit of eating out instead of cooking at home. Beauty salons that were not seen previously are now available for hairdressing, hair shampooing with head massage, manicures and pedicures. Internet cafes have also become common hangouts for young people.

Some of the consumer items have become the embodiments of wealth for which many people aspire (see Table 5.1). According to a household wealth ranking exercise, items that are symbols of modernity, such as televisions, refrigerators, radios, gas stoves, landline phones, and cell phones, are indicators of wealth. Of the 91 households surveyed, only seven owned a cell phone. Although cell phones are seen as a necessary investment for shrimp farmers whose farms are far away from market centers, they are common possessions among young men as a symbol of status. Another popular item is the motorbike, which has contributed to “reordering social stratification” (Truitt 2008: 3). Motorbikes are among the most desirable item for rural households whose mobility has long been constrained by their remoteness and who not long ago had to rely on water transportation as the main way to get around. However, possessing a motorbike is one thing, but the type of motorbike one can afford is another. The make, model and year together are markers of class distinction precisely because of their differences in price. A Chinese version of the Honda Dream worth 5 to 7 million đô (312 vs. 437 USD) is a far cry from one made in Thailand that costs 25 million đô (1,562 USD). A third class of motorbike is the Honda 67, which used to cost a fortune when just arrived four decades ago, can be purchased for just 500,000 đô (31 USD) in the current market.
Ostentatious wealth is also evident in the emergence of new housing structures made of modern materials built among old thatched houses of *nipa* leaves. Households that have experienced extravagant income typically invest in new concrete housing structures with brightly colored brick walls, corrugated asbestos or tin roofing and tiled floors. In coastal areas of Tra Vinh, these new housing structures often indicate new wealth either from successful shrimp harvests, businesses or remittances from family members living abroad.

Table 5.1: Material Assets in Surveyed Households (total 93 households)

<table>
<thead>
<tr>
<th>Items</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorbike</td>
<td>87</td>
</tr>
<tr>
<td>Television</td>
<td>77</td>
</tr>
<tr>
<td>Bicycle</td>
<td>72</td>
</tr>
<tr>
<td>D6 motor</td>
<td>53</td>
</tr>
<tr>
<td>Radio</td>
<td>47</td>
</tr>
<tr>
<td>Gas stove</td>
<td>38</td>
</tr>
<tr>
<td>Water motor</td>
<td>35</td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td>20</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>14</td>
</tr>
<tr>
<td>Tractor</td>
<td>3</td>
</tr>
<tr>
<td>Van for transportation of goods</td>
<td>2</td>
</tr>
</tbody>
</table>

*Source:* Field survey of 93 households in research sites
The new housing structures are also decorated with modern electronic appliances such as a television set and a refrigerator. Those who cannot afford to put up an entirely new structure can build a house in stages, starting with a tiled floor and a ferroconcrete roof. The panels used for walls can be simple materials such as shrimp feed packaging. However, bathrooms, washing areas and the kitchen are not considered part of the main housing structure. Even rich households continue to make do with the old-style kitchen and bathrooms. These can be located in adjacent to the main house or be an extension of the main structure.

Apart from displayed wealth, households are also stratified by their production strategies and livelihood patterns. To illuminate the processes of changing livelihoods in shrimp farming communities in Tra Vinh, this chapter will first provide the case studies of six households whose livelihoods have been altered since the shrimp boom. I will then discuss differentiations according to variables of land and labor. To understand the livelihood patterns that have resulted in new patterns of inequality, the chapter will then outline the paths that households have taken to diversify their income sources and manage their assets, i.e., the most common strategies that ultimately determine a household’s upward or downward mobility. Lost assets, persistent indebtedness, and downward diversification are indicators of increased livelihood vulnerability. By contrast, the ability to accumulate assets, avoid debts, and increasing incomes with greater values are indicators of greater livelihood security.
Household Autonomy and Livelihood Vulnerability

A “household” is traditionally defined as a set of individuals who share a residential unit and its domestic functions and activities – a group of people, who "eat out of the same pot" or who "share the same bowl" (Brydon and Chant 1989). Indeed, household arrangements across cultures vary enormously depending on number of members, access to resources, claims over income, and relative independence in decision-making (Ellis 2000: 19). In general, a “household” is distinctive from a “family” in that the latter extends beyond a single residential unit to encompass relatives and kin not living under the same roof. However, in Vietnam, such a distinction between household and family is often diminished under the term hố gia đình, which stresses their combined economic and social functions.

A rural household is “living on agriculture in a broad sense, including forestry, fisheries, and agriculture in rural areas” (Dao The Tuan 1997: 50). Within the past few decades, rural households in the Mekong Delta and their social and economic roles have undergone major transformations. Under collectivization, most decisions regarding production inputs and outputs were made by the cooperative. Collectivization of production was argued to be essential for the goal of social equity and welfare. The household’s economic role was important within the realm of agricultural production on the five percent of the land it worked for itself (Kerkvliet and Selden 1998:42). Since Doi Moi, the rural household’s economic role has been continuously strengthened. Economic policies promoting a market economy, including Contract 100 and Contract 10 in the 1980s, and eventually the 1993 Land Law, have gradually consolidated the position of the
household as the basic production unit. Unlike the past when decisions were made by the cooperative, the household now possesses autonomy in the production process.\textsuperscript{53}

The implications of greater household autonomy for livelihood security under market liberalization can be discerned by examining three realities. First, as part of various trade agreements, and particularly the WTO Agreement on Agriculture, Vietnam is required to eliminate all forms of subsidies that are provided directly to rural producers. The adoption of neoliberal support for individual entrepreneurship and creativity and its logic of “no pain, no gain” means that the household is expected to shoulder ever greater challenges in the face of growing market competition. Second, increasing reliance on new technologies in terms of seeds, chemical and fertilizer, and mechanical equipment as part of industrial farming has meant that farming households are now more dependent on market forces for inputs that they could manage within their own capacity or purchase at reasonable prices. In the past, the household could provide most of the production necessities, including land, labor, compost and indigenous seeds. Now that HYVs and GM seeds have become widespread, returning to their traditional ways of farming is no longer an option, thus increasing their dependence on market for inputs. Third, farm households are now subject to greater market exploitation at harvest times when private traders and processing factories competing for their produce has become a double-edged sword. Although competition among traders may push prices up, such instances are rare and sporadic. Production decisions based on speculation of price changes have proven to

\textsuperscript{53} As compared with households in the North, households in the South have long enjoyed “autonomy” status. Due to the failure of the cooperative movement in the South (1975-1980), farm households in the South were already solely responsible for production decisions; however, they were constrained by other regulations under collectivization.
harm farmers more than benefit them. All in all, along with greater autonomy, the household has to assume full social and economic responsibility for its unit, bearing the risks and burdens that may occur in production such as crop failures, price fluctuation, and indebtedness.

Ethnography of Livelihoods

The case studies below demonstrate the dynamics of livelihoods among households in My Quy and Cay Da. At the risk of oversimplifying the complexity of local livelihood systems undergoing radical economic and environmental transformations towards commodity production and greater market integration, the six cases are drawn here to capture the processes at work that are integral to growing social differentiation and livelihood vulnerability present in the villages of Cay Da and My Quy.

*Household # 1 (My Quy): Rice-Industrial Shrimp Farming*

Less than a decade ago, Nam Dong had not even the slightest idea that anything would prompt a change in his livelihood as radical as shifting entirely away from agricultural farming to shrimp aquaculture. In 1991, Nam Dong and his wife, married at the age of 21, started out as a poor household. Neither of them had received any land from their parents for farming. They had had to borrow 2 công of land (1/2 acres) from Mrs. Dong’s family to farm watermelon, the main cash crop back then. Because watermelon was their only source of income, they had to raise more than one crop annually. Watermelon did not demand a high investment in input but it was extremely labor intensive. The crop
required three rounds of watering a day. Nam Dong and his wife had to spend the whole day in the sun to water the watermelon. Understandably, by the end of the day, both husband and wife would be exhausted. Their hard work was not over at harvest time, however. Due to poor market access when waterways provided the main transportation, Nam Dong had to rent a boat with a couple of his neighbors and sail the harvest to a wholesale market in My Tho. Each trip used to take a whole week. After settling all the loans accumulated for the crop, which required two and a half months from planting to harvesting, Nam Dong’s family was left with a million đồng in profit (62 USD). After a few years of growing watermelon, they were able to save nine million đồng (562 USD). While watermelon was a relatively safe investment, farming it was drudgery, giving Nam Dong and his wife no time to rest. This motivated him to find something else.

In 1995, Nam Dong was the first to decide to move to 10 công (2.48 acres) of land near the Thâu Râu River that was covered with poor forest. The initial years required a lot of hard work since creating a shrimp pond required clearing the land. At the beginning, they could only use 3 công (0.74 acres). Nam Dong dug canals to connect the remainder of his land with the Thâu Râu River so that he could harvest the wild fish that came in with tidal waters. The canal also supplied water for vegetable farming. After three years of growing vegetables, Nam and his wife were ready to start small-scale shrimp farming.

He recalled:

At the beginning, shallow ponds were dug manually. Shrimp fries were cast thinly. In the early days, neither chemicals nor inputs were used in ponds. Although both vegetables and shrimp were sold at the market, income was rather humble because small-scale shrimp farming could only bring humble income.
In 1999, after a few years pursuing shrimp farming, Nam Dong decided to relocate his whole family to the riverside so that he and his wife could devote all their time to shrimp aquaculture. As an experiment, Nam was careful not to turn the whole area into shrimp ponds but left a couple of công for vegetables. He also was cautious not to take bank loans. Instead, he mobilized his family’s labor to dig ponds and used some of the household’s savings to invest in shrimp farming. In the beginning of the shrimp boom, shrimp farming did not yield the same volume as in industrial farming, but neither did it require much investment, which enabled Nam Dong to maintain some savings even with his humble profits. In 2001, following the adoption of the farm economy and promotion of industrial shrimp farming, Nam Dong decided to shift to industrial shrimp farming to take advantage of the incentives offered with these policies. Having no experience in industrial shrimp farming, he hired a local expert (kỹ sư) for guidance on the production process. When I first visited Nam Dong’s family in 2006, the household had experienced two successful harvests with handsome profits. Nam started to expand his shrimp farm little by little every year. Income from shrimp aquaculture also enabled his family to purchase a Honda Dream in 2004. In 2006, his family was able to save enough to construct a new house that combined both modern and local materials. The house had tiled floors and corrugated asbestos sheet roofing (mái tôn), but nipa leaf panels were used to cover parts of the wall and to roof the kitchen, an extension of the main house. According to Nam Dong, life had improved a lot in recent years thanks to new roads, electricity and easier market access. In his opinion, overall improvement in the transportation network had been a chief factor in changing the living conditions in the region. In the past, he had had to travel by boat to My Tho to sell watermelon. He
recalled the difficulties of the Communist government’s trade restriction policy where he would be stopped at three checkpoints before he could reach the market. Nowadays, nobody asks any question. Traders come to your door to collect produce, whether it is watermelon, corn, bitter gourd, rice or shrimp. But for his family, it is the shift to shrimp aquaculture that made the most significant change. Nam Dong is a firm believer in scientific knowledge. He is confident that through his willingness to work hard and to update technologies, shrimp aquaculture will continue to improve his family’s economic situation.

There is little doubt that Nam Dong is among the few farmers in Tra Vinh who have been successful with shrimp aquaculture. By 2006, approximately 90 percent of the households in My Quy who took loans for shrimp farming were still indebted. A large majority of those with agricultural land on the Tam Du field regret that they had shifted part of their agricultural land to shrimp ponds. Nam Dong’s success was also due in large part to the invaluable support he had received from his sister who provided him with substantial interest-free loans. His sister has been able to benefit from the shrimp boom by selling shrimp feed. However, Nam Dong also stood out as having been extremely strategic in his investment decision-making; he was very cautious about spending even after a good harvest; he focused on tending his shrimp ponds instead of on socializing. Nam Dong was exceptional in that he did not indulge himself in drinking or smoking, which he saw as direct causes of poverty for some of his neighbors.

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54 This refers to the policy to prevent the trading of goods among provinces and regions during subsidies in the 1980s.
When I returned for a visit on the New Year of 2008, the front of Nam Dong’s homestead was lined up with steel pipes, nets, dozens of plastic panels used for generating oxygen in the water, and six motor engines worth 1.2 million đồng each (75 USD). I soon learned that Nam Dong and his wife had decided to expand their investment following a good harvest in 2008, which generated a profit of over 100 million đồng (6,250 USD). It was his sister who subsidized the entire investment. However, she redeemed only her investment and left the full profit to his family. Not having to settle any loans, he and his wife were ready to expand their enterprise. For the coming crop, they rented extra land for three years from a plot in front of their house, a total area of 23 công (5.7 acres), for the price of 60 million đồng (3,750 USD). Although the price of input supplies for building a new shrimp farm had gone up by 30-40 percent, the profits from the last harvest gave Nam Dong and his wife the confidence of knowing they have mastered the art of shrimp farming and were ready to expand their production. Nam Dong said, "Once embarked on this [shrimp aquaculture], I want to do big [-scale] to make it worthwhile. I would rather not farm shrimp than keep it small."

*Household # 2 (My Quy): Rice-Shrimp-Rice*

Nam Thien is one of the long-time residents in My Quy. He is well respected in the village not only because of his age and his knowledge of village history, but also because of his deep passion for the land and its legends. He has shown by his example how hard work can triumph the adversity over soil affected by salinity and acidity. But life has not always been kind to him. Throughout his life, Nam Thien has witnessed the destruction
and disruption brought by various political conflicts. Since losing his wife to cancer in 1987, Nam has been living with his second son, his daughter-in-law and their four children on 17 công (4.2 acres) of land (one third from his ancestors and two thirds allocated by the government after decollectivization in 1986). Although Nam Thien no longer farms, he maintains considerable power in household decision-making regarding the use of land and resources, and even on future plans for his grandsons.

For someone who takes such good care of his land that a weed cannot be found on it and a motorbike can run on the bunds, turning paddy land into a shrimp pond was not an easy decision for Nam Thien. In 2003, following the shrimp boom in Duyen Hai and government incentives to promote industrial shrimp farming, many households with a plot of land in the Tam Du field decided to shift half of their paddy field over to shrimp farming. Even though Nam Thien was not so keen on the idea, following a meeting of two hundred households in the village that resolved to the conversion of half of the Tam Du rice field into shrimp farming forced Nam Thien to convert part of his land. Taking 20 million đồng (1,250 USD) in bank loans, his son turned 7 công (1.7 acres) of rice land for small-scale shrimp farming. After a reasonably good return initially, the household suffered two consecutive seasons of failures. Unable to rent equipment to dredge the pond in order to pursue industrial shrimp farming, his son and oldest grandson have tried to sustain the pond by “farming shrimp the poor way" (nuôi tôm kiểu nghèo). Farming shrimp the poor way implies minimizing investment in the pond and casting shrimp fries without first dredging and cleansing the pond. While most farmers are certain that such disregard for the recommended protocol in shrimp farming guarantees failures, they remain hopeful and pray that by some miracle, the shrimp will survive. It has been five
years since Nam Thien's household started shrimp farming, but the hope of recuperating their investments only fades with each passing season. The grief over losing that plot of land only deepens. Each time I met with Nam Thien, he would mourn over the 7 công (1.7 acres) of rice land that had become useless. Instead of generating any income, the shrimp pond had only increased the burdens on the family as interest on the bank loan that yielded no returns continued to mount. In his struggle to come to grips with this reality, Nam explained:

First we always have to listen to the government, and second people are greedy. In 2002, hearing that each shrimp could fetch so much money, everyone wanted to farm shrimp. Who could see far enough? Like my son, he tried for three years and lost all three times. That is the fate shared by many others in the village. The first year was alright because the land was new. But the following years have only seen failures. Those who are poor suffer a smaller loss, ranging from 5 to 10 million đồng (312 vs. 625 USD) a year. It was shrimp aquaculture that led us into debt. Rice farming has never made us indebted. We would be able to harvest 1000 dạ55 of rice for 100 công of land. The government advised that shrimp farming on the same area of land would fetch as much as the value of 4000 to 5000 dạ (176,370 lbs) of rice. But perhaps only one household has harvested that amount. In this village, about 50 percent [of households] have lost completely, 30 percent may break even, and 10 percent gain a small margin. Only 10 percent have had reasonable harvests. This last figure is doubtful because even people in high places have lost.

Today Nam Thien is still thinking hard about how to turn the situation around. But there are not many options. At present, Nam Thien's extended family of nine relies on the remaining 10 công (2.45 acres) of land on which his son and grandchildren alternate the cultivation of rice and watermelon. Having failed to make money from shrimp aquaculture, they have to intensify their agricultural production with three watermelon crops a year before the rain comes for the rice cultivation that enables them

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55 1 dạ of rice is equal to 20 kilograms, or 44 pounds.
to save from purchasing rice for domestic consumption. Watermelon has become the household's main source of cash income. Yet, the land they farm is now threatened by salt water intrusion from surrounding shrimp ponds. Reflecting on the land that had been transferred to shrimp farming, Nam Thien said:

That land [the plot that was transferred to shrimp aquaculture in 2000] is abandoned now. I want to sell it. Continuing shrimp farming would require capital [which I cannot afford]. It is so frustrating. At the peak of the shrimp boom, the land could sell for 15 million đồng per công (937 USD). I would be glad to sell it if anyone offers to pay 10 million đồng a công (625 USD). But even for 10 million đồng, nobody wants to buy it. But then I have no heart to part with it for just 4 to 5 million đồng (approximately 300 USD). That would be too much of a loss.

Not even Nam Thien, with his knowledge, experience and standing in the community, is able to withstand the waves of change brought about by the shrimp boom. Shrimp failure even on a smaller scale threatened Nam Thien's household’s food security. Although the 20 million đồng (1,250 USD) loan is insignificant compared with the 100 million đồng (6,250 USD) loans provided for industrial shrimp farms, it may take a minimum of three years for a farm household with land and able labor like his to earn that amount of money, provided their rice and watermelon crops are not affected by disease, natural hazards, or price declines. Nam Thien's household is not among the worse-off, however. In fact, the household has dealt with the consequences of failures relatively well compared with many other households sharing the same fate in the Tam Du field. By 2007, 70 percent of the agricultural land transferred to shrimp aquaculture in the village had been sold to outside investors. Still, some households could not repay the full loan amount even after selling off 10 to 15 công (2.5 to 3.7 acres) of their land. In January 2008, one of Thien's grandsons very excitedly shared the news that a relative from his
mother's family, a Viet Kieu (Vietnamese overseas) returning from the US, promised to help the family settle the loan. Turning to family for assistance with the settlement of debts is not an option open to many households. In My Quy, only two families whose daughters married Viet Kieu can dream of such options.

A widower who survived the Vietnam War and family disintegration, Nam Thien is not easily defeated. At 74, he still plays music for funerals to bring home additional income. This way, he stays on the lookout for new employment opportunities for his four grandchildren. The family has sent the second grandson to Chau Doc on the border with Cambodia to help a relative look after their trading business. The third grandson is receiving training in the district town to become a mechanic so that he can soon start a business to meet the growing need for mechanics. The first grandson has his own family and must supplement his farm income with occasional off-farm jobs such as providing motorbike taxi services to local villagers. In their spare time, the grandchildren are happy to join the grandfather in playing music for funerals for extra income. Nam Thien has one other source of livelihood. He can sell the bamboos he keeps on the small plot of land by the roadside any time he is in need of cash.

*Household # 3 (My Quy): Rice-Shrimp-Selling Labor*

Ba Toan's family of nine (seven children and two parents) lives in a small, run-down, thatched house by the Ben Chua River on the edge of My Quy village. With only 5 công (1.2 acres) of land and his chronic illness, Ba Toan's family knows the circle of poverty well. Since he cannot work, and the family land is too small to feed so many people, daily
wages his wife and children earn working the land for others has become the family’s main source of subsistence.

Ba Toan was unfortunate to have not inherited any land from his parents, who lost their 10 công (2.5 acres) of land when their village was evacuated during the war the village during the war. When Ba Toan married his wife, the couple had to stay on a plot of land borrowed from a relative. Eventually, they were able to obtain a plot by the Thau Rau River at the edge of the village. Ever since, they have lived on the five công (1.2 acres) of land in front of the house. In the early years of their marriage, they planted coconuts. They also dug canals to catch wild shrimp and fish that came in with tidal waters. In addition, they rented out their labor whenever time allowed. According to Ba Toan’s wife, growing vegetables was profitable in the beginning. Then, in 2004, seeing others digging ponds for shrimp farming, Ba Toan could not resist going along, too. He could not resist but converted the household’s only plot into a shrimp pond. He described:

In the beginning, we used manual labor to dig the pond. We lost the first year. In the second year, we harvested 40 million đồng (2,500 USD) of shrimp, of which 10 million đồng (625 USD) was profit. We shared the profit among the children. But the third year we failed again and lost a few million đồng. This year we have lost one batch of shrimp. We did use some chemicals to clean the pond, but could not afford to rent a machine to fully clean the pond (sên hộ). Since we do not dare to take more loans for shrimp farming, we just close our eyes and cast the fries in the water and pray for luck.

The economic situation of Ba Toan's household is constrained by a lack of agricultural land and a shortage of labor due to his chronic illness and grown children getting married, moving out, reducing the labor they would otherwise contribute to the household’s production. On top of that, the household has to bear excessive expenditures
on multiple doctors’ visits for both Ba Toan and his daughter, who also suffers from a chronic illness. In 2005, Mrs. Ba Toan used the Red Book (land use certificate) to obtain a seven million đồng (437 USD) loan from a private moneylender. By 2007, they had only been able to pay back two million đồng and so still continue to pay monthly interests totaling 60,000 đồng (3.75 USD). 1.7 million đồng (106 USD) was later borrowed to buy oil for the shrimp pond water pump. This year, they got 4 million đồng (250 USD) from the government and 300,000 đồng (18.75 USD) from the village Đình’s budget in new loans. When it is time to repay these loans, Mrs. Ba Toan has to run around and takes a loan from private sources at high interest to make the payment.

Unfortunately, not much help is available to the family. The married children who now live separately have no land to work and live on selling labor (mặn muốn) themselves. Everyday, Mrs. Ba Toan and her sister-in-law travel on bicycles from one village to another to look for day jobs. Sometimes they pedal about 10 kilometers (6.2 miles) to Hiep Thanh commune where they assist others with farm work by carrying soil, weeding, and harvesting rice and peanuts. Still, Mrs. Ba Toan cannot afford to see a doctor for her kidney problem. Now that their land is no longer suitable for agricultural farming, she regrets her family’s decision to dig the plot for shrimp farming since "growing vegetables would never have left us indebted."

Household # 4 (Cay Da): Extensive vs. Intensive Shrimp Aquaculture

It is hard for anyone who has met with Sau Hong to believe that at 47 she has five grown children and 3 grandchildren. What seems surprising is that having to care for five
children has not preventd her from pursuing economic activities that she hopes will enable her children to continue their education and secure a better future. Sau’s fourth grade education did not hinder her ability to participate in the household’s production decisions. With a sharp mind and determination Sau usually takes action in a timely manner. Sau rarely wastes a minute for things that she considers economically non-beneficial. She puts her heart and mind on the things that generate income for her family. Her determination grew even stronger following her family’s failures in industrial shrimp farming a few years ago. Starting at five o’clock in the morning, Sau Hong’s day is carefully laid out with one priority after another: the shrimp ponds behind her house, then the small plot of vegetables by the side of the house, and then the cows and the goats that need to be taken to grazing areas for feeding. After lunch, instead of taking a nap like most people do, Sau Hong chooses a task she can accomplish indoors to save time.

In 1980, newly married at the age of 20, Sau and her husband only had one công (0.25 acre) of land. They were starting a family at a time when Vietnam’s economy was going through an extremely difficult phase due to shortages of everything, from food to basic necessities. For the first three years of their marriage, she and her husband had to rent out their labor. They earned daily wages by digging and carrying earth for the state farm in Hiep Thanh commune. They also collected firewood for sale so that they could earn cash for rice. Thanks to a tailoring class she had attended before marriage, she was able to make extra income by sewing clothing for villagers for Tet (lunar New Year). For the remainder of the year, she and her husband rented out their labor (màn muốn). However, with hard work and frugal spending, by 1993, they were able to purchase an old Honda 67 for 5 chí (half an ounce) of gold. In the following year, both husband and
wife started to engage in shrimp trading (mua bán). Eventually, in 1996, Sau Hong’s husband needed to stay on the farm to work the land while she continued with her trading business. When the state farm was disbanded in 1990, each household was allocated 20 công (4.9 acres) of mangroves. On their new land, they started to clear the forest and capture wild shrimp and fish. It was during these years that Sau Hong started collecting shrimp and fish from villagers in Hiep Thanh and selling it at the district market in Long Huu, seven kilometers away. At the time, with the poor road conditions (there were no paved roads), and bicycles being the main means of inland transportation, there were only six shrimp traders for the whole commune of Hiep Thanh, making trading a highly profitable business. Sau Hong could sell about a ton of shrimp and fish in one month for a profit of approximately 5000 đồng (0.3 USD) a kilogram. However, believing that, she and her husband could not possibly transfer their trading skills to their children, they decided to invest the profit generated from shrimp trading in land for their children. This decision was made just when many villagers were selling off their share of the mangrove land. The profits they had accumulated from shrimp trading allowed them to purchase 20 công (4.9 acres) for 1.8 cây vàng (1.8 teals of gold) in 1997, 20 công for 3 cây vàng (3 teals) in 1998, and another 40 công for 7 cây vàng (7 teals) in 1999. Over this period, land prices increased slightly as more people started to farm shrimp. Sau Hong started to do extensive shrimp farming (thả lan) in 1995. In 1999, the family invested 104 million đồng (6,500 USD) in the construction of a brick house.

Hiep Thanh could not escape the wave of industrial shrimp aquaculture that started to sweep the entire region beginning in 2000. In 2003, following the government’s aggressive promotion of industrial shrimp farming, Sau Hong took a loan of 140 million
đồng (8,750 USD) for industrial shrimp farming (tôm hồ). The plan was to use the money to convert two công (0.49 acre) of land behind the homestead into a raised shrimp pond (hồ nội). This is a model of industrial shrimp farming that had been introduced in other areas. However, the raised pond model was more suitable for clay soil (đất sét) that could be formed into impermeable earthen barriers to retain the pond water. Unfortunately for Sau Hong, this model did not work well with sandy soil like hers. After building the raised pond, she recalled that the water seeped out to the road and would not stop. Failure in the first year meant the loss of all the investment that her household had made with the generous bank loan in 2003. When I met her in 2006, three years had passed and she still had close to two-thirds of the loan to pay back. All their children were now gone and there was no one to help Sau Hong and her husband around the house. Two elder sons were married. The third son was serving in the District militia, whereas the youngest son was attending Can Tho University. The youngest daughter was an 11th grader in the Duyen Hai district town. Sau Hong said:

In 2001, I decided to withdraw from trading because there was no labor to work our land. At the same time, we had lost 40 công (9.8 acres) of land to the married sons. Since 2006, we only have 60 công (14.8 acres) left, and earned 60 million đồng (3,750 USD). In 2007, we harvested 30 million đồng (1,875 USD) in shrimp farming. Now that we are on this horse’s back, we have no choice but to ride it. 15 công (3.7 acres) is now devoted to industrial shrimp farming. But industrial shrimp farming is very risky; the chances of success are low, whereas the likelihood of failure is high. The extensive model, on the other hand, is no longer a viable option because our land is now fragmented.

In 2002, Sau Hong and her husband were honored with the Outstanding Farmers Award (nông dân giỏi), the most prestigious recognition given out to farmers by the President. They are looked up to by other villagers for their ability to overcome
difficulties and improve the household’s economic position, from an average to a rich household. Ironically, despite such a prestigious award, they could not escape the debt caused by failed industrial shrimp aquaculture. Not easily defeated, Sau Hong believes that she has the strength to “rise above herself.” The challenge is how to make enough money to get her young son and only daughter through college while settling the remaining debt. Sau keeps a few cows and goats. On a small plot near the house, she grows grass and morning glories for sale. But the loan taken for industrial shrimp farming is a different story. Like most shrimp farmers, both Sau Hong and her husband believe that only shrimp farming can possibly settle shrimp loans. In 2008, the argument between husband and wife was whether to invest in intensive or extensive shrimp farming first. To minimize the risk of failure, Sau Hong was determined to stick to the extensive farming model, which would keep investment and risk minimal and guarantee a profit. Once that income has been harvested, doing industrial shrimp farming is not too late. However, unsettled by the amount of debt, her husband was eager to pursue industrial shrimp farming immediately. Although Sau and her husband managed to settle the issue eventually, the pressure of failed shrimp farming was not easily managed and overcome.

*Household #5 (Cay Da): Rice-Shrimp-Rice*

A rosy colored wall and red tin roof decorated by waves of bright purple bougainvillea branches reaching out to the sky, Hai Nam’s house is clearly set apart from the rest of the village of Cay Da. Its distinct colors and decoration easily catch the attention of any first-time visitor to the village. However, in a village that is undergoing great transformations
toward a market economy, it is impossible to envision all the circumstances that may affect one’s life course.

Like other households in the village, Hai Nam’s household received 20 công (4.9 acres) of mangrove land from the state in 1990. In 1994, he bought some new land and hired people to work on his shrimp farm. Each year he invested five to seven million of đồng (437 USD) to clear the land for shrimp farming. But, unfortunately for him, the shrimp kept dying. The situation turned so gloomy that his family had to borrow money for food and daily expenditures. Eventually, in 2004, Hai Nam was forced to sell 27 công (6.7 acres) of forestland for 270 million đồng (16,875 USD) after failing multiple times. He used the money to settle a loan of 100 million đồng (6,250 USD) and spent 40 million đồng (2,500 USD) on a new house. The remainder of the money went to purchase three công (0.74 acres) of agricultural land (25.5 million đồng) and 3.7 công (0.9 acre) of land for shrimp farming. Since shrimp farming did not bring a profit, he thought farming rice and vegetables would at least ensure an easier life. Each công of rice land could harvest five đa of rice. He said:

My family remains poor after trying many things. We farmed shrimp and the shrimp died. That is why we had to sell off forestland to buy land for rice cultivation. However, as you can see, this village has hardly any agricultural land. In this village, those enjoying good shrimp harvests are getting richer. But both the rich and the poor have become so because of the shrimp.

Hai Nam’s hope to stay with the low profit crops of rice and vegetables for his livelihood instead of shrimp may be unsustainable on land that everyone around him wants to convert to shrimp aquaculture. Even in the middle of the little rice field in Hiep Thanh commune located right in front of the Commune People's Committee, patches of
land have been converted into shrimp ponds. Like other communes in the vicinity, Hiep Thanh’s valuable agricultural land is being rapidly taken over by shrimp ponds. Even though the shift of this particular agricultural land to shrimp pond is illegal, local authorities quietly ignore it. Villagers whose land is threatened by salt water intrusion from this shift to shrimp ponds also take it lightly, reasoning that they have no right to object since these households had not dug any canals to bring in tidal waters. Today, Hai Nam has more free time because he no longer has to spend time on his shrimp farm. However, despite their beautiful house, to feed a family of seven (five children and two parents) is a struggle. Hai Nam’s wife gathers a meager income by selling vegetables they grow on the small plot behind the house. She also maintains a petty income from selling snacks to children at the local primary school.

*Household #6 (Cay Da): Lost Fish, Shrinking Livelihood*

On the former mangrove stretch of Cay Da resides a few hundred households who moved in from neighboring districts. These households traditionally subsisted on agricultural farming. However, once moved to this area, they shifted to *đồng đáy*, a type of fishing on fixed posts in the river. Now, faced with declining fish population following the massive loss of mangroves with the expansion of shrimp farming area and due to a general lack of agricultural land, these households have had to think of new means for making a living. Fish harvests are insufficient to cover even the annual rent for the fish posts (*cọc đáy*). Some households along the mangrove stretch have tried to raise pigs. In 2003, the World Bank launched a Sustainable Livelihood Program in an attempt to support poor
households in this buffer zone. The main improvement for households in the mangrove stretch was construction of a concrete road (the DAN road) on the dike that runs from the Hiep Thanh commune center to mouth of the Bassac River.

Ba Duong’s household is located at the very end of that road. Like most households in this area of Hiep Thanh, Ba Duong’s family migrated from Long Hưu District in 1986 in search of a better life as there was not enough agricultural land in their home village. They bought two fishing posts (hàng đáy) that require an annual fee payment of 1.6 million đồng (100 USD). In the beginning, the hàng đáy brought in tons of shrimp. With the abundance of wild fish, shrimp and crab, it did not take the household long to recuperate from its investment in fishing nets and pay the annual fee for the two hàng đáy. Now that barriers have been formed to protect shrimp ponds and new farming practices have flushed contaminated mud into the river, wild fish and shrimp are also disappearing. Even though the annual rent of a hàng đáy has gone down to only 350,000 đồng (21.87 USD), many households are thinking about shifting to other professions.

Following the shrimp boom in Duyen Hai, Ba Duong’s family dug a pond on two công (0.49 acre) by the river mouth in 1998. With such a small plot, however, the household could not pursue extensive shrimp farming like most households in Cay Da did. The family had to invest in intensive shrimp farming. Although Ba Duong did not have to deal with the problem sandy soil that others in the village had to, the small plot and lack of agricultural land for diversification made it difficult to generate extra income. Neither dòng đáy nor shrimp farming offers a stable income. According to Ba Duong, life has become much easier since the DAN road was put in place. Instead of having to get around by boat, which would consume three liters of kerosene a day, she can now get
around on a motorbike, which is much faster and cheaper. But things are not quite as positive as she would like. During Tet of 2007, a friend explained the absence of a festive atmosphere in Cay Da as follows:

Tet is a hard time for households living on the coast. It is the dry season when not much fish are available to be captured. New Year is also when the shrimp season has not yet started. There is virtually no money. How can you celebrate Tet without money?

Ba Duong's family is by no means the poorest on the mangrove wing in Hiep Thanh commune. Like most households occupying this stretch of land, Ba Duong’s family is in desperate need of more land in order to diversify away from shrimp aquaculture. With each passing season, tidal waters dig deeper under their plot, and at this point have already created a hollow under the cemented front yard.

Patterns of Differentiation and Livelihood Trajectories

The visible signs of wealth displayed among the coastal population does not mean every household has been able to benefit from the market economy or the shrimp boom in particular. The steps that the six case study households have taken reveal a sense of bewilderment. It is evident that households no longer possess the same control over their production decisions they once had. Radical changes in household resource use and strategies in each season are responses to a high degree of uncertainty. However, new patterns of social stratification can be discerned by examining differentiation in households’ landholdings and labor power. Below, I will highlight distinctions in the principal ways socially differentiated households diversify their sources of income and
manage household assets and finances in order to minimize risk. The success of these strategies depends on the coping capacities of households, which eventually contribute to shaping the outcomes of household livelihoods.

The six case studies together illustrate three livelihood trajectories (see Table 5.2) that the households in My Quy and Cay Da who ventured into shrimp aquaculture have experienced.

Table 5.2 Livelihood Trajectories Illustrated by Household Case Studies

<table>
<thead>
<tr>
<th>Upward mobility</th>
<th>Households #1 &amp; #4</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Households that Have Successfully Shifted to Shrimp Aquaculture</td>
</tr>
<tr>
<td>Downward mobility</td>
<td>Households #2 &amp; #5</td>
</tr>
<tr>
<td></td>
<td>Households that Combine Agricultural Production with Shrimp Aquaculture</td>
</tr>
<tr>
<td>Poor</td>
<td>Households #3 &amp; #6</td>
</tr>
<tr>
<td></td>
<td>Households that Have Fallen Back on Subsistence Farming</td>
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</tbody>
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Households that Have Successfully Shifted to Shrimp Aquaculture

Among the case studies, one household from My Quy (Household #1) and another from Cay Da (Household #4) fall into this trajectory. By 2006, only a handful number of households could maintain industrial shrimp farming as the main source of income.⁵⁶ The

⁵⁶ At the time of my fieldwork, only three out of seven households in My Quy could sustain industrial shrimp farming. In Cay Da, three households attempted to adopt the industrial model without success had to shift back to the extensive model. The Long Thanh Industrial Zone had 80 households pursuing industrial shrimp farming, but only one-fourth at the most were successful in a good year. However, it is hard to state the number of industrial farms in each village given the flexibility in the ways farmers cope. The farming model adopted for one season depends on the outcome of the previous season. Farmers who have failed have to cut cost on the investment for the next season. For example, farmers may decide not to hire the Kobe excavator for pond cleaning, which usually costs a significant amount.
number of households that have been successful with shrimp aquaculture varies from village to village. In My Quy, about ten percent of all households having shifted to shrimp aquaculture have been relatively successful in shifting to industrial shrimp aquaculture away from agricultural farming. In Cay Da, the degree of intensification that households have adopted is much less due to their long-standing tradition of fishing in mangrove areas. Of the large number of households in Cay Da living on shrimp aquaculture, only four households adopted industrial shrimp farming, failed and shifted back to extensive shrimp farming.

Overall, successful shift to shrimp aquaculture indicates these households’ ability to withstand the challenges of this highly risky livelihood strategy. However, a large gap exists between those engaging in industrial shrimp farming in My Quy and the Long Thanh Industrial Zone and those doing extensive and semi-intensive shrimp farming in the village of Cay Da. In the village of My Quy, only three out of a total of 164 households successfully shifted to shrimp aquaculture. These households used to live on agricultural farming, but they also benefit from a stable non-farm income source. A few households have family members holding government jobs while others own a shop at the district market. These sources of income enable them to worry less about meeting daily needs and protect them from the hardship during periods of shortfall. The lack of such an income or even a smaller income from agricultural farming among many shrimp farming households forced them to use shrimp loans to meet daily basic needs.

On the other hand, in the village of Cay Da, where fishing has long been the main livelihood strategy and agricultural production is secondary, most households with land now engage in extensive shrimp farming (thà lan). Only about 50 out of the total 500
Households share the agricultural area of 34.19 ha. Under the shrimp boom, this small area of agricultural land has come under attack. By 2006, landowners had converted 20 percent of this area to shrimp farming. Unlike other villages where industrial shrimp farming is the main model, few households in Cay Da have become rich because of shrimp aquaculture, but the extensive model provides them with a regular income throughout the year. Most of the households here continue to rely on wild catch or the harvest of fish in their ponds during tidal water every fortnight. This source of income has become the main buffer, supplying households with a source of food and cash.

**Households that Combine Agricultural Production with Shrimp Aquaculture**

Among the case studies, one household from My Quy (Household #2) and another from Cay Da (Household #5) fall into this trajectory. This category accounts for the largest number of failed households having shifted to shrimp farming in My Quy. Since 2000, following the shrimp boom, many households converted a portion of their agricultural land to shrimp farming. Unable to choose extensive shrimp farming due to smallholdings and an unsuitable environment, these households shifted part of their agricultural land to shrimp farming. After three years of failures, 70 percent of the households had to sell or rent their land out to outsiders. Some grow rice for domestic consumption. Most households grow watermelons for sale. Others grow vegetables and fruit on small plots for domestic consumption. Those who continue to hold on to their land was because of declines in land value following failed shrimp investment. The same land that sold for 15 million đồng (937 USD) per công in the wake of the shrimp boom barely fetches 6
million đồng now (375 USD). While agricultural farming is now their main income source, many of these households continue to invest in their shrimp ponds. For these households, continuing to maintain both shrimp aquaculture and agricultural farming is an indication of failure rather than success because shrimp farming has created debts while continuing to increase burden on household productive assets. Of all households having shifted to shrimp aquaculture, these are the most vocal about their disappointment with shrimp aquaculture. Many find themselves worse off compared to before their adoption of shrimp aquaculture. Feminization in farming has increased since women now have to take on more responsibilities in agricultural production as men continue to devote their time to the shrimp ponds that do not guarantee a return. Although household workloads have increased, household incomes have actually shrunk, forcing these households to rent out labor in their spare time.

In the village of Cay Da, because most households have larger landholdings, more households can rely on income from extensive shrimp farming. The lack of agricultural land has also prompted households to diversify in water species such as fish, crab and mussel. Income from wild catch remains an important source of sustenance for many households. In fact, collection of wild catch during tidal waters twice monthly provides households with income sufficient to cover daily basic needs. In addition, households also diversify into animal husbandry. Some grow vegetables on small plots for domestic use.
Households that Have Fallen Back on Subsistence Farming

Households in the third group are those who have either given up shrimp farming or who are landless or land-poor. Among the case studies, one household from My Quy (Household #3) and another from Cay Da (Household #6) fall into this trajectory. Despite poor assets, these households have attempted to farm shrimp either on their own land or on a plot borrowed from close relatives. Unable to continue with shrimp farming after repeated failures, many of these households have returned to subsistence farming, combining agricultural farming on small plots with renting out labor on a daily basis. But their main income is from renting out labor sporadically. With meager and irregular incomes, these households are in constant search of on- and off-farm opportunities. This also means that households with members suffering chronic illnesses are most hard hit. In the village of My Quy, some of the poorest households are not only landless and have no assets or income to fall back on, but are constantly stressed by medical expenses for family members with chronic sicknesses.

The declines in available employment in agricultural farming as a result of the shrimp boom and increasing mechanization of production have hurt these households the most. A common feature of landless and land-poor households in both My Quy and Cay Da is ill health. Chronic illness of some family member deprives them of able labor while keeping them indebted and falling economically further behind (OGB 1999; AusAid 2003). In a less dramatic situation, households that rely on fishing in Cay Da village have been affected by a decline in wild catch. Fortunately, although income from fishing has declined, it continues to meet household subsistence needs.
Determinants of Social Inequality

Land

No matter which livelihood strategies a household pursues, land remains an essential productive asset. The size of landholdings helps households decide which farming model to adopt. Landholdings are also necessary for obtaining bank loans. In addition, land continues to be a critical buffer since it provides food in times of a shortfall. Figure 5.1 indicates differentiation in landholdings among household types across research sites. Overall, better-off households own 26 công (6.3 acres). Average households own from 15 to 20 công (3.7 to 4.9 acres), although in the Long Thanh Industrial Zone, the average farm size is 20 công (4.9 acres). On average, rich households own five times the amount of land of poor households, and two times the amount of land of better-off households. There are some exceptionally large holdings in all the villages. A few rich households own up to 80 công (19.76 acres) while land-poor households have 5 công (1.23 acres) or less. Cay Da has an exception of a household that owns 150 công (37 acres) of land, 30 times more land than a land-poor household. The only people who could compete with these rich households are outside investors. For example, outside investors own a couple of industrial shrimp farms in My Quy with about 80 to 100 công (19.76 to 24.7 acres).

Across-village comparisons (see Figure 5.2) demonstrate differentiation in landholdings embedded in local historical contexts. For example, although the average holding in Cay Da is twice the size of that in My Quy, this was largely due to a higher per capita land area and local households benefiting from land redistribution when the state

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57 The grouping of household types here was based on local villagers’ assessment during a village meeting taking place at the beginning of fieldwork.
farm was disbanded in 1980. Although My Quy households also enjoyed a similar policy of land redistribution, it was the lower per capita holding that determined the lower average holding for the village. In all villages, holdings of between five and seven công (1.23 to 1.72 acres) are considered land-poor. Inequality in terms of landholdings is greater in My Quy than in Cay Da. The former has 24 landless households, eight times greater than the latter. This is particularly significant considering that My Quy’s population is about one third that of Cay Da.

Differentiation in terms of landholdings is not only defined by size of holding but also by the quality of land. My Quy villagers frequently express jealousy over Cay Da’s households whose land in the mangroves can support a household’s subsistence needs as well as bring in extra income without much hard work. However, the value of land in fulfilling household subsistence needs is being threatened by the formation of a market in land. In recent years, improved road conditions and better market access threaten to radically alter local land use and management. The 1993 Land Law that recognized land as private property also made it a commodity that could be bought, sold, exchanged, mortgaged and inherited. The 2000 Resolution on Farm Economy took a step further in facilitating the sale and purchase of land and encouraging holdings greater than the prescribed limit. As a result, land transactions have intensified both in number and volume. The survey of 93 households in the studied villages shows an increase in land transactions from 21 during 1976-1985 to 37 during 1986-1995 and 34 during 1996-2005. The higher number of land transactions during the second period corresponds with the peak of the shrimp boom. But land transactions tend to increase in areas with greater market access. Of the three areas studied, My Quy has been most affected by forceful
Figure 5.1: Average Landholdings by Household Type

<table>
<thead>
<tr>
<th>Household Type</th>
<th>Land Area (acres)</th>
<th>Number of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich</td>
<td>13.1</td>
<td>6</td>
</tr>
<tr>
<td>Better-off</td>
<td>6.3</td>
<td>28</td>
</tr>
<tr>
<td>Average</td>
<td>5.3</td>
<td>30</td>
</tr>
<tr>
<td>Poor</td>
<td>2.4</td>
<td>27</td>
</tr>
</tbody>
</table>

(Total: 91)

*Note: Data not available for two households, one rich and one better-off.*

*Source: Field survey of 93 households*

Figure 5.2: Average Landholdings by Location

<table>
<thead>
<tr>
<th>Location</th>
<th>Land Area (acres)</th>
<th>Number of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cay Da</td>
<td>6.6</td>
<td>53</td>
</tr>
<tr>
<td>Long Thanh</td>
<td>3.8</td>
<td>11</td>
</tr>
<tr>
<td>My Quy</td>
<td>3.4</td>
<td>27</td>
</tr>
</tbody>
</table>

(Total: 91)

*Note: Data not available for two households, both in My Quy.*

*Source: Field survey of 93 households*
penetration of outside investors due to its proximity to national Highway 53. In Cay Da, land transactions have also increased, but mostly among local people, who maintain shrimps farms built on the extensive and semi-intensive shrimp farming models.

Labor

The importance of labor in a household’s livelihood strategy depends on household composition and production strategies. Labor power can be seen as the second most important production factor for households engaging in subsistence and small-scale cash crop production. Here, Chayanov’s (1984) family cycle model continues to offer valuable insight into understanding social differentiation among subsistence households. A study of a Thai village in the Northern Mountains of Vietnam suggests a strong correlation between income, wealth and the family cycle (Sikor 1999). In the Mekong Delta, the family cycle also influences household productivity and wealth, but to a lesser extent. Household labor power is particularly important for households that maintain smaller production scales. Young households with small to no landholdings who have young children to look after are usually very poor because the wife has to stay at home to care for the children, leaving the husband to shoulder the entire production workload. Most of these households have to rely on their parents for childcare support. They also have to call on their parents for in-kind assistance. The situation can be particularly difficult if both the husband and wife come from poor families and thus inherited no land or property from their parents. These households often engage in subsistence farming, rent out labor, or work in seafood processing factories. On the other hand, rich and better-off
households are often those with grown children, who are not yet married and thus can contribute their labor to household production. These households also fare better because they no longer have to spend on their children’s education.

The situation changes rapidly, however, once a household engages in commercial shrimp farming and household income is diversified to non-farm sources. Households that have adopted the farm economy model often hire labor on a daily or seasonal basis. Shrimp farmers and investors hire labor to assist with different tasks in each stage of production. Agricultural farming activities only require labor for a short time at the beginning of the season to prepare soil and transplant crops, and later for harvesting. For example, a household that grows watermelon on 2 công (0.49 acres) of land needs to hire a person for six days to prepare soil and transplant, and for another two days for harvesting later in the season. By contrast, exclusive use of hired labor to manage the entire production process is common among industrial shrimp farms. A large industrial shrimp farm has to hire many workers for each season. In industrial shrimp farming, the number of workers hired may vary depending on the stage of production, but overall, farm owners would always need to rely on hired labor for the whole season. In the village of My Quy, at least three large shrimp farms are run entirely by hired labor.

Renting out labor is common among poor and average income households. In My Quy, many households with average income rent out labor during the off season to supplement household income. In Cay Da, households with extra labor often invest in raising livestock (cows, goats and chickens). Land-poor households rent out labor as their main source of income. In recent years, with resources increasingly channeled to commercial shrimp farming and increasing mechanization in farming, those living on
renting out labor are disadvantaged by the loss of employment in agricultural production for tasks such as preparing the soil, transplanting, watering, weeding and harvesting. New opportunities in shrimp farming are limited to young men who are physically stronger and better suited for a “masculine” crop. People who need to hire labor tend to reserve the opportunity for their own kin and relatives first before hiring outsiders.

The cost of hiring labor is differentiated according to the economic value of the activity in question. In shrimp farming, a person hired to work on a shrimp farm is paid a monthly wage of approximately one million đông (62.5 USD). This does not include the food and shelter supplied by the employer. In My Quy, there was an exception in which an employer offered his worker a share of the profits if the shrimp season was successful as an incentive for the worker’s commitment. Instead of collecting a salary, the worker accepted the deal and received a large sum at the end of the season. In watermelon farming, hired laborers are paid 50,000 to 60,000 đông a day (3.75 and 3 USD) for grafting (tháp dưa). Laborers hired for rice transplanting fetch about the same daily wage, although income for rice cultivation is usually based on the amount of land worked. In My Quy, transplanting rice on a công of land is worth 60,000 đông (3.75 USD) and harvesting the same area is worth 50,000 đông (3 USD). Rice cultivation is usually shared among a group of laborers who split the income. In the survey of 93 households, only five households hired labor for rice cultivation as compared to 12 for shrimp aquaculture. In Cay Da, some farmers are of the opinion that even if it means hiring labor at a loss, it is important for them to farm rice because “it is strange that as

58 Farmers in Tra Vinh graft watermelon plants onto the root of a species of gourd (cây bầu) which has stronger roots to make sure the watermelon will survive.
rice farmers we do not till the land.” Sharing labor (đàn công), a traditional arrangement among local households to help one another out during peak season in the Mekong Delta, is still common among a small group of rice farming households.

The changes in the production system and organization have affected landless and land-poor households living on renting out labor the most. Poor households are disadvantaged by increased mechanization in both agricultural and shrimp farming. At the early stage of the shrimp boom, when the extensive model was dominant, shrimp farming households used to hire labor to assist with digging ponds. Since industrial shrimp farming has been introduced, most of the jobs that used to require manual labor have been replaced by machines. Currently, employers want to hire only laborers who own equipment to work the land. Still, these struggling households who rent out their labor would face greater difficulties if they migrated to urban centers given their limited social networks. They have to make do with any opportunities available in neighboring districts and communes.

Differentiation in Capacity to Cope

In dealing with the growing uncertainties that have resulted from sudden changes in the local production system, households employ numerous coping strategies. While Mekong Delta farmers consider risk-taking essential for generating profits, their dread of crossing the “threshold” or tipping point beyond which a household could spiral downward to hunger and misery prompts them to be risk averse (Scott 1976: 101). By being better

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59 Conversation with a Cay Da villager. This is a dilemma that many shrimp farmers encounter. Parting with a traditional livelihood is not as easy as an outsider might think.
prepared to move beyond the dreaded “threshold,” however, households could help themselves move towards greater livelihood security. The “threshold” is the level of risk-taking that positions one either to move further down into or to rise out of poverty and secure a better livelihood. Examining the pattern of upward and downward mobility, Wood (2003) proposes the Faustian bargain model, according to which a secure livelihood requires a progression from food security to the accumulation of assets and savings. The latter can only be achieved after the attainment of the former.

My discussions and observations in the field indicate that farmers in Tra Vinh arrive at livelihood strategies after considering livelihood options with widely varying risks and potential returns. But risks can also be stratified. For example, only the very rich and better-off households can afford to embark on industrial shrimp farming that is capital intensive and highly risky. The risks that poorer households can afford are those that are more labor-, rather than capital-intensive. In general, the three principles of risk management strategies are diversification, asset management, and financial management. The ways a household employs these strategies can either strengthen or weaken a household’s position.

**Diversification**

*Diversification*, or the way households combine different income resources, is the most common risk-spreading strategy (see Wood 2003; Christoplos 2004; Scoones 1995; Ellis 2000). Diversity makes a critical contribution towards livelihood security (Wood 2000). In Tra Vinh, diversification strategies vary greatly among social strata. Figures 5.3
through 5.8 show the importance of different sources of income overall for the 93 households surveyed and the distribution of these sources among the four household economic types they represent. Of the 93 households surveyed, 74.2 percent had income from shrimp farming, 50.5 percent from rice, 43 percent from animal husbandry, 37.6 percent from crops other than rice, 32.3 percent from wild catch, 30.1 percent from fish and clam farming, and 25.8 percent from day labor.

Figures 5.4 through 5.8 illustrate the patterns of diversification within the four household types. The rich households overwhelmingly pursue all the higher value sources of income. All rich households surveyed have income from shrimp aquaculture and over 70 percent from fish and clam farming. Both the rich and the better-off households surveyed have income from animal husbandry (57.1% and 58.6%, respectively). While the rich and better-off tend to diversify up by investing in higher value sources, the average and poor tend to combine agricultural and subsistence sources. Apart from their significant involvement in shrimp aquaculture, fisheries and clam farming, only a few rich households are engaged in non-farm sources such as trading, selling feed and salaries. The main sources of income for the poor households surveyed are rice (66.7%), agricultural farming (59.3%), day labor (51.9%), shrimp aquaculture (48.1%), animal husbandry (37%), and petty trading (25.9%).
Figure 5.3: Sources of Income for All Households

Source: Field survey of 93 households

Figure 5.4: Sources of Income for Each Household Type

Source: Field survey of 93 households
Source: Field survey of 93 households

Figure 5.5: Sources of Income for Rich Households

Source: Field survey of 93 households

Figure 5.6: Sources of Income for Better-off Households

Source: Field survey of 93 households
Source: Field survey of 93 households

Figure 5.7: Sources of Income for Average Households

Source: Field survey of 93 households

Figure 5.8: Sources of Income for Poor Households

Source: Field survey of 93 households
It is important to distinguish the values of different income sources for each household type (see Table 5.3). Rich and better-off households often treat industrial shrimp farming as a business opportunity. They arrange for large loans, rent machines to build shrimp farms, and follow the protocol recommended for industrial shrimp farming. They also hire engineers for technical support and use industrial feed and chemicals. Successful shrimp farming households usually do not engage in another cash crop so that they can focus on doing well with one production strategy. Instead of diversifying income from agricultural production, they seek income from other off-farm investments such as supplying feed or chemicals for industrial shrimp farming. Some of these households own rental properties. In the Long Thanh Industrial Zone, farm owners typically maintain a government job that not only provides them with a regular salaried income but also invaluable social connections conducive to their shrimp farming enterprises.

Subsistence sources of income are particularly important to average and poor households. These sources not only help them satisfy their subsistence needs, but also contribute to longer term investments that promise greater returns. While struggling to meet their own subsistence needs, households in these social strata typically employ the strategy of “take the short to feed the long” (lấy ngắn nuôi dài). Due to the seasonal span of each crop, farmers have learned to use incomes from short-term crops such as vegetables and wild capture fish to sustain long-term investments such as shrimp farming. As a woman from a household in the Long Thanh Industrial Zone said, “Every little bit of income we can harvest from other sources are poured into the shrimp pond. You can imagine how we feel when the shrimp die” (Conversation in Long Thanh Industrial Zone).
### Table 5.3: Income Sources & Risk Management Strategies

<table>
<thead>
<tr>
<th>Household Type</th>
<th>Sources of Income</th>
<th>Asset Management</th>
<th>Financial Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Rich</td>
<td>Industrial shrimp farming, Animal husbandry, Salary, Trading</td>
<td>Invested in land</td>
<td>Access large bank loans</td>
</tr>
<tr>
<td>2 - Better-off</td>
<td>Industrial shrimp farming, Animal husbandry, Other stable sources</td>
<td>Accumulate land, Rent land for production</td>
<td>Managed to avoid debt</td>
</tr>
<tr>
<td>3 - Average</td>
<td>Extensive shrimp farming, Farming “poor way”, Watermelon, Rice, Vegetable, Wild fish, Cow and goats, Migration (out of province)</td>
<td>Most vulnerable to losing land, Invest in children’s education</td>
<td>Took bank loans, Unable to settle loans, and became indebted, Little income from subsistence sources, Have no income to settle loans</td>
</tr>
<tr>
<td>4 - Poor</td>
<td>Renting out labor, Subsistence farming, Wild fish, Migration (locally)</td>
<td>Maintain small plots for subsistence</td>
<td>Rely mainly on informal sources of credit (neighbors and private money lenders), Loans spent on subsistence needs</td>
</tr>
</tbody>
</table>

Source: field observation

For poor households, however, their livelihood strategies can be seen as largely involuntary. Due to their lack of productive assets, diversification strategies among households that are landless and land-poor can be related to in Chayanov’s term of “self-exploitation.” Constrained by the lack of productive assets, ill health and debts, these households try to provide available labor to others as much as possible even though
renting out labor barely enables them to make ends meets and pushes them to what Chayanov called “unacceptable levels of drudgery” (1966: 81-85).

In Cay Da, due to the more extensive land and resources in the mangrove areas, shrimp farming households have greater advantages compared to households in My Quy. Apart from extensive shrimp farming, these households attempt to generate extra income by diversifying their subsistence sources to include wild fish and vegetables. With extra labor, most households can also keep a few cows, goats and pigs as savings. In Cay Da, only those without land choose to rent out labor. By contrast, in My Quy, average income households rely mainly on watermelons as their primary source of income and seek extra income from renting out labor.

**Asset Management**

A less visible risk-spreading strategy has to do with the ways households manage assets. Important assets include stocks of financial, human and natural resources. The process of acquiring and consolidating assets is not only lengthy but primarily advanced from the “bottom up” by individuals, households, and communities themselves (Moser 2007: 3). This entails the sequencing of strategic activities in order to move forward. A study of intergenerational asset accumulation and poverty reduction in Guayaquil, Ecuador for the period 1978-2004 shows how different capital assets are accumulated or eroded at different times and the sequencing in the acquisition of assets (Moser 2007). Similarly, a study of famine in South Wollo, Ethiopia indicates how asset accumulation and asset de-accumulation are reflections of upward and downward mobility of livelihoods in response
to shocks, hazards, and market prices (Castro 2001). Asset accumulation indicates a household’s upward mobility since this means they have successfully overcome the “threshold” of poverty to make investment to strengthen their resource base (Moser 1998). On the other hand, loss of assets in the process of making a living reflects a decline in livelihoods.

In Tra Vinh, asset accumulation indicates success of a lifelong livelihood strategy. While struggling to meet daily subsistence needs, households constantly seek opportunities to strengthen their assets. Effective asset management means one is able to maintain the household resource base and to expand on it. People usually invest in land and gold as measures to consolidate their resource base. However, land remains the most important asset for investment because land is not just a productive asset, but is also seen as the most valuable asset that parents can leave for their children. Given a choice, all households would accumulate more and better quality land in more secure locations.60

Households who have experienced successful harvests often spend a large part of their income to buy land or invest in properties. For example, in 2008, a farmer in the Long Thanh Industrial Zone who earned over one billion đồng (62 USD) from his shrimp harvest invested in a 64m2 (688.896 square feet) town house in the Duyen Hai district town (khu chung cu) for 360 million đồng (22,500 USD). Within a couple of months, his property returned large profits due to surging construction material prices making home construction unaffordable. Overall, however, with the exception of households concentrated in the Duyen Hai district town of Long Toan who were able to rely on

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60 This is particularly relevant to Hiep Thanh where land erosion along the coast is severe.
income from their businesses in the district market, without support from other non-farm sources, very few households in the villages have managed to accumulate land. Some households are able to exchange one type of land for another of higher value. Even though average income households strive to hold on to their land, many are considering selling part of it in order to settle debts. With everything increasing in price, including land, and income from farming declining, selling land now means that the chance of getting it back later is slim. With frequent shrimp disease outbreaks that push more and more households into debt, there are many more households who have to sell land as compared to ones who can buy land. Increasingly, those in the latter group are not farmers.

The shrimp boom has seen rapid differentiation in landholdings. Apart from the few rich households and those who have been fortunate in shrimp investments, most households have attempted to hold on to their same assets. Compared to those in My Quy, households in Cay Da face a greater risk of losing their land given the location of the village along national Highway 53 making the area easily accessible to outside investors. Many of the households who were able to accumulate land before the arrival of the shrimp boom have sold or are considering selling part of their land. The situation is even more acute among poor households. They have struggled to hold on to their land; however, their meager incomes and high levels of indebtedness always threaten further loss of their assets.
Financial Management

A conservative approach to financial management, including careful use of household financial resources, avoiding taking loans and thus the debt trap, and constantly building household resources, is key in enabling households to cross the risk-taking “threshold” without moving further into poverty. Since many farmers in the studied areas were traditional agriculturists, their safety-first behavior is understandable because of their subsistence, low-input and low-output livelihood strategies. In contrast, shrimp aquaculture is risky both environmentally and financially. The requirement of large capital investment in shrimp aquaculture is the debt trap. Widespread indebtedness is inherent in the commercial farming model rather than in shrimp farming itself. The trend of institutionalized indebtedness is common not only in commercial farming (Shiva), but also in state development projects (Leonard and Ayutthaya 2005).

Debts have always been part of rural livelihoods, but debts that are large in size like the ones generated by failed shrimp farming is a different challenge altogether. The increase incidents in indebtedness is explained to be an outcome of the ease with which large loans could be secured for industrial shrimp aquaculture, the lack of investment planning on the part of borrowers, and their eagerness to go ahead with these loans. Many households applied for loans simply because they believed “if others can do it, so can we.” Few questioned how the loans should be used and managed. Many used the loans to subsist through the months of the shrimp season when there were no other sources of income. Some even used the loans for the purchase of luxury items such as televisions and motorbikes. Without a rigorous investment plan, loans could be consumed rapidly by expenditures other than production investments.
Having a conservative financial strategy is an effective way to stay away from debt (Chibnik 1990). While the belief in “higher risk, higher profit” lured many farmers into debt, the fear of becoming indebted prompted others to avoid taking loans. For a rural community with little saving, farming a cash crop without the assistance of a bank loan is not easy. Naturally, very few households have managed to escape taking bank loans when pursuing industrial shrimp farming. Those who did relied on available household resources and financial support from family and close relatives. Incremental investment and a defensive financial strategy enabled these households to acquire resources to invest in more profitable strategies. Being able to pursue shrimp farming without the headache of bank loans and to be debt-free is an enviable position for many.

Many shrimp farmers who cannot afford to follow the protocol recommended for industrial shrimp farming cut costs in production and in daily expenses. Any investment failures then intensify these households’ vulnerability. A farmer explains how this works:

Shrimp farming requires the combination of many factors – water, environment and technology. There is no guarantee that you will be successful even if you follow the book strictly. It is a wasteful investment. Whatever we can substitute for with our own labor, we should do so. For example, lining plastic on the bottom of the pond makes the cost very high and it is unnecessary. The net used to protect ponds from the penetration of crabs and bugs is also unnecessary. Even when the crabs do not enter ponds, shrimp still die from diseases and the net can cost millions of đô. Further, overstocking of shrimp fries is also wasteful. The shrimp have no room to grow and many will die. A thinner density also requires no use of fans, which is another saving. (Woman shrimp farmer, 47, Cay Da, July 2007)

In all villages, households that have failed often switch to more conservative strategies in shrimp farming either by shifting back to the extensive model or by doing it “the poor way.” In 2007, when Cay Da experienced widespread crop failure, many
shrimp farmers decided to cut expenditures by deducting spending on dredging ponds at the end of each season (sên hồ). Switching back to extensive shrimp farming saves farmers many costs associated with the industrial farming model, such as netting to protect ponds from insects and bugs. In My Quy, due to narrow and small plots, farming shrimp “the poor way” means cutting corners every way possible and so only spending is on shrimp fries. Although cutting expenditures is common throughout the coastal villages, this method is more tolerable if one has land large enough for extensive shrimp farming. Farming shrimp the poor way in My Quy where shrimp ponds typically run like a long tube has always guaranteed a failure.

**Migration**

In recent years, migration has become an increasingly popular outlet for surplus labor in the Mekong Delta. Households that cannot afford to give their children a high school or college education seek to send their children to urban centers for factory jobs. In My Quy, approximately 40 percent of households have members migrating to work in export processing zones located near Ho Chi Minh City. Working in other countries in the region such as Korea and Malaysia has also become a preferred option among young people, who often fantasize it is the fastest way to earn money and escape from farming at home. A few households have sent members to other provinces where land is still available such as Dak Lak and Binh Phuoc. There they hope to secure their own land after working for others initially. Although migration is becoming a common strategy among rural households for dealing with uncertainty, it increases the vulnerability of the
households as they come to terms with long-term separation from family members. The migration of men significantly increases women’s burdens at home.

Yet, the most desirable option for escaping poverty among Mekong Delta families remains marrying their daughters off to Viet Kieu (Vietnamese living overseas). Thus far, this seems to be the most viable and reliable option since matches often occur between a Mekong Delta family that wants to marry their attractive daughter to a Viet Kieu who maintains contacts with his family and relatives in the Mekong Delta.\textsuperscript{61} In fact, some families who have members living abroad boasts about generous assistance from their daughters or in-laws who have the ability to help take care of their debts accumulated from failed shrimp farming.

Poor households cannot afford any of these options, however. To migrate involves knowing people and costs money. At the most, these households send family members to neighboring provinces to look for jobs in agricultural farming. These households not only are disadvantaged by their inability to take advantage of policy incentives that favor commercial production, but also their dependence on natural resources are further compromised when resources are privatized for commercial production.

Relations of Power and Social Stratification

Social capital provides a key to the success of household risk-management strategies. The quality of social capital explains the differences in households’ investments and coping

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\textsuperscript{61} A historical connection to this phenomenon that is little known is the role of the Mekong Delta region as the port of departure for waves of boat people escaping economic hardship in Vietnam during the 1980s.
strategies. In the studied villages, livelihood stratification is consistent with stratification in social networks. While the rich and few better-off households have connections with political power and prominent businesses, poor households are restricted to a network made up of their own kind. In both My Quy and Cay Da, the "super rich" households have family members currently serving in the government. Not only do they enjoy greater access to information and services, they also have the privilege of special favors. A couple of rich farmers with landholdings of a few hundred hectares were able to accumulate vast areas of land without any payment not just because they were pioneers in the region, but also because they had connections with the political machine that helped legitimize and legalize their ownership. In the village of My Quy, the wealthiest farmer has a landholding that is four to five times that of a better-off household. Although the land and farms are registered under his name, these properties actually belong to one of his sons who, at the time, served as Vice President of the district. Due to the size of his land and wealth, villagers often refer to him as the "great capitalist" (Đại tư bản). In 2007, the “great capitalist” boasted taking a loan of 750 million đồng (46,875 USD) for shrimp farming when the standard shrimp farm loan for other farm owners was 110,000 đồng (7 USD). By contrast, landless and land-poor households living hand to mouth have to rely on their own narrow social network for small loans, most of which are used for meeting household basic needs. They are also the ones most likely caught in dealings of unequal exchange with private moneylenders who charge high interest for loans provided or who may take over the household’s last piece of land. Indeed, this is one of the most common ways that land-poor households in Tra Vinh become landless.
Conclusion

Commercial shrimp aquaculture has clearly contributed to a widening gap among rural households. Differentiation reflected in household productive assets, land, labor, capital and social networks has also led to differentiation in household ability to cope. The possibility of high-risk shrimp farming with multiple sources of income resulting in the strengthening of household assets is more evident among better-off households. Poorer households have to make do with strategies that are sporadic and generate only minor income. While many have to turn to migration to urban centers, better-off households can capitalize on local off-farm opportunities such as becoming suppliers of inputs for shrimp farming, including feed, chemicals and other services. Access to these various resources defines the quality of a household’s financial buffer and its economic standing. Successful households often possess a greater buffer given their assets, other stable sources of income, and a stronger social network. Diversification among the better-off households involves stable and large incomes, whereas the poor have to fall back on agricultural and subsistence sources.

The struggles among local households in My Quy and Cay Da also reveal the paradoxes of the neoliberal development model. While neoliberal policies advocate greater autonomy for the household, this does not necessarily mean greater control over a production process that is increasingly dependent on the market for both inputs and outputs. In other words, the elevation of the household to the basic production unit with removal of government supports and at a time of uncertainty in the market has meant increased overall livelihood vulnerability among households in the studied villages. Many households that have been able to profit from commercial shrimp aquaculture attributed
their success to “luck” – the luck of escaping shrimp disease outbreaks and staying out of the threshold of debt thus enabling them to settle bank loans and be debt-free. Successful households have been able to maintain their assets not simply because they had better productive assets, but also because they successfully employed conservative strategies. They are particularly cautious in their investment decisions and do not take on risk without carefully evaluating it and anticipating coping strategies. Without such strategies, most households in My Quy, even those who were better-off and never had to worry about food security have experienced economic downturn. A household that maintains a livelihood strategy that is likely to result in failure risks undermining its assets and savings, making it poorer and more vulnerable. The multifaceted risks associated with commercial shrimp aquaculture for both the rich and the poor will be further examined in chapter six and seven.
PHOTOS

The Shrimp Boom

Photo 1. A banner reads: The national revenue from aquaculture in 2005 was 2.5 billion USD. Photo by author.

Photo 2. On average, a shrimp farm in Hiep Thanh commune replaced two hectares of mangroves. Photo by author.
Photo 3. Before the arrival of excavation equipment, it used to take farmers several years to clear mangroves to make way for shrimp farming. Photo by author.

Photo 4. Now, with excavation equipment easily available, it takes only a few days to clear land for a shrimp farm. Photo by author.
Photo 5. Chin’s shrimp pond on the family’s last plot behind the house. At the end of the land rest the tombs of her husband and son. Photo by author.

Photo 6. A shrimp pond dug in the middle of Hiep Thanh’s small agricultural area. Photo by author.
Photo 7. Land clearance for the Long Thanh Industrial Zone cleared two hundred hectares of mangroves and poor forests. Photo by author.

Photo 8. Each year, new shrimp farms continue to encroach over agricultural farming areas. Photo by author.
Photo 9. Sumitomo excavation equipment is transported by waterway to Hiep Thanh commune. Photo by author.

Photo 10. A farmer is ready to transport freshly harvested shrimp to the factory. Photo by author.
Photo 11. Old Honda 67s continue to provide the most affordable and reliable means of transportation of goods in many Mekong Delta provinces. Photo by author.

Photo 12. A dozen sluice gates of this size regulate water in the Long Thanh IZ. Photo by author.
Photo 13. Brightly colored houses are a symbol of material wealth in the Mekong Delta. Photo by author.

Photo 14. Poor households continue to use nipa leaf panels for their houses. This one used some shrimp feed packaging material to protect the front wall. Photo by author.
Mangroves and Livelihoods in Cay Da

Photo 15. Apart from shrimp, crabs always fetch the highest price among seafood items. Photo by author.

Photo 16. Every morning, a Hiep Thanh trader collects shrimp, crab, and fish from local villagers at the entrance to the commune market in the morning. Photo by author.
Photo 17. Wild fish provide an important source of nutrients. Photo by author.

Photo 18. Near-shore and off-shore fishing used to be the main source of livelihoods in Ap Cho in Hiep Thanh. Photo by author.
Photo 19. Many households in Ap Cho have become poorer due to lost income from fishing. Photo by author.

Photo 20. Wild shrimp provide an important source of food and income in Cay Da. Photo by author.
Photo 21. A woman makes panels for roofing from nipa leaf branches. Photo by author.

Photo 22. Making nipa leaf panels used to provide many landless households with regular income. Photo by author.
Changing Livelihoods in My Quy

Photo 23. Dinh My Quy was recently renovated with the help of a donation from a Viet Kieu in the US. Photo by author.

Photo 24. The main irrigation channel in Tam Du field was converted to supplying salt water for shrimp farming in 2003. Photo by author.
Photo 25. Since losing access to the irrigation system, My Quy villagers rely on groundwater as their only water supply for agricultural crops. Photo by author.

Photo 26. Households work together at the beginning of a watermelon season. Photo by author.
Photo 27. Watermelon has now become the main cash crop for many households in My Quy. Photo by author.

Photo 28. Children fish in an abandoned shrimp pond in My Quy. Photo by author.
Photo 29. Although few bamboo groves are left, they provide extra cash when needed. Photo taken by author. Photo by author.

Photo 30. Eucalyptus can also bring extra income. Photo by author.
Photo 31. At the height of the cattle market in 2006, having a few cows could be a good source of income. Photo by author.

Photo 32. Raising goats is another source of savings. Photo by author.
Venues for Socializing

Photo 33. The richest family in Duyen Hai invited government officials for a New Year’s party. Photo by author.

Photo 34. To socialize, one needs to drink. Photo by author.
Photo 35. Men play cards at a village meeting. Photo by author.

Photo 36. A women’s credit group meeting. Photo by author.
Photo 37. The market provides the best venue for socializing. Photo by author.

Photo 38. Pumpkins are one of the few cash crops in coastal areas. Photo by author.
Photo 39. Improved wealth boosts local consumption and enables people to eat out on a daily basis. Photo by author.

Photo 40. Private moneylenders gather in front of Long Toan market. Photo by author.
CHAPTER 6: RISK PERCEPTION & LIVELIHOOD VULNERABILITY

The sun had just reached the top of his tent on a hot summer day when a group of local cadres and extension workers (cán bộ khuyến nông) in the Long Thanh Industrial Zone showed up on Ut's farm. Some distance away, sitting on his motorbike covered with a mixture of brown and red mud, Muoi, the head of the Industrial Zone Management Board, yelled:

Trườn is reaching the side [of the pond], Mân is also going to the side. Trung's two ponds are also up against the side. That pond is almost two months.

“Going to the side” (tắp mé) refers to the shrimp dying. Shrimp affected with bacteria float to the water’s surface to be waved to the side. By this time, it is too late for a farmer to turn things around. Once a pond is affected by bacterial, it is only a matter of a few hours before the entire shrimp colony in the pond floats to the surface. “Tắp mé” therefore registers horror among shrimp farmers. With Muoi’s announcement, it did not take long for the brief outburst to tense up the atmosphere. Ut froze. Gazing in the distance a long while, Ut finally let out a mournful sigh before recounting his efforts:

Oh Lord, even if you take extra care of them [the shrimp], it doesn't make much of a difference. I shed the tảo into the pond and the water became beautiful like a girl reaching puberty… The shrimp look so pale, I am afraid they will not eat. I have thrown some medicine in the water. It made the water look like cow urine. The only thing I am glad about is when I lifted the nhá (a small net), the shrimp did not come muddy. This means they are floating. The shrimp were eating well the past few days. A bowl of 200g [of industrial feed] did not take it an hour to finish. Here I don't use the blue-red chemical [antibiotic in capsules]. I use nothing but garlic wine that has been kept for many months. But garlic wine can only be used later in the evening. During the day, I use B complex and vitamin C… I don't know why it still does not work even though I cast chemicals frequently. I am sad to see weeds in the water. My child, [sigh] material gain is yet to be seen but mental stress is already overwhelming. (Retired cadre and shrimp farmers, 64, Long Thanh Industrial Zone, May 2006)
The anxiety and sense of despair in Ut’s voice is common across the 80 farms in the Long Thanh Industrial Zone (IZ), over 2,000 farms in Duyen Hai district, and thousands of shrimp farms across the Mekong Delta during the height of the shrimp season’s fluctuations in climatic conditions. Farmers living within the IZ feel that the substantial investments that have been made to improve the infrastructure of the IZ have only made their farms more prone to disease outbreaks. In the early days, although extensive shrimp farming was not as profitable, the risk of indebtedness was minimal. With industrial shrimp farming receiving more support from the government, not only have farmers become more dependent on the seasonal calendars set by the Management Board, but their farms have also become more vulnerable to the contamination in shared waterways. For the large majority of farmers who cannot afford to respond to the fluctuations in the natural environment by pumping more money into chemicals to prevent and treat diseases, the prospect of bacterial infection, crop failure and indebtedness are real and frightening.

Risk Perceptions and Social Vulnerability

Fear of crop failures and indebtedness associated with shrimp aquaculture has led to a risk-laden phenomenon across the Mekong Delta. Shrimp has become the subject inundating all social spaces. In the district town of Duyen Hai, since early in the morning, borrowers, government officials, shrimp farmers and moneylenders gather at local cafés

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62 According to the GSO, during 2000-2009, the Mekong Delta constantly accounts for over half of the total farms that have been established nationwide. In 2000, the Mekong Delta had a total of 31,967 farms as compared with the national figure of 57,069. In 2009, the statistics were 65,747 and 135,437 accordingly (See Appendix 2).
and food stalls in the district market by the Long Toan River to exchange stories about the progress of their shrimp. A sense of vulnerability filled their stories of risky business. Perceptions of risk are complex; they are shaped by both internal and external factors; and they vary according to livelihood strategies, class and gender. However, risk perceptions are by no means static; rather, they fluctuate according to season and geography and are subject to continual changes in the broader socioeconomic and political environment (Blaikie et al 1994). Further, while risk perceptions can be ubiquitous, complex and fluid, it is through the ways farmers respond to perceived risks in both technical and non-technical strategies that their vulnerability is revealed.

Given the intensity of disease outbreaks, industrial shrimp farmers have taken extreme measures in an attempt to guard the safety of their shrimp ponds and farms. Farmers are sensitive to both the environmental and social factors they believe are possible causes of diseases. In many instances, farmers have grown more suspicious of their social environment. Not only do shrimp farmers express distrust of their own neighbors, but their emotional distance from kin and relatives has also increased. One only shares information about one’s shrimp ponds to very close family members.63 People are doubtful and cautious of the advice and information that their neighbors provide them with.

63 Shrimp farmers seem far more competitive as compared with those engaging in crops that have lower economic value and lower risk. For example, a study of fruit farming practices suggests that fruit farmers can learn from other farmers, traders, extension services, research institutes, pioneer farmers, input supply companies and the mass media (Hoang Xuan Thanh et al., 2008).
“No Pain, No Gain” or “Much Pain, Little Gain”

A debate between moral and political economists concerns peasants’ attitudes towards risk and risk-taking. Moral economists hold the view that a subsistence orientation structures the economic decisions among the peasantry. Concerns for a position of security often prompt peasants to be risk-averse, rather than to take risks for profit making. Peasants usually rule out any choices that carry with them any substantial risk of loss that would jeopardize their subsistence security. According to Scott, “switching to cash crops, taking on new debts and planting risky miracle rice” are risky choices that people only opt for when other options are exhausted and such risk-taking is for the “interest of subsistence” (Scott 1976: 26). The tendency of risk avoidance led moral economists to characterize the peasantry as “irrational” because they do not show concern for profit/cost factors but rather only fear falling below the “threshold” of livelihood security. This “safety-first” principle also prompts the peasantry to resist innovation and opt for “crops that can be eaten over crops that must be sold” (Scott 1976: 22-23).

By contrast, political economist Samuel Popkin contended that peasants have always been rational individuals who calculate and take risks in the course of building their assets. The search for “security” does not mean a complete avoidance of “risk.” In other words, risk-taking should be viewed as part of the overall strategy towards greater security and well being in the long run. “Risk” and “security” should not be treated as mutually exclusive. Rather, they exist in concomitance, feeding off each other. Popkin wrote:

There are occasions when they [the peasants] will make risky investments or gambles. There will be times when a person on one step of the economic ladder
will have a small surplus with which to gamble in the hope of reaching the next higher step. Whenever a small amount can be lost without threatening his position, a peasant may gamble that amount for a chance at advancement. (1979: 20-21)

Tra Vinh farmers’ livelihood decisions can neither be characterized as exclusively “risk aversion,” nor as “risk-friendly.” As discussed in Chapter 5, a household’s livelihood strategies are determined by a number of factors, including available productive assets, policy support, and market trends. Since households vary in their asset portfolios, their livelihood choices can vary greatly in the risk entailed and potential returns. This also means one’s socioeconomic standing determines one’s risk perception and how to deal with risk. However, Tra Vinh farmers tend to lean towards risk-taking; they firmly believe in the logic of “high risk, great profit” (rủi ro cao, lợi nhuận cao). For them, risk-taking is necessary if one wants to leap frog ahead in their livelihoods.

However, it is not enough to ask whether rural producers are risk-averse or risk-friendly without understanding the nature of the risks involved and the system within which they operate. In the case of the shrimp boom in Vietnam’s Mekong Delta, it has to be recognized that the deepening of neoliberal economic principles in rural areas have increased the likelihood of failures. While neoliberal reforms are considered essential for providing farmers with greater autonomy in their production decisions, their exposure to the market also means farmers have less control over external factors (costs of inputs, outbreaks of disease, export prices, demands for cleaner shrimp by importing countries etc). Neoliberalism therefore has left farmers with weakened and fewer coping mechanisms as options like diversification, drawing on common property resources, and mobilizing local social networks, have all dwindled following the shrimp boom.
To provide insights into the process of dealing with a high-risk venture, this chapter analyzes the psychological aspect of risk-taking through the discussion of farmers’ perceptions of risk. I argue that both farmers’ risk perceptions and their reactions to perceived risks are indicators of growing vulnerability. As disease outbreaks became more frequent and indebtedness intensified, even “brave” farmers have lost confidence in the possibility of becoming rich by engaging in shrimp aquaculture. To deal with their fear, farmers take extreme steps in the course of the production process in hopes of reversing situations that threaten to jeopardize their success. They adopt non-technical strategies such as watching taboos, engaging in rituals and praying at temples.

Shrimp Aquaculture - Multifaceted Risk

Risk perceptions among shrimp farmers are not defined so much by the social parameters of race, ethnicity or sexual identity, but mainly by gender and class. Social actors with different stakes in shrimp aquaculture display markedly different attitudes towards the risk associated with this high-risk enterprise. For example, policy makers and extension workers approach risk in a more technically-driven manner, whereas shrimp farmers’ perceptions of risk are influenced to a greater extent by their ability to afford expensive options recommended for industrial shrimp farming, their past experiences and their ability to deal with the uncertainty in the production process. This analysis of risk perceptions among farmers who are engaged in industrial shrimp farming reveals the complexity and fluidity of their views. It demonstrates how risk perceptions can be both shaped by external factors and, at the same time, be subjective.
Past Experience

Assessment of risk depends on the weighing of the known versus the unknown. Farmers’ understanding of local ecological systems informs the ways they deal with uncertainties in their environment. For example, Prill-Brett (1986) shows how swidden farmers in a remote mountainous area of the Philippines are able to cope with environmental hazards that both threaten crops and sustain the productivity of their agricultural system by relying on custom and ritual to allocate land and water resources, and to organize and coordinate village labor around an agricultural calendar that integrates several different cropping systems within a year. A comparative study of two communities in the Tam Giang Lagoon in the central province of Hue, Vietnam, shows the disadvantage held by rice farmers compared to fish folks when they both adopted shrimp aquaculture, since the latter could adapt better thanks to their in-depth knowledge of marine species (Vo Thanh 2009).

Farmers in Tra Vinh have had a different history in relation to shrimp aquaculture. Most of the farmers in Hiep Thanh commune seem far more comfortable in shrimp farming compared with farmers in agricultural farming areas. My Quy, with a population of traditional rice farmers, experienced a higher rate of failure in shrimp aquaculture. Lessons accumulated from these failures may come at a high cost and while may help farmers to be more cautious in the future, they can also deprive many of their ability to persist with shrimp farming. Yet, such costly lessons are not easily obtained from extension materials. A farmer in My Quy described his naive reaction to shrimp disease during his first attempt:
Thinking back, I cannot help laughing. You won’t believe how naïve I was. I would walk around the pond to examine the shrimp. Since they were beneath the water, I was anxious. Then I realized that the shrimp only float when they die. And when it happens, it will be too late. I was just so naïve. (Shrimp farmer, 63, My Quy, May 2007)

Given the intensity of disease outbreaks, especially following the adoption of industrial shrimp farming, farmers have become extremely sensitive to factors that can possibly affect the outcomes of their production. Those who have experienced disease outbreaks more than once are particularly sensitive to both their natural and social environments, such as changes in temperature and rainfall that can affect water quality. Farmers are also sensitive to sources of danger that seem invisible to extension workers. For example, a shrimp farmer in the village of My Quy described how bacteria could be transferred not only in the water and on land, but also by air:

A less visible source of danger comes from chim nhân, which usually flies over the shrimp ponds in search for food. The bird descends, flying just above the water surface; it scoops a shrimp out of water, then accelerates in the sky. To consume the shrimp, the bird tosses the shrimp in the air to reposition the bait for swallowing. If the bird gets the shrimp by the tail, the swallowing should not cause any problem. However, if somehow the shrimp that is swirled in the air bounces back with its head towards the bird, the bird is likely to miss the bait and drop the shrimp from the sky just as it is crossing over another shrimp pond. That one shrimp infected with bacteria can spoil a whole pond and even a few ponds altogether. You see diseases that are transferable by rat, crab and other bugs. Some other channels are less visible to the human eye. (Shrimp farmer, 63, My Quy, May 2007)

Scientific vs. Local Knowledge

The quest for knowledge of a new farming system is a matter of daily concern for shrimp farmers in Tra Vinh. The Department of Fisheries (DOF) is most interested in convincing people to pursue industrial shrimp aquaculture by dutifully following the supplied
extension materials. A commonly held view among government officials, experts, and even shrimp farmers has been that unstable productivity in the industry is because “the application of science and technological knowledge has not been widespread” (DOF 2002). To counter the challenges of bacteria and viruses in the water, the DOF took the responsibility of providing shrimp farmers with up-to-date knowledge and technology. Along with the rise in industrial shrimp aquaculture, Tra Vinh saw a mushrooming of engineers (kỹ sư), a term which actually refers to graduates of aquaculture-related training program at Tra Vinh Community College. At the height of the shrimp boom, Tra Vinh became the destination for many graduates from more prestigious institutions like the Nha Trang Institute of Oceanography. These experts provide supervision of shrimp production and advise farmers on various aspects of technological applications in shrimp farming. Some of the experts act as sales agents for foreign companies marketing industrial feed in the region.

*Kỹ sư* provide a bridge between farmers and scientific knowledge through extension services and training.\(^{64}\) Due to the small *kỹ sư* to *farmer* ratio, the Department of Fisheries can only afford a few training workshops per season. Typically, these meetings are accessible to a small number of farmers who have connections in the local government or who have been awarded the “outstanding farmers” title. It has often been the case that small farmers and women are usually unaware of such events. The

\(^{64}\) Extension service was kicked off by the Decree CP-13 of March 2\(^{nd}\), 1993 that appointed the Ministry of Agricultural and Rural Development, the Ministry of Forestry and the Ministry of Fisheries to (1) disseminate technical knowledge in agriculture, livestock, processing and storage of produce and to undertake experiments aimed at improving production techniques; (2) to supplement and widen farmers’ knowledge and to enhance their technical economic capabilities in efficient production and marketing; and (3) to join forces with other relevant bodies to make available to farmers information on market prices so as to help them organize their production and marketing to obtain the best return.
insufficient supply of kỹ su through state extension services prompted some better-off farmers to hire kỹ su on their own. Relying on the standard information from their formal training, kỹ su often attribute excessive and unplanned farm development, poor pond management and the use of wild breeders as the most common reasons for the spread of bacterial and viral diseases across regions (Johnson, 1994). In the Mekong Delta, shrimp often die from infections from viruses, bacteria or fungi and diseases from animals (Nguyen Minh Nien 2004: 113). Local farmers identify diseases by sight and color and often refer to the most common pathogens as “white dots” (đốm trắng) and “red heads” (đầu đỏ).

Faced with frequent crop failures, Tra Vinh farmers came to realize that kỹ su do not necessarily know best. Having lived their lives on the land, many farmers feel that most kỹ su who are young in age and relatively new to the region, with hardly any experience in farming themselves, are not equipped to provide the soundest advice. Lacking information on specific ecological conditions, recommendations provided by kỹ su are too general to be useful. Most importantly, the loss of trust in kỹ su was a result of widespread failures among kỹ su themselves. In recent years, lured by lucrative profit promised by shrimp farming, many kỹ su who migrated to the region invested in their own shrimp farms. Failures among kỹ su’s farms became the most effective way to communicate the lack of efficacy of a kỹ su’s knowledge. Nowadays, farmers often share jokes of how different kỹ su have failed as a way to soothe the pain caused by their losses. One often hears, “Anyone could die, even the kỹ su” (Ai cũng chết mà kỹ su cũng chết). To prove the viability of this statement, people frequently cite the failure of a kỹ su, who happens to be one of the deputy directors of the provincial Department of Fishery
and had appeared on the Tra Vinh television on many occasions to lecture local farmers on the wonders of technology and the magic of the industrial farming technique as a means to riches. Such stories spread far and wide to even out-of-the-way places like Hiep Thanh commune.

The image of kỹ sự as those equipped with “state of the art” know-how is fading along with increases in the frequency of crop failures. In fact, in shrimp farming as well as the production of rice and fruit trees, that kỹ sự have been constantly put to shame by local knowledge is nothing new. This is because farmers’ knowledge is the result of generations of learning and correcting past mistakes as Robert Chambers (1997: 173) observed:

The learning of scientists tends to be stepwise, that of local people incremental. Local people are continuously observing and experiencing. Farmers have a dynamic knowledge system “which eco-evolves with the dynamics of the complex biological systems which underlie agricultural technology and production” (Hall and Clark 1995: 161). They constantly learn and unlearn, disciplined by the rigor of struggle for livelihood. Scientists often rely on averages, which slows learning about change: the knowledge of local people is more dynamic and up-to-date, continually revised as conditions change.

Some attribute the inefficiency of kỹ sự to “ambivalent research and [insufficient] extension structures” and are aware that “extension [service] focuses on the promotion of high-external-input agricultural production methods for wealthy farmers” (Christoplos 1995). For farmers in Tra Vinh, the weaknesses of current extension service are not only organizational but raise a moral question. Most kỹ sự are not innocent of having a self interest behind their advice to farmers. Rather than protecting the interest of the farmers who have hired them to do the job, kỹ sự treat farmers as an economic opportunity for profit making. A farmer expressed skepticism of kỹ sự genuineness:
Kỳ sư are just like doctors. If you have an ailment and have to seek a doctor’s advice, he would prescribe the most expensive medications. That way he can protect his reputation at the patient’s expense. Likewise, if you contract a kỳ sư to look after your shrimp, he would administer the most expensive chemicals even when he is fully aware that the chances of survival for the shrimp are slim. This way, he hopes to protect his reputation at your expense. (Retired cadre and shrimp farmers, 64, Long Thanh Industrial Zone, May 2006)

Ever since industrial shrimp aquaculture has been promoted as “the model” for shrimp farming, a boom in new technologies has inundated the coastal districts of Duyên Hai and Cau Ngang. Mass production of post larvae and propaganda on the efficacy of imported industrial feeds and chemicals for disease control and proliferated (Do Thi Den et al, 2007). Industrial shrimp farming became associated with the social status of those who adopted this model. However, following widespread disease outbreaks, the high rate of failure among shrimp farmers has now convinced farmers that modern technology is in itself a source of danger. Instead of bringing wealth, aggressive application of chemicals has left many households with dreadful environmental consequences and heavy financial debts.

Social Pollutant

Frequent crop failures have also served to strengthen a common belief that the causes of disease outbreaks are indeterminable, invisible, ambiguous and incomprehensible. Some farmers defiantly suggest, “It is impossible to know what causes one to succeed or fail.” Massive disease outbreaks throughout the 1990s and early 2000s enhanced awareness of risks located in seemingly invisible sources, which are viewed as mysterious and powerful. Having exhausted other explanations, farmers sought beliefs in the existence of
supernatural powers that are beyond human control. Farmers became more wary of pollutants in social interactions with certain people and the female gender that had not been there prior to the shrimp boom.

The belief in pollution from invisible risks among shrimp farmers can be viewed both as symbolic and instrumental. According to Douglas, while pollution beliefs act as analogies for broader concerns about the social system, mirroring ideas about hierarchy or symmetry in social relations, they serve to reinforce social pressures and rules, uphold moral values, support political power and maintain social order (Douglas 1966/69: 5). Social constructions of the notions of “dirt,” “contamination,” “pollution” and “defilement” were used in dealing with “danger” and “risk.” Likewise, the widespread belief in invisible risks and social pollutants among shrimp farmers, whether true or not, serves to create boundaries between what is allowed and what is not in order to prevent the crossing of these boundaries. Expressions of risk in the forms of anxiety, anger and fear indicate increased feelings of insecurity among local farmers.

A fatal source of danger rests in sexual taboo. In one instance, furious about the way the management in the Industrial Zone (IZ) treated her family and repeated failures, a woman from a newly established household pointed to a hut that had recently been set up next to her pond following the order of the manager of the IZ and said, “The last few nights, some guy (staff) from the IZ took some girl there. They spent a couple of hours in the hut. They must have played with fire that caused the hut to burn. But you see, when they do it near the shrimp pond, how can any shrimp survive?” Sexual taboos are hardly ever publicized. However, they occupy great importance in people’s minds and behaviors.
A more publicly recognized source of pollution is death. People believe that those who have just suffered from loss of a family member or who recently attended a funeral can harm the shrimp by transferring the negative energy (âm khi) from the death over to the shrimp. Thus, people who have recently come in close contact with the death should be forbidden from ponds, not to mention from having anything to do with the shrimp such as feeding them. The shrimp boom has changed the way some people mourn a death in their family, even that of a parent. In the village of Cay Da, some shrimp farmers discarded the tradition of observing the time dedicated to the mourning “tang” of their parent immediately after the funeral for fear that such acts would result in disastrous outcome on their shrimp farms. This action is considered extreme given that the usual period dedicated to mourning is three months now, a significantly reduced length compared to three years in the past.

Yet, the source of danger that provokes the most vocal reaction rests in the media. Rumor has it that no farmers who have shared their success stories have been spared from failure the following season. Therefore, the use of images and words by journalists to spread success stories should be strictly prohibited. To protect their luck and prevent danger, successful farmers refuse to conduct any conversation about their shrimp. Journalists are not permitted to take photographs of their ponds and even of the harvested shrimp. To be on the safe side, farmers should maintain a distance from those interested in their stories of shrimp farming. People believe that being able to conceal one’s experience will increase the chance of success. People also avoid any exchange of information with outsiders about their shrimp farming. As I learned from my personal experience, even good wishes should be made in silence. During the Lunar New Year of
2008, I came to visit a family living in the town of Duyen Hai. When I greeted the women in the neighborhood with good wishes for their shrimp farms, the women immediately waved my words away with big sighs, as if that would help conceal my words, that meant, “Please, please do not mention the shrimp!” Such response during the New Year again demonstrates the emotional stress among shrimp farmers who see little hope of reversing their situation of heavy debts accumulated by repeated failures.

Coping with Uncertainty

The causes of uncertainty that appear tangible include hazards, price fluctuations and crop failures. It is much harder to quantify vulnerability as an outcome of the various sources of risk is. According to Nitchter (2003), “vulnerability refers to the actual feeling of susceptibility to illness or misfortune. It is a state of weakness, fear and worry.” In the case of shrimp farmers, it is the “illness” of the shrimp that causes them to be vulnerable, because ultimately, disease outbreaks do not take long to lead farmers into debt. It is a sense of fear among farmers engaging directly in the production process and their household members. For example, a shrimp investor recited how her son expressed jealousy toward the shrimp. Observing the care his parents provided the shrimp, he burst out, “How come the shrimp are so lucky (sướng)? I wish I were in their place.” This statement reflects a common sentiment among shrimp farming households, where concerns for the survival and growth of the shrimp take extreme forms. One often hears painful jokes like, “I care for the shrimp more than my wife and children; even then they [the shrimp] are not pleased.”
The vulnerability among shrimp farmers can be best understood in their reaction to the various sources of visible and invisible danger associated with disease outbreaks - the defining line between wealth and poverty. The psychological weight that debts have on shrimp farmers is profound. Risk perceptions as discussed above prompt farmers to act out their fears and insecurities in myriad ways. Expressions of vulnerability can be most clearly understood by looking at coping strategies among shrimp farmers, including technically-driven measures for nurturing the shrimp and non-technical approaches for dealing with taboos and potential pollutants from social interactions. Shrimp care thus has become a topic of utmost importance among shrimp farmers because for those who have invested heavily in shrimp farming, the well-being of their families depends on that of the shrimp. Shrimp farmers, especially those who adopt industrial shrimp farming, have to be prepared to follow strictly the protocol recommended by extension workers.

*Purifying Water*

Water quality presents a major concern for both shrimp and agricultural farming households. For shrimp farmers, water is the source of both life and danger. Since the convergence of water from different sources makes it impossible to control the quality of the water. In shrimp farming areas, shrimp farmers must accept a high level of uncertainty. One farmer put it:

Farming shrimp is like throwing money in the water. Unlike land species, shrimp live in water. You throw them in the water and watch. Just like watching a fortune being thrown in water. You do not have the same control with the shrimp as you do with things that are more visible on land. (Shrimp farmer, 30, Long Thanh, February 2007)
There are many avenues by which the quality of water in a pond can be contaminated. The most visible channel is the common waterways through which disease can spread fast from one pond to another. Polluted water provides a fertile environment for the spread of bacteria and fungi such as luminous bacterial disease, black gill, lagennidium infection, vibrio infection, filamentous bacteria, soft carapace disease and red spot disease (Phan Nguyen Hong 1995: 15). Water can become polluted if it runs through farms and fields contaminated with drainage from shrimp ponds and other sources. Some aspects of the practice of farming among Southern farmers are highly risky. Shrimp farmers in the Mekong Delta maintain the practice of eliminating fish in shrimp ponds through the use of tea leaf, the liquid of which is poured into ponds to kill the fish, that are then left as feed for the shrimp. When the water from infected ponds is drained, it can contaminate the water in common waterways and kill other beneficial water bacteria. Any slight change in the environment that causes fluctuations in pond water quality can weaken the immune system of the shrimp and make them prone to diseases. The quality of groundwater that leaks directly into ponds may be a threat as well, a less visible one beyond the control of farmers. Groundwater may be less dangerous than surface water as a pathogen carrier, but it can still affect the water quality in ponds. Any water that transverses land owned by different farmers pursuing different crops forms a great source of fear for shrimp farmers.

To minimize dangers from water sources, the Department of Fisheries (DOF) administers a seasonal calendar to help regulate water use starting in February, when saline water begins to inundate the region, and ending in September. The seasonal calendar is designed to prevent farmers from starting shrimp aquaculture too early in the
season and potentially affecting the water system and other shrimp farmers. However, the DOF has no means of controlling the penetration of water from other sources. For example, owners of ponds that have contracted diseases have no alternative to flushing the contaminated water out of their ponds and polluting common waterways, causing neighbors to reduce the risk of disease transmission by using chemicals and antibiotics that are both environmentally and financially costly.

Soil Purification

Dredging pond is another necessary activity in shrimp farming that typically takes place at the end of each season. This involves the emptying of water from ponds and removal of the mud that has accumulated from shrimp feeding from the bottom of ponds. The bottom of the pond is covered with lime powder and will then be exposed to the sun for a couple of weeks to kill off bacteria. Cleaning ponds is a costly activity requiring millions of đồng for hiring machinery and labor and purchasing expensive chemicals and lime powder. In the village of My Quy, shrimp farmers have learned to clean ponds by growing rice on the pond floor at the end of each harvest. Farmers employing this method considered it an arrow that shoots two birds. The method can help households save from spending on rice as well as chemicals. However, this method has not been reliable because it worked better with small ponds and was less effective with farms on half a hectare of land or larger. The method also lost its efficacy after a couple of seasons.
Shrimp Fries

Selection of fries is a critical step in successful shrimp investment. Healthy fries can guarantee a 50 percent success likelihood. Initially, wild fries were used and provided a much higher success rate because these were familiar with the local environment. The shrimp boom has brought new breeding techniques to satisfy the demand of the increasing number of shrimp farms. Nowadays, most shrimp farmers use artificially bred fries supplied by local hatcheries. Artificially bred fries are found to be less resilient and more prone to diseases as compared with the natural fries. As a rule, shrimp fries have to be tested for diseases before being exported by a hatchery. Farmers are very suspicious of the quality of fries no matter from which hatchery they choose to select fries. The likelihood of getting unhealthy fries is very high because hatchery owners have little incentive to run tests on their fries. These tests would not only increase costs of the fries but would also imply a loss of income from low sales in case the fries are of poor quality. For this reason, many shrimp farmers have to spend extra time to run quality checks at their own expense. Experienced farmers suggest that in order to get good quality fries, buyers should bring cash. Those who cannot afford cash and purchase fries on credit risk getting poor quality or infected fries dumped on them by hatchery owners.

Feed and Feeding

A subject of great interest among shrimp farmers is what and how to feed the shrimp to ensure their growth while protecting the water environment. Shrimp farmers encounter

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65 Shrimp fries (tôm giống) are baby shrimps produced by hatcheries. A farming model is defined by the number of fries per square meter of water surface.
problems very similar to farmers engaging in fisheries, including how to finance expensive manufactured pellet feeds, high interest loans and low market prices on output during harvests (Edwards and Allan 2004). According to the intensive model, industrial feed imported from Thailand and Taiwan provides a better source of nutrient than home-prepared one. Industrially produced feed is a mixture of fish powders, brown in color, and available in different sizes to be used at the different stages of shrimp growth. Industrial feed is expensive and makes up a large share of the total investment. To save on spending on feed while still ensuring the quality of feed, many shrimp farmers diversify their source of feed. Farmers reason that, just like humans, the shrimp too would grow better with fresh feed. They thus supplement industrial feed with food rich in nutrients like bananas, regular duck eggs, and fertilized duck eggs (hột vịt lông). When the shrimp are two months old, they are fed clams (hến), which are a good source of calcium. A woman shrimp farmer shared her experience with making shrimp feed as follow:

They feed shrimp regular duck eggs, fertilized duck eggs. They buy a thousand eggs each time. However, I dare not feed the fertilized duck eggs because when you break them, they are red and the baby duck inside is still moving. But, fertilized eggs are a great source of nutrients for the shrimp. I only mix the regular eggs with feed for the shrimp. I also mix banana in the feed. The use of banana, egg, garlic and wine in shrimp feed is what shrimp farmers have learned from one another. The engineers only provide guidance on the use of vitamins. (Shrimp farmer, 47, Long Thanh, November 2006)

Time of feeding is also very important. The need to feed the shrimp correctly is due to the cost of crop failure when the shrimp die young. The shrimp need to be over two months old in order for farmers to break even. Handsome profits are only possible when shrimp last for four or five months. Income from shrimp increases several times not only with a higher market price commanded by a larger farm size, but also with larger
harvest volumes. However, the number of households reaching this profitable level is very small compared to the number who failed. In 2006, the number of households making a profit was estimated to be 10 percent in the Long Thanh Industrial Zone and 25 percent of the industrial farms in the village of My Quy (3 out of 12 shrimp farms). In 2006, three out of the four industrial farms in Hiep Thanh failed. For this reason, some farmers take great caution in choosing the time to feed the shrimp. Experienced farmers learned that during the time the shrimp shed skin once a month, they are extremely sensitive to changes in their living environment and more likely to contract diseases. An outstanding farmer in the village of Long Thanh suggests that delaying feeding is just another way to strengthen the shrimp’s immune system:

In the first two weeks, I do not feed the shrimp at all because if you feed the small shrimp early, they grow faster and so do the diseases. If you don’t feed the shrimp, they grow very slowly but their immune system is strengthened. I only start feeding the shrimp after they have been in the pond for two weeks. (Shrimp farmer, 50, Long Thanh, May 2006)

Better Prevent Than Treat Diseases

One morning I arrived at Nam’s house to find two strange young men arriving at the door with four cans of expensive chemicals. Two were 3.8 - liter cans of MKC (myristalkoniumchloride) of that cost over 400,000 đồng (25 USD) each. MKC is used for controlling weeds and cleaning the heads of shrimp in order to control bacteria in ponds. The other two were cans of SIREN, a biochemical product used to treat bacterial pollutants caused by dead plant matter and residue of other chemicals and industrial feed used in the water (ché phẩm sinh vật bị chế độ ngột). SIREN also increases oxygen level in ponds. These products belonged to Asean Aquaculture Limited. The cans of SIREN
cost over one million đòng (62.5 USD) each, an amount equivalent to a good rice harvest on one công of land. The young chemical suppliers explained that the chemicals were to prevent diseases. I later learned that preventive measures were being taken because the pond next door had just been drained after one and a half months. Just as humans are advised to “better prevent than treat diseases,” the same caution is applied to shrimp. Preventive care is expensive, but it can actually cut losses by preventing the shrimp from dying before the age of two months, the breakeven mark for investment. Preventive care ranges from uses of specialized chemicals and antibiotics to vitamins and feed that are considered good for human health. What is intriguing is the increased use of human medicines for shrimp health.

In recent years, the use of herbal medicines as a more benign approach to shrimp health has increased in popularity. Farmers exchange information on the types of leaves and fruit skins that can be used to treat water bệnh phát sáng. Farmers pass around the types of leaves they use to treat the problem of luu huynh surplus. On rainy days, garlic wine is mixed with industrial feed and thrown in the water. This is believed will protect the shrimp from the cold caused by fluctuations in the level of acid washed into the water by the rain. Human medicines are also used to strengthen shrimp immune systems. Shrimp farmers prefer medicines like vitamin C and antibiotics to increase the stamina of the shrimp. Part of the reason human medicines are becoming more popular in treatments of the shrimp is because these medicines are in fact more affordable compared to chemicals produced specially for shrimp.
Seasonality

Rural livelihoods are highly subject to seasonality that determines the annual production cycle of a crop suitable for the climate, temperature, rainfall and length of growing season (Chambers 1982). In a broader sense, seasonality includes factors such as market prices of inputs and outputs that can affect the ultimate outcomes of household production and consumption level (Ellis 2000: 58). In Tra Vinh, shrimp farmers take advantage of the timing aspects of seasonality in coping with fluctuation in market prices. A common strategy is to modify the production cycle to take advantage of a relatively higher price at the beginning or the end of a season. While some farmers do this by starting the shrimp season a month earlier than others who follow the DOF seasonal calendar, the benefit that they gain may be outweighed by the substantial additional costs incurred for the purchase of diesel to run water pumps.

To deal with diminishing returns due to market fluctuation, some farmers decide to start the shrimp season earlier than usual. But changing the farming cycle is not free. Farmers who choose to start in the month of January, approximately a month earlier than others, have to spend more on kerosene to run their motor engines that pump water into ponds before the rainy season. Likewise, farmers who choose to start later have to deal with too much freshwater from rainfall. A surplus supply of fresh water can create great fluctuations in the salinity of pond water and cause the shrimp to die. Whether farmers choose to start their season earlier or later, or stay on course with the season, the advantage of a higher market price off-season may become insignificant against increases in the unexpected costs of these strategies.
Market Fluctuation

Beyond the pond, shrimp farmers are most worried about low shrimp prices at harvest time. Shrimp usually sell for a higher price either early or later in the season when the supply of shrimp is limited. Farmers who harvest shrimp during the peak season have to accept lower prices. For example, during the summer of 2006, shrimp prices fell sharply. Just within a couple of weeks, the price felt by a couple of thousand đồng per kilogram. In 2008, a sharp decline in shrimp prices was associated with the global economic crisis. Price fluctuations prompt farmers to be creative in order to earn a higher income for the same investment of capital and labor. Some decided to start the season earlier than usual. Some take great care in choosing to whom to sell their shrimp. Local farmers prefer selling their shrimp to the factory rather than to private traders who are likely to cheat them by paying below market price or falsely lowering the weight of the purchase. A difference of one thousand đồng per kilogram in a sale of 500 kilograms could mean a loss of half a million đồng (30 USD). Many farmers now choose to transport the shrimp to factories themselves; they believe factories are far more honest than traders.

Even as shrimp farming is risky and investment in shrimp aquaculture is labor and capital intensive, shrimp prices have been falling concomitant with a continual rise in the prices of inputs. This threatens to lead to diminishing marginal returns. A farmer describes the situation as follows:

In the past, we could survive without the shrimp. Now we can no longer live without the shrimp. For some reason, shrimp farming has not been successful. There are problems with the output market. The shrimp cannot fetch the same profit it did in the past. In the past profit was 80 percent, now the maximum profit is 50 percent. The price has gone up for everything, including renting the Kobe excavator and buying seeds, feed and chemicals. After making all this investment,
there is no guarantee that you will fetch a good price for the shrimp at harvest time. The way the prices are changing, probably very soon farming shrimp will no longer be profitable. (Shrimp farmer, 38, My Quy, July 2007)

Handling Debts

Indebtedness is inherent in commercial production. Like in Thailand, indebtedness has intensified in Vietnam following the promotion of commercial farming (Mekong Update 2000). A large number of shrimp farmers have ended up in debt as a result of crop failures. These households have had to seek financial help to pay back loans. For poorer and average households with small savings, crop failures signal the beginning of an economic downturn because loans taken for shrimp farming are usually for amounts several times larger than the value of harvests from agricultural crops. Most households have to seek some kind of financial assistance from other sources to settle bank loans.

Like in other parts of rural Vietnam, there has been a significant increase in funding for rural production in Tra Vinh since Doi Moi (Pairaudeau 1999; Gainsborough 1999). However, access to credit is stratified by social class and crop type. In a study of northern villages in Vietnam, it was noted that credit from formal channels rarely goes to the poor, who often use loans to cover domestic expenses such as food (Mai Van Hai and Jean Philippe Fountenelle 2001: 357). In Tra Vinh province, formal channels of credit are reserved mainly for commercial crops such as shrimp aquaculture, which is pursued by mainly better off households. In 2008, the local branch of the Bank for Agriculture and Rural Development in Duyen Hai reported that over 90 percent of its total lending was for shrimp aquaculture. Since bank loans are reserved for large-scale production, farmers with small landholdings are limited to other sources of loans that are often smaller and
bear higher interest rates. At the village level, social channels such as kin, neighbors and relatives continue to provide local, small landholders a source of buffer. These sources are small and are used for smaller needs. Relatives and neighbors can provide small short-term loans in the event of emergencies such as ill health. People also borrow from these sources for spending on weddings and funerals. However, the limited availability of money from relatives and neighbors and the restrictions on bank loans mean that many have to seek assistance from private moneylenders.

Indebtedness takes a heavy toll on rural households, especially because the debts generated by failures in shrimp farming are usually much greater than that from agricultural production. Borrowing from moneylenders to settle debts generated by shrimp failure places the borrower in a particularly vulnerable position due to their lack of income to pay the high monthly interest of five to eight percent. Even then, private moneylenders are not willing to lend money to borrowers without any proof of their ability to pay back. Very few can seek help from relatives. Arranging for a new bank loan is perhaps the most common way to deal with debt. This method of settling old loans with new ones has been observed elsewhere in Vietnam (Norland 2002: 14). However, borrowing from either banks or informal sources to settle loans is only a short-term solution, one that can lead to longer-term problems given the extremely high interest rates of the loans from private moneylenders and the high likelihood of repeated shrimp failures. Renewing loans usually involves private moneylenders, who lend on a short-term basis at four percent interest. Borrowers use the loans to settle old loans before applying for new loans. Households that took loans for industrial shrimp farming have to
find every possible way to extend their sizable bank loans. At a meeting in Long Thanh village, farmers explained the scenario as follows:

The Agricultural Bank lends a small loan each year, but if you can’t repay the loan, the old loan will be consolidated into any new loans. At first, the Bank lends you a small amount, but you fail and need to borrow more, you fail again and they lend you money again. The Bank still lends you money, but if you borrow 40 million dong this year, your bank interest would be 5 million dong. Next year, they lend you 50 to 55 million dong to transfer the old loan into the new one. The following year, the loan would become 60 to 65 million dong. The Bank will continue providing you loans until it reaches the limit of your property worth. This is because bank loans are provided in increments and not as a lump sum. (Group meeting, Long Thanh Village, January 2006)

A distress land sale is a common way to settle debts. Except for those households with income from off-farm sources, with members working for the government, or who are traders, farmers with small savings if any at all have to look elsewhere. Borrowing money from neighbors and relatives to settle bank loans is not usually an option. Indebted households often face the dilemma of where to find the money to settle a loan. Some households just ignore the debt until bank personnel show up at their door and threaten acquisition of their property. Although bank staff testified that acquisition of borrowers’ properties is a rule on paper that is rarely applied in practice, many households when pressed by the banks have no choice but to sell their land anyway. The need to for cash urgently also means they have to accept lower prices for their land. The lack of alternatives to settle bank loans explains the high incidence of distress land sales in the Mekong Delta. For many small land holders, the losses from investment in industrial shrimp farming can easily outweigh the household’s own property. Small land holders, although burdened with smaller debts, risk suffering a greater downfall due to limited options to escape debts.
Selling land to settle debts, the option of last resort, is the most common strategy for offsetting debts in the Mekong Delta. Land sale takes several forms. In the village of Long Thanh, which is located adjacent to the Duyen Hai town, people usually choose to part with some residential land, which commands the highest market price. It is therefore hard to tell which land sales were specifically for settling shrimp loans. Those households whose land is far away from market centers hope to be able to settle the whole debt with the sale of part of their agricultural land or shrimp farm. This option is more affordable for better-off households with large land holdings and productive labor. Selling off one’s entire land is less common, but has happened among households who were ready to relocate their whole family to an urban area. Farmers who have to sell their land are discrete about their plans because this coping strategy is seen as a failure or a lack of competence.

Irrational Behavior

The belief in invisible risks among shrimp farmers can be viewed as fulfilling both symbolic and instrumental goals. Such beliefs serve to create a boundary between what is allowed and what is not in order to prevent the crossing of these boundaries for their protection. Anxiety, anger, and fear signal farmer’s emotional vulnerability.

Seeking God’s Grace

Comaroff and Comaroff (1999) observed a dramatic increase of appeals to enchantment, witchcraft accusations, and prosperity cults across the world following economic
globalization in the 1990s. Researchers studying Vietnam have observed a similar trend of increases in religious practices following the Communist Party’s open-door policy to a market economy and an increase in economic wealth (Kleinen 1999). The Vietnamese population which contributes to the revival of religious activities consists of men and women of all age groups. But studies make a strong case for growth in material wealth serving as the prime motivation among temple goers and pilgrims who seek more wealth.

A particular important function of religion is its association with peace of mind, calmness and confidence. Explaining the intensification in rituals and religious practices in southern Vietnam, Taylor writes, “Life in the region’s commoditized economy is fraught with uncertainty, double binds, and risks” such as the unpredictability of the natural conditions, market prices, poor information, fuzzy laws, erratic implementation and variable regulation, causing dislocations, a sense of powerlessness and a sense of being subject to invisible and powerful forces (2004: 87). The rise in a religious subjectivity should thus be seen as “the assertion of personal agency, the quest for predictability, and the management of anxiety,” and:

> People have turned for assistance to a cast of powerful spirits that concretize and give familiar form to that which is ineffable and apparently uncontrollable. Transacting with them has become one of the key means through which the path to success and avoidance of disaster has been imagined (Taylor 2004: 87).

Tra Vinh has observed a rise in religious rituals among households engaging in shrimp farming. Mỹ Quý villagers are particularly committed to the **dinh Festival** that takes place on the first full moon day of the eleventh month every year. Nobody remembers when **dinh Mỹ Quý** was built, but rumor has it that the temple is very responsive (**thiêng**). People talk about how praying at the **dinh** has helped many realize
their wishes. However, it is equally important to return the favor once one’s wish has been granted. A story that every villager knows is that of a man who went to war and was in danger when cornered by armed enemies. He turned to the Đình to appeal for help. The man was unharmed and returned to the village, but forgot to return the favor. One night many years later, an old man met him in a dream and reminded him of his obligation. Startled by the reminder, he went to the Đình the next day to thank the deity. In recent years, with frequent crop failures, villagers in My Quy have become more committed to participating in the annual rituals at the Đình (cúng Đình). The annual harvest festival (lễ hạ diên) in November at the local Đình attracts a large number of participants. The festival is made possible by contributions from villagers. The men help to organize the event, send out invitations to other villages and arrange furniture. The women help prepare the feast. At night, young men and women gather in front of the Đình in a crowd. A group of local young musicians gathers to play drums and create a festive atmosphere.

The Đình festival is also an economic event. Local people coming to the Đình are called on to make monetary contribution to the Đình budget. The most generous offerings made to the Đình come from successful shrimp farmers and traders. In November 2006, seven pigs were offered to the gods at the Đình My Quy. When I visited the Đình festival in 2007, only four pigs were offered, signifying a less successful year as compared with the previous harvest. However, even though the offering of pig was modest, suggesting that a smaller number of wishes had been realized, no one questioned the reputation of the Đình as an effective means of protection. In fact, most recognize the importance of carrying on the tradition to protect the village from evil forces.
In Tra Vinh, in contrast to the notion of religion as irrational or superstitious, participation in rituals and religious activities are most prevalent among those engaging in capital-intensive economic activities fraught with risk. Temples bridge the material and spiritual worlds. During the first day of the lunar month (mùng mốt) and the day of the full moon (ngày rằm), temples are flooded with worshipers, especially those temples which possess the reputation of offering high efficacy. According to a local farmer, most of the people who go to temple engage in some kind of business. They are farmers, business owners and even government employees and bankers, engaging in shrimp farming in different capacities. Going to temples involves praying, sharing a vegetarian meal and contributing a monetary donation that ranges from a few thousand to 20 thousand đồng or more. According to a banker in the town of Duyen Hai, many people go to the temple to pray that their investment in shrimp aquaculture bears fruit. My Quy villagers go to Bà Sở temple located near the Thâu Râu River. But not all temples are the same. People believe that some temples are more responsive (thiêng) than others. Shrimp farmers and traders with money invest more time and money for visits to the Lady of the Realm (Bà Chúa Xứ) located in Chau Doc in the mountains in An Giang province, which requires a day trip. Traders who sell chemical fertilizers and who collect shrimp and marine products also organize trips like this as a favor for its patrons. In the village of My Quy, after the harvest in November 2007, a supplier of chemicals and fertilizers for agricultural crops organized a tour to the Lady of the Realm for their patrons at the end of the watermelon season.
Conclusion

In this chapter I have demonstrated the complexity of risk perceptions and their relationship to vulnerability. The numerous ways in which perceived risks are associated with shrimp farming among local producers demonstrate the fluidity and complexity of the risk. Sources of danger can be visible or invisible. It seems, however, that invisible risks are particularly powerful. In adopting “rational” livelihood strategies, farmers find themselves engaging in irrational reactions. The strategies adopted in response to invisible dangers signal a high state of vulnerability among shrimp farmers. The risk of economic loss has given rise to another genre of risk - the risk to social relations. As disease outbreaks and thefts became more frequent, shrimp farmers and investors’ coping strategies demonstrate growing mistrust, suspicion and doubt towards their own neighbors, kin and even experts. Either way, reactions from both industrial shrimp farmers and subsistence farmers in response to declining livelihoods have caused social relations to deteriorate. Social divide is growing between farm households producing different crops, between insiders and outsiders, and among local shrimp farmers themselves.

If shrimp farming gets you indebted, continue farming shrimp to pay back the debt. Farmers continue to rely on this same logic to justify their persistence in shrimp farming, not so much because they believe it, but rather because there is no other realistic choice. First, loans taken for shrimp farming are so large that no other sources of income could make up for it. Second, once the land has been converted to shrimp ponds, returning to agricultural farming is not an option. Farmers are aware that, instead of removing the thorn, continue to farm shrimp may push them deeper into the wound
caused by indebtedness - but for the large majority of farmers who have nowhere else to look for extra income substantial enough to cover crop failure, what other choices are there to consider?

Farmers continued to engage in shrimp farming despite their awareness of the risks involved, and the ultimate downturn that indebtedness can cause them. To justify their persistence in risky shrimp farming, farmers constantly remind themselves of the potential profits of shrimp farming against other sources of income. As one put it,

There are few conveniences in shrimp farming. But the profit [it promises] is so high; the risk has to be high. Farmers barely make ends meet with the rice paddy. Agricultural farming will never make us flourish. Continuing agricultural farming, we may not starve but we do not save either. In shrimp farming, with just one good harvest, life will change for the better… Since Tra Vinh has exported shrimp, life has improved substantially. Wild caught fish are cheap. Rice paddies are small. Salt sells for little money. This is the land where the dog eats rock, the chicken picks salt (chó ăn đá, gà ăn muối referring to the poor soil and thus the poverty of the land). (Retired cadre and shrimp farmer, 64, Long Thanh Industrial Zone, June 2006)

Accepting the “high risk, high profit” logic means one has to come to term with the stakes in shrimp aquaculture, for which a farmer yelled in anguish, “you need a strong heart!” This point is well shared among shrimp farmers following the introduction of the industrial farming model. Farming shrimp is a huge trade-off. But once you decide to take on the challenges, there is no turning back. One farmer said:

This profession [shrimp farming] is mentally stressful. If successful, it is good, but if it fails, one’s spirit is gone. My son’s father-in-law just sold his shrimp in that small pond for 86 million đồng (5,375 USD). He harvested a profit of 55 million đồng (3,437 USD). What else do you think can fetch such a high profit? However, if disease breaks out in my pond at this point, the whole thing is gone leaving me with a huge debt. This season I cast 40,000 fries. At a month and 22 days, I have already invested 25 million đồng (1,562 USD). The debt [to be settled] is huge because everything, including fries, chemicals and feed is
purchased on credit. If shrimp die too young, they will sell for hardly anything. (Retired cadre and shrimp farmer, 64, Long Thanh Industrial Zone, June 2006)

The high level of risk has made shrimp farming in the Mekong Delta a casino operation for many small farmers, and once they are locked into debt, there are no real alternatives to earning that kind of money. So, they might be well aware of the damage that shrimp farming is causing to their land, water and future growth prospects, but they simply see no other way out. They have to accept high risks, fully aware that their vulnerabilities will be exacerbated. They could soon reach a point where land, their sole remaining livelihood source, could vanish. But at this point, the “free market” leaves them with no other choice than to continue gambling.

Loss of confidence in one’s ability to control the risks in production, the intensity of risks and vulnerability are intimately connected with these increasing social divisions among farm households producing different crops, but even among shrimp farmers, and between insiders and outsiders. Just as the economy is opening up to opportunities generated by the expansion of a market economy, social interactions have become highly class-based. Much of these conflicts are connected to wider processes of social and economic processes. The pursuit of shrimp aquaculture facilitated by trade liberalization has modified the complex ecosystem in multiple ways. This also shows that risk does not necessarily encourage people to stick together and fence for themselves (Rambo 2007: 272), but rather carries the power to divide them.

Farmers’ determination to continue pursuing shrimp aquaculture is provoked by the same desperation one faces in gambling. Unfortunately, even though the ritual world may transcend the material world and help to relieve pain caused by shrimp failures, it
does not offer an effective reversal of indebtedness and loss of assets. It is in the face of desperation and a lack of choices that farmers choose to persist in shrimp farming despite its threat to exhaust all their household resources. Unfortunately, instead of “removing the thorn,” such decisions have often pushed households further into poverty, indebtedness and desperation. It is a pattern that has led many households to the “threshold” of having to leave their homes in order to avoid confrontation with creditors who will apply any measure to demand a settlement. Apart from profit for a small minority, persistence in pursuing shrimp aquaculture has created a domino effect of destruction: failed shrimp farming has led to environmental damage and indebtedness; and the damage caused to the ecosystem means loss of an important source of subsistence buffer for many. Farmers who have lost their investments are pressured to continue in shrimp aquaculture because there is nothing else they can do on wasted land and there is no source of income that is comparable to shrimp farming. The situation of the landless and land-poor farmers is even worse. Chapter 7 will address a different set of challenges that has led households in the bottom half of Tra Vinh to adopt “everyday forms of resistance” (Scott 1985).
CHAPTER 7. WOMEN & THE ENVIRONMENT

It was around 9 o’clock on a January morning in 2008 when the sun was up high and glaring, warning of a hot day to come in Hiep Thanh. Sau and I joined a group of villagers at a local teashop. Sipping from her little cup of green tea, Sau spoke of a recent spat with her husband:

My husband and I recently had a fight over how to pursue the coming [shrimp] season. While he wanted to invest in intensive shrimp farming, I prefer to do the first crop extensively. Once I have harvested that, he can do whatever he wants [with the farm]. But he wanted to plunge into industrial shrimp farming immediately and would not listen to me. We almost wrecked the hut arguing over this decision. (Woman farmer, 47, Hiep Thanh, January 2008)

The incident between Sau and her husband reflects the contentions at many levels among coastal households in Tra Vinh following the promotion of commercial shrimp aquaculture. As noted in the previous chapter, rapid expansion of shrimp farming areas, especially the industrial shrimp-farming model, has resulted in frequent disease outbreaks, rising indebtedness and land loss among households. The conflict between Sau and her husband needs to be viewed within the context of rapid changes in resource use and weakening of household buffers. While most of the mangroves in the coastal district of Tra Vinh have disappeared, the area left for agricultural farming is also shrinking. With six hectares of previously mangrove-forested areas, at least Sau and her husband can choose between the intensive or extensive models, an option that many households in the area cannot even dream of.

However, adoption of commercial shrimp farming also means accepting the risks it entails. The extensive and intensive models require significantly different investments and promise different outputs (see Appendix 6). Industrial shrimp farming requires
investment that can be ten times greater than the extensive farming model; the former also promises significantly larger returns. In fact, most of the new housing structures in the area are rumored to be outcomes of successful shrimp harvests. On the other hand, as much as it is a lucrative enterprise, industrial shrimp farming can also compromise part or the whole of a household’s productive assets. Like many households in coastal areas of the Mekong Delta, Sau’s family still owes a loan of over 100 million đông taken for industrial shrimp farming back in 2003. Sau’s preference for the extensive model, which yields a lower but more secure return versus her husband’s desire to push forth the intensive system that promises higher returns reflects not only differences in gendered risk perceptions that shape their coping strategies.

This chapter will explore the dynamics of intra-household negotiations on resource use and livelihood decisions keeping in mind the importance of locally specific analysis on women-environment relations. In the Mekong Delta, women’s interaction with the environment varies according to household livelihood strategies, predicated on available assets and economic circumstances. Comparing changes in the division of labor among three household groups succeeding with different livelihood trajectories following the shrimp boom, I will show how women can support both environmentally destructive and friendly activities depending on the livelihood strategies their households can afford. At one level, the distinction between men and women’s strategies seems to be defined by their risk perceptions, which are shaped by their social roles and spaces. Through the discussion of changing gendered division of labor in shrimp farming, and women’s contribution to household production activities particularly, this chapter highlights some of the reasons why women may or may not support sustainability. Specifically, I address
the following questions: What are the changes in gender division of labor and intra-household dynamics across household groups following the shrimp boom? What are the factors that have resulted in these changes? And how do experiences of women and men across household groups compare in the face of transformations in the production system and broader socioeconomic environment? Following this introduction, the chapter is structured in four parts. The next section discusses a theoretical debate on the relationship between women, environment and sustainability. I then move on to discuss how the women-environment relationship in Vietnam’s Mekong Delta can be understood through the transformations in gendered division of labor conditioned by macro economic policies that have resulted in changes in property rights, resource use, and labor structure. I also show how women’s strategies, rooted in their households’ subsistence needs, actually provide the foundation for the pursuit of risky shrimp farming - as a male domain.

Women, Environment and Sustainability

The women-environment relationship centered feminist ecological debates that engaged a diverse group of scholars and activists during the late 1980s and early 1990s. For the purpose of this chapter, I will focus on two main strands of ecological feminism, namely ecofeminism and political ecology feminism. Ecofeminism points out how oppression against women and nature is based on race, class, gender, sexuality, physical abilities, and species (Gaard 1994: 1). Ecofeminists like Vandana Shiva (1989), Maria Mies (1999) and Davidson (1989) contend that due to their reproductive responsibilities such as collecting firewood, fetching water, and growing vegetables, women have developed a
close relationship with nature. It is through their interaction with nature that women have developed knowledge about and care for the environment. As such, women and nature share the same fate as victims of patriarchal capitalist projects that exploit the environment.

During the 1980s and first half of the 1990s, ecofeminism and its call for attention to women both as victims of patriarchal projects and environment managers became a hot subject for debate among its supporters and opponents. At the same time that ecofeminism became the ideology that centered the women, environment and development (WED) discourse among NGOs and international organizations; it also came under heavy criticism. Feminist political ecologists, including Agarwal (1991), Jackson (1993), and Biehl (1991) challenged the proposition of women as ideal environmental managers and pointed out the absence of historical contexts, and of issues of class, caste and ethnicity. According to them, women across societies do not form a homogenous group. Women’s experiences with the environment vary depending on their socioeconomic backgrounds (Agarwal 1991). In particular, Jackson (1993: 1949-50) proposed that an understanding of the women-environment relations should focus on the specificity of the historical, social and economic contexts and the dynamics of political economies and agro-ecosystems. Women’s interactions with the environment are affected by their multiple identities, their sources of income, class and intra and extra-gender relations, and social gendered norms. While gendered division of labor, resource rights and responsibilities are criteria that should be included in examining the women-environment question, studies should recognize how women’s interactions with the environment are dependent upon the household’s experience of environmental
degradation by both outside actors and the act of one’s own family, kin and neighbors. Most importantly, women’s relationships with the environment are mediated by livelihoods. This means that the most direct human-environment interactions can find expression in their daily involvement with strategies for survival.

Shrimp Aquaculture – A Male Domain

Like most marine activities in coastal areas, in Tra Vinh shrimp aquaculture is clearly a male domain. Shrimp aquaculture is often labeled as large, bold, and risky. These words imply the scale of investment in terms of land size and capital and other inputs to match the standard of farm economy set by the Department of Fishery. The scale of investment entails the size of potential profits as well as the magnitude of losses, all of which require a man’s strong heart and mind. Shrimp aquaculture is also masculine because the venture requires physical strength and hardship to move the earth and to operate motor engines, which women are considered to be too weak to handle. In short, it is the combination of risks, intensity in terms of capital, labor and time investment, and potential profits as well as losses that shrimp aquaculture became characterized as a masculine crop and a male domain.66

The division of male/cash crops that fetch high income versus female/ subsistence crops that are low in value in Vietnam’s Mekong Delta finds parallels in Africa following the introduction of cash crops by the colonial powers. Explanations for the gendered characterization of crops range from the distinction in physical abilities of men and

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66 Construction of masculinity varies according to level of intensity of a farm. For instance, the investment required in industrial shrimp aquaculture is at a minimum 10 times greater than in rice and watermelon.
women to generally acceptable gender social roles and spaces (Doss 1999; Burton and White 1984: 569). The most common explanation appears to be a division of labor that fits appropriate male and female spaces. Subsistence crops are more suitable for women because subsistence plots are located near the homestead enabling women to attend to both productive and reproductive tasks. While tending these plots of land near the house, women can also attend to other tasks such as feeding the family, childcare, and looking after older members. Men’s social roles and attributes offer convenience for the farming of cash crops, which are often farmed in land located away from the homestead, which entails greater risk. Hard labor, risk, distance and mobility are translated into more tangible values when cash crops are sold in the market. Unlike subsistence crops, which satisfy domestic needs, cash crops are measured by cash income that is needed to pay for other household expenditures. Male labor associated with cash crops is thus given a higher value than female labor as Margaret Mead pointed out, “the prestige values always attach to the activities of men” (Mead 1935: 302, cited in Rosaldo 1974: 19). On the other hand, the value of subsistence, which is strongly associated with female reproductive roles, minimum investment, mundane and bounded by female space within the home, is thus often neglected.

Rather than providing greater appreciation of women’s labor, technological advancement has often perpetuated this pattern of discrimination of women’s labor associated with subsistence production. According to Boserup (1970), technological advancement in farming was a major factor in maintaining the patriarchal order. She contends that rather than liberating women, the introduction of modern technology and cash crops created a productivity gap between men and women by lifting the value of
labor by the former while continuing underestimating that of the latter. The promotion of
the export-led agriculture for growth in many post-socialist economies continues to
consolidate and reinforce this pattern of gender discrimination that is based on the
longstanding patriarchal social order.

Intra-Household Relations

Analyzing intra-household distribution and control of resources is a feminist approach to
understanding the process of decision-making and relations of power and authority within
the household. This approach challenges the widely held view among neo-classical
economists that the household is a single decision-making unit with pooled resources for
joint welfare functions. The question of power and authority is examined by assessing
how access to and use of resources among household members account for differences,
inequalities and conflicts. Amartya Sen’s bargaining model suggests that the relation
among members within a household can be seen as a contractual one whereby household
members bargain in a process of cooperative conflicts (1990). Individuals cooperate to
achieve goals that are not necessarily shared. Even though disagreements may exist,
households are formed and sustained because members have more to gain above the
breakdown position - the position when a household does not exist. Such assumptions led
him to conclude that the position each household member adopts depends on the
perception each individual holds of what their interests are, their valuation of their own
well-being, and their sense of legitimate distributions within the household. As such,
entitlement and bargaining position are strongly intertwined. Low entitlements lead to
low bargaining positions, which ultimately cause one to be in a lower position in relation to others within the same unit. According to this logic, systematic devaluation of women’s entitlement is sustained not only because of the patriarchal structure that places women in a lower position, but also because women accept their subordination. Women believe unequal distribution of household resources to be legitimate. In societies where women’s contribution to households, especially in terms of cash income, is acknowledged, women gain greater access to household resources. This explains why women who bring home income from their work outside the home are more respected than those working at home. On the other hand, in societies where women's breakdown position is weak, like South Asia, unfair allocation of resources can hurt their well-being (Sen 1990).

The underlying assumption that economic interest rather than social and cultural values determine a household’s decision is problematic. Such a view may be true of some societies, but is by no means universal. For example, studying the value of women's labor in Ghana, Astone (1996) finds that women’s contribution in the home to care for other members and the time spent on community ceremonies carry greater weight than that spent on family gardens for monetary income. Contrary to Sen’s proposal that women with greater economic power enjoy greater bargaining position, in Ghana, women's contributions to domestic work and ceremonial activities provide them with bargaining power. It is thus critical to understand local perceptions of priorities and goals and how the allocation of resources according to these priorities is gendered.

Kabeer (1991: 15) offers another critique of the cooperative conflict model. In her opinion, the bargaining model is problematic because it rests in the equation of
cooperation with production “adding to their total availabilities” and conflict with distribution “dividing their total availabilities.” Within the social organization of production, cooperation and conflict are interdependent. Household production can carry the potential for conflict, bargaining and negotiation. Studies of various patriarchal societies indicate that men’s and women’s interests are not necessarily exclusive, but are complementary and shaped by broader gendered social roles. For example, household production arrangements in North Africa, Middle East and South Asia indicate that part of women’s strategies in maximizing security involve the protection of men, which include the “adoption of attitudes of submissiveness, propriety and self-sacrifice” (Kandiyoti, cited in Kabeer 1991: 17). In the same vein, Francis’ (2000) analysis of changing rural livelihoods in Kenya suggests that commercial farming creates interdependency. Men need women's labor time and women need income from cash crops that men grow. Such interdependence defines the point of conflict between men and women when their goals are not achieved.

Furthermore, gender relations beyond the household and the links between intra and extra-household bargaining powers need to be highlighted (Agarwal 1991). Questions of power and authority in relation to household resources have to be viewed within extra-household dynamics. Institutional changes in resource use and governance may generate opportunities that constrain a household’s livelihood decisions at the same time, especially where production systems are undergoing fundamental alterations in pursuit of commercial farming for growth. The decision-making process requires an analysis of specific aspects of household relations, including property rights, labor processes and extra-household resources, where conflict or cooperation among
interdependent members are likely to occur (Kabeer 1991: 19). Francis (2000: 78-79) suggests that:

We need to link individuals' strategic behavior within households to broader processes beyond the household, which set up the rules of the game, and the ideologies which legitimate them. These processes include institutions, which define access to and control over household resources (property rights; inheritance practices; norms concerning marriage and divorce; other rights and responsibilities which members recognize towards one another), as well as gender ideologies.

Within the context of the local economy increasingly subject to market forces, farm households’ decisions regarding the use of resources are heavily influenced by fluctuations in input and output prices. Livelihood strategies reflect households’ abilities to adapt to changes and cope with challenges and the negotiation that take place among household members. The following paragraphs will discuss how intra-household relations in the Mekong Delta are determined by gendered social norms and how gender perceptions of risk shape men and women’s responses to risk, which in turn dominate and determine the outcomes of negotiations on the use of household resources.

Changing Gendered Division of Labor

The shrimp boom has highlighted the men/commercial –women/subsistence production dichotomy, a pattern common to many subsistence-turned-commercial farming communities in Africa (Burton and White 1984: 569). Changes in the gendered division of labor were most evident following the penetration of the industrial farming model as part of the promotion of the farm economy policy in the province since 2000. Male labor
shifted to shrimp farming whereas women had to take over agricultural and subsistence farming activities.

This comparison follows the logic of the public/private, production/reproduction dichotomy that has long been a feminist critique of the widespread asymmetric gender structure across the world (Rosaldo 1974). Despite recognition of women’s economic contributions (Boserup 1970), the adoption of commercial cash crops as a growth strategy in many transitional economies tends to consolidate a patriarchal social structure. The transformations in production and gendered division of labor in the Mekong Delta have clearly caused women’s physical exclusion from family land because shrimp aquaculture is seen as a masculine crop and a male domain.

The farming of shrimp can be divided into two stages. The first stage involves pond and farm preparation; and the second features nurturing activities. Digging soil for farm construction is considered the most physically challenging task that is exclusively done by men. Due to the hard work involved, prior to the introduction of the Kobe excavator,67 households used to hire labor and spread the work out for a few years before a farm was completed. Once the pond is dug, water and lime powder are used to wash out the acidity in the soil. The second phase begins when the pond is filled with water and ready to welcome the fries. At this stage, the intensity of fries per square meter of water surface will set the stage for the production activities that follow. Extensive ponds often cast five fries per square meter of water surface versus the intensive ponds, which have 20 to 25 fries per square meter. From this point, production activities become less

67 Farmers often refer to an excavator as Kobe, after the Japanese company that manufactures them.
physically daunting but more labor intensive. The fear of disease outbreaks can also be overwhelming. Like newborn babies, shrimp fries require around-the-clock supervision in the first week to ten days while acclimating to the new water environment. Farmers have to be very sensitive to the changing needs of the shrimp as they grow older and be alert to transitional phases in its growth process.68

To a large extent, the rearrangement of responsibilities between men and women to adapt to the requirements of a new production system is based on the traditional gender roles. The male/female dichotomy found in shrimp aquaculture reflects the gendered spaces embedded in Confucianism under which men represent the public sphere and women represent the inner sanctum of the household (Hue-Tam Ho Tai 2001). Men are seen as more capable of handling risks such as high investments and disease outbreak; they enjoy greater mobility, maintain larger social networks, and have better access to information and services. In spite of the rhetoric about modernization and gender equality, many sexist prejudices against women continue to reign strong in Vietnamese society. In the past, considered “symbols of risks” and “causes of failures,” women were blamed for the loss in trading or exam failures (Nguyen Quang Khai 2006: 135).

In the studied villages, the notion of women as “bad luck” carriers, particularly among industrial farmers, creates a boundary excluding women from shrimp ponds and farms. A less discussed issue is the fear of people having sexual intercourse near the shrimp ponds. Such beliefs - of women’s menstrual and bodily subsistence as impure – are explained in Douglas’s writings. Fear inscribed in beliefs about menstrual pollution

68 Depending on its growth, a shrimp sheds skin twice a month. This gap may be greater if the shrimp does not grow to its potential. During this time, the shrimp become very sensitive and should be tended carefully until their shells become harder.
reflects structural dimensions of social order and serves the function of separating male and female social spheres (Douglas 1975). As a result, women in my research restrict their own mobility so as not to inflict themselves on sacred spaces and to avoid possible harm caused to others by their presence. In the Long Thanh Industrial Zone, women managed only two out of 80 farms. In the villages of My Quy, men controlled all the 12 shrimp farms operating in 2007.

Greater priority given to shrimp aquaculture for its potentially higher economic value has also resulted in the shift of resources away from women’s subsistence activities. Beyond the household, the spread of technology in shrimp farming has generated more employment opportunities for men while causing employment in the agricultural sector to dwindle. Men take up new employment opportunities such as the handling and repairing of motor engines used to pump water and Kobe machines used to dig ponds, remove earth, and clear groves. Fewer opportunities are available to women in shrimp farming. Typically, women are hired to sort shrimp at harvest time or in processing factories. Sorting shrimp pays reasonably well since this is a time when farm owners have good reasons to be generous. The job pays approximately 50,000 đồng (3 USD) a day as compared with 30,000 đồng (1.5 USD) for other agricultural work. Farm owners usually give workers a bonus of a kilogram of shrimp to take home. However, this rare opportunity only comes a few times in a whole season. Those with successful harvests usually reserve such jobs for their relatives, neighbors and acquaintance. Cleaning shrimp in processing factories is another matter. This job is often labor-intensive and very low paid. Depending on their experience and responsibility, workers in these factories earn a monthly wage of between one to two million đồng (about 60-100
USD). However, few factory workers would survive such working environment for over 5 years. Those who have left the jobs have reported a decline in health due to long hours of working standing in the cold, with no health coverage provided.\(^{69}\)

Ironically, prejudices against women as harbingers of bad luck did not reduce their workload. Women continue to help shrimp production in other ways. They provide logistical support such as cooking and cleaning, preparing feed and herbal medicines for the shrimp. Here, the structural changes in division of labor can find a connection with broader trends in the process of deagrarianization and “housewification” in the global economy (Bennholdt-Thomsen and Mies 1999). For example, Tinker and Summerfield (1990) and Bryceson (1999) observe that agriculture is increasingly feminized and undervalued as a result of the market economy and industrialized farming. Capitalism has also taken advantage of the so-called housewification process that treats women’s reproductive labor as the cheapest production work, the exploitation of which is seen as necessary for the process of extended capital accumulation (Bennholdt-Thomsen and Mies 1999: 33-34). Vietnam is currently experiencing a housewification process. In Tra Vinh, subsistence crops and rice cultivation that were once indispensable for households’ food security suddenly became undervalued, undesirable, and are being gradually eliminated. Farmers and policy makers alike often cite the low value of rice and subsistence crops as a justification for persisting with risky shrimp farming. While women are taking on more work in the absence of men, the value of their reproductive labor, which has never been adequately recognized, has also been further reduced. The

\(^{69}\) This is one of the many stories reported by the Vietnamese media on the working conditions of workers in processing factories: http://vietbao.vn/Viec-lam/Ai-bao-ve-nu-cong-nhan-che-bien-thuy-san/20512631/271/
pursuant analysis of allocation of work and responsibilities among households succeeding with different livelihood patterns since the shrimp boom demonstrates the dynamics in intra- and extra household gender relations.

Gendered Division of Labor and Livelihoods

As commercial shrimp farming has rapidly replaced subsistence production system since Doi Moi, livelihoods in coastal villages of Tra Vinh have also shifted away from subsistence farming. Apart from rice cultivation and growing vegetables, most households keep a few cows, goats, or pigs. The capture of wild fish has always been an important source of food and extra cash for coastal households has shrunk due to the conversion of mangroves, waterways to shrimp farming. Chapter 5 identified three livelihood trajectories as representing the livelihood patterns among households from different social strata: (1) Households that have shifted successfully to shrimp aquaculture; (2) Households that combine shrimp farming with agricultural production with the latter being the main source of income; and (3) Households that do not or no longer engage in shrimp farming. The reiteration of the household schema here is to help illuminate the changes in gender roles and relations within each group discussed below.

In both My Quy and Cay Da villages, women in shrimp farming households typically shift back to the domestic sphere while men spend time on the farm. In some households, women entrust men with the whole production process. However, in most households, women help out with some of the tasks. In Cay Da, women from households without agricultural land enjoy more free time during the shrimp season. In households
with some agricultural land, women keep themselves busy with subsistence activities such as planting vegetables, raising pigs, cows, and goats.

Overall, the work burden has increased for women in households that have shifted to shrimp aquaculture but still maintain their agricultural and subsistence production activities. Women in this group have experienced greater pressure from agricultural production and domestic responsibilities so that men can devote their time to shrimp farming. Unfortunately, not involving directly in shrimp farming does not mean that women are free from the mental stress that failed shrimp farming has caused to household resources.

For the third group, the loss of land as the main productive asset makes life harder for both women and men. Women in these households have to gather small incomes from every source possible, including growing vegetables, renting out labor in neighboring villages, doing odd jobs, and working in processing factories for a meager wage.

As demonstrated above, men and women’s relations to productive resources are complex, varying among households following different livelihood trajectories. While some women in the first group tend to be driven away from household resources, women in households that can no longer persist with shrimp aquaculture have spent more time on land in agricultural and subsistence production as their households have few other buffers to fall back on. The discussion above also demonstrates how allocation of work and responsibilities by gender and livelihood strategies are interdependent, fluctuating in response to changing circumstances.
Intra-household decisions regarding resource use can be further understood by examining how men and women react differently when household resources are at risk. Men’s tendency to see risk as an opportunity versus the women’s instinct to safeguard household resources can find explanation in gendered social roles and spaces. Coastal communities of Tra Vinh often use dăng and dó as a symbol for the relation between husband and wife. Dăng and dó are two essential components of a traditional fishing gear. The dăng comprises the main fish net that is long and wide, opening in a circle to let water flow through. The fish that pass through the net will reach the dó that is attached to bottom of the net. Once the fish are in the dó, there is no escape. Dăng performs the function of the man. It has to be wide open and broad to make way for wealth to flow in. The dó, on the other hand, has to be small, tight, and closed to hold the wealth and not let it escape. Dăng is related to dó just like a husband to his wife; they are close but not identical; they bear contrasting attributes but are not contradictory. Like dăng and dó, husband and wife perform complimentary functions. The husband, like dăng, is expected

Cross-cultural studies of risk perception suggest that women are generally more sensitive to risk than men. For example, Featherstone (1995: 55) observes that, men tend to lean toward “…the heroic life is the sphere of danger, violence and the courting of risk, whereas the everyday life is the sphere of women, reproduction and care.” The tendency for men to accept risk and women to be associated with security seems to originate in childhood. A study of boys and girls indicates that girls are more aware of the responsibility to look after others and taking actions that can help with avoiding risks whereas boys tend to enjoy the excitement in talking about risks, risk-taking and accidents (Green 1997). Based on cross-cultural examples, the medical literature also strengthens the observation of women as projecting greater sensitivity toward risk and risk-taking (see Crawford et al. 1992; Collison 1996). Women are also found more sensitive to certain technologically related risks than men. Biological explanations support the argument that women’s concern for health and safety is due to their responsibility in childcare and raising children. Because women are physically weaker, they are more sensitive to hazards (Flynn et al. 1994:1107). However, it is also recognized that a biological explanation of risk perception is insufficient when considering issues of class, race, and education, power, status, alienation, trust, and other sociopolitical factors. Nevertheless, there seems to be an intimate relation between “gender structures, reflected in gendered ideology and gendered practice [that] give rise to systematic gender differences in the perception of risk” (Gustafson 1998).
to be generous, to maintain extended social networks and to create opportunities for
wealth generation. A wife, like đỗ, is expected to preserve the fruits of the husband’s
labor. Her role is to guard the income wisely, to be thrifty and cautious. Women and men
represent two ends of the risk-safety spectrum. Men are usually the ones to initiate risky
ventures that promise greater returns whereas women usually demonstrate a conservative
attitude towards risk-taking. A woman articulates the contrasting attributes of men and
women as follows:

Women are petty-minded, thrifty, and careful; they collect small incomes; they
are afraid of risk; and they are tending. Women often take money by themselves
to the bank for fear that men would spend it on the way. Men, on the other hand,
are proud, self-confident, sharp, fast, daring and bold. (Woman farmer, 47, Cay
Da)

Even though the dâng and đỗ metaphor continues to be used to remind men and
women of their appropriate place, intra-household gender relations in the Mekong Delta
are not always restricted by these rules. In fact, there has been increasing acceptance of
the swapping of gender roles along with greater market integration. Nowadays, many
women are said to carry the function of the dâng. For example, women are increasingly
involved in the public sphere that once belonged to men. In Tra Vinh, women are traders.
Women dominate the banking sector. Many young women have also joined the labor
force in processing factories while others migrate to the city for work. But women who
play the role of the dâng usually also assume the task of the đỗ, because men are easy
spenders. They can be lavish when it comes to drinking and socializing with their circle
of friends. Therefore, leaving money with men is risky. It is probably the view of
financial management as a feminine task that puts men who seize control of household money to shame through gossip among friends and acquaintances.

By and large, like ðãng and ðó, the relationship between husband and wife is not an equal one in a patriarchal setting. One farmer said: “The ðó is located within the ðãng. If the man does all the hard work to make money, the woman has to safeguard it. A woman who does not know how to keep money is useless.” Therefore, women usually manage household income even though this does not mean that they enjoy absolute freedom in decisions regarding the use of the money. Women can made decisions on small expenditures such as food and other daily items like oil, detergent and rice. Large investments such as building a house or purchasing land and production equipments involve the men. Even though women’s voice in household production decisions is increasingly recognized, in most cases, men have the final say. A woman shared:

Two types of agreement can be identified: consensual or forced (ðòng thuận và bát ðòng tình). Most of the time, women are forced to agree [with men’s decisions]. Men usually have the final word. (Woman farmer, 47, Cay Da, November 2007)

Although control over household production and resources is seen as driven by personal interest as has often been the case in Africa (Francis 2001), the same model hardly explains the intra-household dynamics in Vietnam’s Mekong Delta. In Tra Vinh, women’s anxiety about the possibility of a decline in household resources has little to do with personal gain. They feel that a family’s happiness depends on its economic security, which is best realized by the cooperation between husband and wife. Households in which the husband and the wife carry out the plans they have made together and share decisions regarding how to use household resources certainly fare better than those in
which the husband and the wife disagree, quarrel or fight frequently. A complaint shared by many Mekong Delta women was their men’s frequent engagement in excessive drinking, gambling, and socializing. Apart from chronic illness, excessive drinking and gambling are the main causes of poverty. Women are fully aware that in a system where men are better treated than women in the public sphere, without a man’s hard work, a household can never be well-off, however hard a woman tries. The dilemma of households that are hardworking yet still having to live in poverty is common as woman revealed:

I have tried so hard to bring money home, but so much of my effort has been wasted because of my husband’s drinking habit. Just to cite an example, one morning I had some work to do outside the house, so I asked him to water the peanuts early in the morning. But instead, he began drinking with his friends and got home drunk by 10am. By the time, the peanut could not survive the sun and died. All the money and labor we invested in it was gone just like that. (Woman farmer and trader, 46, women group discussion in Hiep Thanh, November 2007)

Another woman viewed the husband and wife relationship as a harmony between risk and risk-aversion as thus:

Women are non-adventurous. They are afraid that big plans can lead to big failures (làm lớn bại lớn). Men are not afraid of failures. They believe that big plans lead to big gains (làm lớn thắng lớn). Therefore, women do not make big plans, leaving them to the men. Women can agree or disagree. Men are gutsy, adventurous and daring. It is as though we are born that way. But a gutsy man needs a non-adventurous woman. Take my family for an example. My husband told me that I lack confidence (thiếu bản lĩnh). But I told him that he may possess more confidence than I do, but his boldness could not succeed without my lack of confidence which backs him up. (Stretching her arms vertically) If you start pouring from above into nowhere, all that you pour will go into a hole. (Conversation with woman in Cay Da, November 2007)

Mekong Delta women’s desire for a harmonious relationship with their husband is not necessarily because they submit to the yin/yang model of unity and harmony, which
has its roots in the Confucian doctrine that places collective well-being over individual desire (Tran Dinh Huou 1991). Women consider “peace” between husband and wife to be “the” condition necessary to ensure a household’s economic well-being. Such an understanding of gender roles mediates the intra-household relations. Women may not agree with men in every instance regarding how a household’s resources should be used and managed, women may resist their husbands’ engagement in drinking and spending on socializing, but they also understand that they are unlikely to succeed on their own without men’s support, even when it means accepting men’s habit they are against such as drinking.  

Some of the feminine qualities such as caring and nurturing are demonstrated beneficial to production activities. Even though women are often excluded from the farm, they help out in different ways. Women work inside the house; they mobilize financial resources from their social networks; they cut on spending. Women walk the tightrope to maintain a balance between risk and security. They often prevent men from engaging in behavior that threaten to compromise the household’s well-being. As demonstrated above, in households that adopted commercial shrimp farming, women play a critical role in the management of and control over the enterprise in order to minimize the risks of losses from unnecessary expenditures. The fear of losing a household’s productive resources urges women to take part in production while trying to fulfill other reproductive

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71 Drinking is a double-edged sword across rural Vietnam. Drinking enables a man to extend and maintain his social networks outside the household. Those unable or unwilling to engage in drinking risk being viewed as lacking masculinity. Fear of social isolation among friends and peers has forced many into drinking. But men who drink everyday have to spend more money and have less time to focus on production activities. More often than not, frequent drinking is detrimental to a household’s well-being. Men who fail to control their drinking habit have often become burden to their wives financially and otherwise.
responsibilities. Explaining the difference in the quality of care provided by women and men, a woman banker and shrimp investor said:

Even though men do much of the work in shrimp farming, it is very important that we [wives] engage in that process. This is because men having worked the whole day long are exhausted by the end of the day. This is when women have to fill in. The night is also a time when the shrimp are most fragile because fluctuations in the water are much greater. So after work I go directly to the farm, walk around the farm and check the nhá (small net) to see if the shrimp are eating. Because the health conditions of the shrimp can deteriorate very rapidly once affected by bacteria, regular water monitoring is critical so that timely action can be taken. The men provide the physical labor, but women more sensitive to vulnerable moments. Women are more effectively in detecting these moments. (Interview with a woman banker and shrimp investor in Long Toan, July 2007)

Women display great creativity in maneuvering within their constrained spaces. The shift of productive resources to shrimp aquaculture has narrowed their interactions with household resources and threatened their livelihood security. It is in the aftermath of crop failures that women usually demonstrate the strength of their skills in subsistence activities. Rain or shine, small incomes from maintaining vegetable beds, keeping few cows and goats, raising fish in the pond, and catching fish in the canals have enabled women to supply food for their families. These sources of subsistence also provide minor cash incomes to support children attending school. Women also guard household resources by preventing men from risky undertakings and wasteful spending. A woman farmer explained:

My husband said that I have no guts [I dare not take risks]. I agree. But I do not give in. I reason with him that, without my “lack of guts” you won’t be able to pursue your adventure. If you pour [money/wealth] from high above and there is nothing to hold it up from below, it will leak in the bottom and nothing will be left. Women have to be thrifty and careful about money. (Woman farmer, 47, Cay Da, November 2007)
Contrary to the common notion of women’s activities as economically insignificant, they seem particularly strategic when it comes to investments that help to strengthen a household’s asset base. Despite economic hardships flushing in from different directions, disease outbreaks that cause the shrimp to die, rising input prices, a debt yet to be settled, and constant rises in the cost of living, many women are determined not to allow these ordeals to interrupt their children’s education. For households in Hiep Thanh that are far away from the district town, supporting children through high schools is not easy not to mention college. Yet the few households that send their children to big cities for higher education are able to do so thanks to incomes from women’s subsistence sources. While many women in this category barely finished primary school, they share the understanding that with changing economic circumstances and shrinking income from farming, education is the best investment they can provide their children with for a better future.

Ensconced in a Male Bastion

In households that have shifted to shrimp aquaculture, women’s absence on farms belies the vital contribution they make to shrimp aquaculture. A comparison of gender roles in shrimp aquaculture suggests that the contribution of women’s labor and time, though seemingly invisible, is by no means insignificant. Women are responsible for much of the logistical support for on-farm activities. As men spend time to prepare ponds, monitor water, feed and guard the shrimp, women ensure timely supply of feed and chemicals, the cost of which can be extremely high for industrial farms. A woman farmer explains how
the allocation of work between husband and wife following the shrimp boom should be considered equal:

While men guard and feed the shrimp, women have to take over other tasks. Women look after the rice paddies and homestead, arrange for finance and feed, and sell the shrimp. If the men take three, four shares [of the work], women have to shoulder five, six shares. Every woman has to do that much work. No one is free to play. Therefore, if any woman said she has lost her rights, it is she who deprives herself of the rights. She underestimates herself (Woman farmer, 47, Cay Da, November 2007).

Mekong Delta women’s agency is manifested in their control over the informal credit networks that supply much needed capital for production not met by formal credit sources. Women mobilize assistance from their network of kin, neighbors and acquaintance, to secure finance that is needed for supplying feed and chemicals during production. Women’s credit networks have helped offset bottleneck situations that could have caused many households to fail. Whether it is to apply for a new loan or renew an old one, women traverse this male domain because their patience and humility enable them to be flexible in daunting situations where masculine pride prevents men from bowing.72

Another area dominated by women is the marketing of shrimp, fish and other marine goods. In Duyen Hai and Cau Ngang, of the dozens of collecting stations (đưa), only a few are run by men. For most households in Cay Da that engage in extensive shrimp farming, shrimp is collected according to semi-monthly water tides and sold to village traders. These households do not collect a large sum of money all at once, but the

72 A private moneylender in Duyen Hai district explained how male pride prevents men from applying loans: “Since men are too proud to bow, arranging bank loans is a woman’s job since she is more flexible, she does not mind begging.”
sporadic harvests of shrimp that spread over the year supply households with more regular income. Farm owners, on the other hand, usually hire tractors to transport shrimp to the market or processing factories in the Tra Vinh town. Men help with the transportation of the shrimp packed in heavy iced boxes and provide protection from the farm to the market. Women negotiate the price with traders, monitor the weighing of the shrimp and collect the money. In the post-harvest phase, women also fulfill a very important part of the production cycle, which is to settle payments for inputs purchased on credit during the season, like industrial shrimp feed and chemicals, and repay loans.

However, shrimp trading is an occupation increasingly dominated by the rich as improved road conditions and market access makes it more competitive at the production end. In the past, a trader had to work harder by traveling from door to door to collect seafood products, the profession required only a small capital and a simple mean of transportation like a bicycle or a motorbike to transport produce to the market. Nowadays, traders do not only buy shrimp from local producers but to supply them with “interest-free” loans in order to ensure a regular supply. In Hiep Thanh commune, in 2007, a female trader had to provide 30 local farmers each with a loan of 5 million đồng (312 USD). This means a capital outlay of approximately 9,000 USD, which is unthinkable for many local farmers who have to struggle to make ends meet. The need to increase the trading volume is also because margin gained from each kilogram of produce is far smaller as compared with the past.

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73 In 2007, US$1 was equivalent to about VND 16,000.
Conclusion

The shrimp boom has resulted in profound changes in household production arrangement, especially between men and women. Male labor being channeled to shrimp farming means that women have to take on more responsibilities in agricultural production and reproductive tasks. While the marginalization of women from household resources may suggest their absence in shrimp aquaculture as an environmentally destructive enterprise, cross-household livelihood analysis demonstrates how men and women’s relations with the environment depend on household production strategies. Just as not all men are fully devoted to industrial shrimp farming, not every woman is bound by subsistence activities. Women from households that engage exclusively in industrial shrimp farming clearly contribute more to environmentally destructive activities compared with both women and men from poorer households that have never or can no longer engage in shrimp aquaculture. On the other hand, the privatization of the commons has also damaged natural resources that are especially important to poorer households. Men and women from landless and land-poor households, especially widows and single women, have not only lost jobs in the agricultural sector but also access to the commons crucial for subsistence.

From a different angle, women can be said to be more sensitive to household’s resources and thus the environment as compared with men. Women’s tendency to avoid risks and their long-term perspectives contain elements of sustainability. Their vision for sustainability is reflected in their long-term strategies. They prevent men from spending household resources on drinking, cut expenses to minimize debts, and invest in children’s education. In some instances, women even take the initiative to revitalize mangroves to
protect family land from erosion. While these efforts are clearly the opposite of environmentally destructive actions, they are not necessarily a result of women’s greater awareness of the need to protect the environment. Rather, women risk-aversion strategies should be understood as motivated by their concern for household’s economic security. Therefore, there is a need to distinguish between sustainability as a household goal and as an economic goal and to ask whether these goals can be complementary.

Men and women’s actions are largely constrained by the broader socioeconomic development environment. In Vietnam, the export growth model currently dominating economic development is causing the exploitation of natural resources at a rate faster than the ability of nature to replenish itself. Impressive growth figures from exports of agro-forestry-aquaculture produce have been achieved in parallel with rapid decline of the natural resource pool, especially common property resources that have been critical to sustainable livelihoods for the local population, especially the poor. Not only has this risky enterprise resulted in the loss of mangroves, land degradation, water pollution, it has also increased indebtedness and social disintegration. It is within the context of increasing risk and vulnerability that men and women engage in activities that are both environmentally friendly and destructive as they struggle to protect household resources and strengthen their buffer.

This chapter has attempted to show the complimentarily of ecofeminist and feminist political ecological approaches in understanding the women-environment question. In particular, given the reemergence of environmental questions and concerns about global warming and climate change, ecofeminist theses continue to offer a critical approach to understanding the environmental impacts of continued expansion of the
neoliberal economic principles. Melissa Leach (2007) has expressed disappointment at the loss of momentum of the environmental movement following the debates between ecofeminists and feminist ecological environmentalists. Although environmental questions have now been transformed to property rights, the commons, the need to treat environmental degradation as a feminist issue is urgent since development projects continue to undermine women’s well-being.
CHAPTER 8. CRISIS IN THE COMMONS & SOCIAL VULNERABILITY

The way to Hai Nguon’s house was not easy, even with a World Bank and DANIDA funded concrete road on the dyke that ran along the mangrove stretch towards the Bassac River mouth. Local people name it the DAN road as an abbreviation for DANIDA, the Danish International Development Agency. Off the DAN road, Hoa 74 and I had to navigate a mud road formed by the earth dug out to make way for the shrimp farms that had become dried and bumpy after many rain showers. Now that most of the mangroves have been cleared, shrimp farms stretch as far as the eye could see. Here and there, few mangroves dot the landscape like decoration. It is estimated that over 400 households are currently occupying the land that was fully covered with mangroves until as recent as 1990. But even with the influx of new residents, it is not easy to get around this area of Hiep Thanh. Apart from the strewn mud roads, there were no maps, no street names, or house numbers and it is impossible for anyone to get around without assistance from local residents. The old 50cc Honda was fully tested by the muddy bumps. After many stops for directions, we finally had to park the bike to cross a rather long monkey bridge before reaching Hai Nguon’s land.

Hiep Thanh is located at the estuary of the Bassac River, the upper branch of the Mekong before it reaches the South China Sea. Mangroves clearance only sped up after the communist government started its economic reconstruction in the South by establishing state farms in the region. Being one of the pioneers to arrive in the commune to help with the formation of the state farm in Hiep Thanh late in the 1970s, Hai Nguon

74 A student in Hiep Thanh, who had to travel 10 miles to attend high school in the Duyen Hai district town.
was also able to clear \textit{(khån)} over 100 cõng (24.7 acres) for himself. Local people are often nostalgic for the pristine conditions of the coastal ecosystem. Not too long ago, land transactions among individual owners could be done with hand-written notes. Many of these transactions took place among local residents without the knowledge of local authorities. It was not until early 1990s with the shrimp boom bringing new immigrants from neighboring districts when the value of land started to increase.

Though Hai Nguon no longer farms, he has a special attachment to the land to which he had devoted the years of his youth. Like his neighbors in this area of Hiep Thanh, his family’s main source of income from the harvest of wild fish is dwindling. Until hit by the wave of industrial shrimp farming, families in this area adopted the extensive shrimp farming method, which allowed for the coexistence of wild and cultured shrimp. But much has changed since the dawn of the shrimp boom since late 1990s. Not only has the pace of land clearance accelerated, excessive use of chemicals has also caused the land to degrade quickly. During our hour-long conversation, Hai Nguon mentioned exhausted land \textit{(đất đai cạn kiệt)} repeatedly. Due to the lack of agricultural land in Hiep Thanh, particularly on the area once covered with mangroves, wild fish has long been the most important source for household subsistence needs. But the land that has helped to sustain Hai Nguon’s family of five children and his expanding family with more grandchildren seems to be giving up. While agricultural areas in the Mekong Delta have deteriorated due to intensification, in mangrove forested areas, industrial shrimp farming has been the chief cause of rapid environmental degradation. Hai Nguon’s preoccupation with exhausting land was understandably because after shrimp farming,
hardly anything else can grow. He expressed his pain and frustration at the outcome of a trial of a chemical recommended to him by an expert as follows:

I don’t know what chemical it was, but just one dose in the pond and cleared the water to the bottom. After that not even one fish could be found. The land is exhausted day by day. Well before the shrimp boom, when I lifted the sàng ngôn (small fish net) out of the water, you would have been stunned. Each catch would harvest over 20 kg (about 40 pounds) of wild fish and shrimp. The net was so heavy that I had to gather all my strength to pull it out of the water. Now hardly anything is left. It [the land] has been affected by the chemical. If you take a walk along the pond, you will find a lot of dead crabs lying on the bund. This has become a common situation in this area, not just with me. Before the shrimp boom, wild shrimp and fish did not fetch much in the market, but at least you had something to eat. Now that we have invested more labor and money in the land, it is disappointing that there is nothing to eat. It [the land] has been affected somehow. After that dose of chemical, not even a single mud crab could be found. That chemical which is packed in a small square container is really toxic. One day after use, the water was clear to the bottom. It is poison. This year I raised crab, the crab died, I raised shrimp, the shrimp died.

Hai Nguon’s agony over the toxic chemical presented only one small problem among the various challenges in the process of transformation of Mekong Delta. Together, privatization, commercialization, and trade liberalization have contributed to the environmental problems in the Mekong Delta. Advocates of neoliberalism often take advantage of Hardin’s theory of tragedy of the commons to defend the export-led growth model, arguing that land is likely to be more efficiently used and protected in the hands of private owners. Privatization can improve productivity while supporting the sustainability of the natural resource base (Liverman and Vilas 2006). On the contrary, many have highlighted the environmental destruction resulted from over exploitation and commodification of natural resources for profit making as failures of neoliberal policies. Export-led commercial farming may have resulted in exponential increases in trade

75 Interview with a long-time immigrant turned resident of Cay Da, Hiep Thanh.
volumes, but this development model has also placed greater pressure on natural resources and caused the environment to degrade at a faster pace. Some left advocates have gone as far as to suggest that the neoliberal processes are a new form of imperial or colonial control whereby new resources are identified, expropriated, commodified, and exported for the purpose of capital accumulation of powerful interests (Harvey 2005).

So far, the chapters in this dissertation have demonstrated how the appropriation of environmental resources for profit making through commercial shrimp farming has created multiple stresses on local livelihoods. A major impact of shrimp aquaculture is its adverse effects on the ecosystem. These include mangroves loss, damages of important wetland habitats and a wide range of goods and services they provide, such as salt marshes and freshwater wetlands, reduced water flow, soil salinization, salinization and depletion of water supplies, depletion of wild fish and shrimp populations, and biological pollution of native shrimp stocks. Organic and inorganic pollution, particularly due to the unregulated use of pesticides, bleaches and antibiotics have had deleterious effects on human health and the environment (Cruz-Torres 2001; EJF 2004; Thornton et al 2003). Furthermore, Coastal shrimp aquaculture contributes to the deterioration of environment because of the disposal of wastewater into natural waters, resulting in the damage of coral reefs. Chemical run-off from shrimp aquaculture has also caused serious concerns for human health (Ramasamy et al. 2002: 484; Sultana 1998).

This chapter will discuss some of the major environmental problems associated with shrimp aquaculture in Tra Vinh. Since Vietnam’s shrimp boom is about a decade behind other countries in the region, it is repeating many well-known environmental problems related to this export-led growth model. I will show how changes in land use,
water and land contamination, loss of mangroves, and decreased biodiversity of the coastal ecosystem are applying great pressure on local livelihoods and sustainability of the region as a whole. These are economic costs that are often neglected in the pursuit of economic growth. Evidence of environmental destruction in Tra Vinh alone indicates the negligence of the neoliberal argument for environmental sustainability of the export-led growth model. As Vietnam is among the most vulnerable to climate change, environment destruction for profit also threatens the ability of local communities to cope and adapt with the challenges to come.

The Shrimp Boom and Changes in Land Use

Mangroves

Mangroves of the Mekong Delta have been the target of many waves of destruction for economic gain. By early 20th century, French archival sources suggested that deforestation was caused by lumbering, land clearance for cultivation, and collection of charcoals. These exploitations led the French administration to placing limitations on forest exploitation in 1912, 1915, and again with a decree on forest reserves in 1931 (Brocheaux 1995: 85). Over-exploitation of forests, soils, vegetation, and wildlife, with consequent long-term degradation of the productive capacity of the habitat has been a challenge both in the Red River and the Mekong Delta,

In both regions, wild resources, such as game and fish, appear to have suffered from overexploitation as well as from environmental changes resulting from the activities for an increasing population. A vicious spiral results whereas physiological density increases, wildlife habitats are reduced in size or otherwise disturbed reducing the supply of fish or game just when the needs of the population for such supplementary floods is increasing with a consequent need for
more intensive exploitation of the shrinking wild-life population. The quantity of fish in the rivers of the Mekong Delta also dropped rapidly in the pre-war period although, rather than overfishing, the cause was thought to be extension of the cultivated area and consequent deforestation of the river banks, which evidently reduced the quality of the water and food supply available to the fish (Ner 1941: 159) (Rambo 1973: 194).

Mangrove cutting for timber occurred as early as the 1940s reducing mangroves area from 400,000 ha before the war (Maurand, 1943, cited in Phan Nguyen Hong, 1995: 1) to 290,000 ha in 1950 (Rollet, 1956, cited in Phan Nguyen Hong, 1995:1) and further down to 286,000 ha in 1962 and to 252,000 ha in 1983 after the American War (Phan Nguyen Hong 1995: 2). In the Mekong Delta, approximately 124,000 ha (about 40-50 percent) of the mangroves in the region were destroyed by herbicides during the war (Le Dien Duc 1996: 2). Following reunification in 1975, to achieve food security in the early years and to promote cash and commercial crops production for export, mangroves were cleared to make way for the formation of state farms. Yet, the most aggressive loss of mangroves took place in the years following Doi Moi, when mangroves and melaleuca forests were cut down for charcoal, firewood and timber to meet national demands of construction materials. Clearance of mangroves and melaleuca forests were intense, causing loss of 200,000 to 350,000 ha of forests every year (Phan Nguyen Hong 1995). This wave of mangrove loss as part of rapid deforestation nationwide was due in part to greater demographic mobility following state resettlement programs for economic development (McElwee and Horowitz 1999).76

76 The New Economic Areas (NEAs) program was originated during the First Five-Year Plan in the early 1960s when planners in the DRV had called for the coordination and diversification of agriculture and industry through the construction of middle-sized urban centers encompassing both food production and manufacturing. Set up at the district level, these new population centers (described as the “urbanization of the countryside”) were to be located where possible in underdeveloped areas in the mountains and plateau
In the Mekong Delta, the most aggressive wave of mangrove cutting coincided with the shrimp boom since early 1990s along coastal areas of Ca Mau, Bac Lieu, Soc Trang, Ben Tre, Kien Giang and Tra Vinh provinces.\textsuperscript{77} Within the Mekong Delta alone, shrimp farming increased by a whopping 3500 percent, from 32,000 ha in 1985 to 173,500 ha in 1993 (Graff and Xuan 1998). During 1999 and 2003, over 400,000 ha of mangroves and agricultural land in the Mekong Delta were lost to the creation of 478,729 ha in shrimp aquaculture area (Nguyen Minh Nien 2004: 108). In Cai Nuoc district of Ca Mau, the area of shrimp aquaculture increased from 6,374 ha in 1999 to 61,049 ha in 2000 (TNKD Binh et al., 2005).

Over half a century, Tra Vinh’s mangroves declined rapidly from 50,000 ha in 1940 to 16,300 ha in 1970, to 12,400 ha in 1980, to 5,924 ha in 1990 and to 3,725 in 1992. By 1995, only 1,384 ha of mangroves remained in Tra Vinh (VNRP 1995: 32). During 1965 and 1975, about 16,000 ha of Tra Vinh mangroves were affected by American defoliant, a minor share compared with the total of 300,000 ha of mangroves in the whole Mekong Delta region (VNRP 1995: 48). However, the most formidable wave of deforestation only started since reunification in 1975. During 1978-1983, the movement of “our hands make up everything, with human power, we can turn rock and regions, thus bringing virgin lands into cultivation, and providing new foci for industrial development, or at least industrial self-sufficiency, in the countryside. The plan was initiated in 1961 and although hampered by poor planning and the reluctance of the peasants, by the end of the war had resulted in the transfer of nearly one million peasants from the crowded Red River Delta to the mountains or foothills, thus creating several hundred new agricultural cooperatives and clearing over 100,000 hectares of virgin land. NEA was resuscitated as a means of resolving the economic crisis in the South. Plans were hurriedly drafted to set up NEAs in under population provinces throughout South Vietnam. However, few were located in the Mekong Delta or along the central coast; most were established in the sparsely settled Central Highlands (Duiker 1980: 6-7).

\textsuperscript{77} The Mekong Delta is known as Vietnam’s rice granary. However, this is only true of provinces to the West with natural conditions such as An Giang and Tien Giang. To the East, salinity hinders agricultural development as a whole and rice production in particular.
pebbles into rice” (bàn tay ta làm nênstatt cơ, có sức người sỡi đá cũng thành cơm) attracted many units of volunteer youth who arrived in Duyen Hai to assist with mangrove clearance for the construction of state farms (VNRP 1995: 49).

Yet, in modern history, shrimp aquaculture is the single most formidable force responsible for the loss of 70 percent of mangroves in Tra Vinh since early 1990s. Small-scale shrimp farming started since mid-1980s when local households that received land from the state farms cleared mangroves manually. Starting in 2000, preferential taxation, favorable credit schemes and infrastructure investment have led to further clearance of mangroves. As a result, in 2000, the province had only 5,670.37 ha mangroves left, of which 4,801.59 ha (84.68%) were planted. Natural forests accounted for only 868.78 ha (5.32%) of total forest areas. 97.25 percent of Tra Vinh’s mangroves that used to cover the 65km of Duyen Hai’s coastline, Cậu Ngang district and a few communes on the marshes (cù lao) have been cleared for shrimp aquaculture (TVPC 2002: 9). This wave of mangrove clearance contributed to the total shrimp farming area to increase from 21,250 ha in 2000 to 23,258 ha in 2002, and 30,976 ha in 2005. By 2006, the province had only 7,500 ha of mangroves remaining, making any plans to revitalize mangroves and reforestation wishful thinking.78

Agricultural Land

Apart from mangroves, rain-fed rice farming areas have become the second most important target of the shrimp boom. Spontaneous transfer of rain-fed rice to shrimp

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78 Conversation with the Head of Tra Vinh Department of Agriculture and Rural Development, February 6, 2006.
production is partly due to the lack of government land use planning such as in the case of in Bac Lieu province (Le Quang Tri et al 2003). Encroachment of shrimp aquaculture over rice farming areas reversed initial efforts to clear land for rice intensification in the first decade of Doi Moi (Vo Tong Xuan 1998). Le Dien Duc (1996: 3) summarizes how such conversions are worrisome, both in economic and ecological terms:

… Since the war, the local people’s policies aimed at increasing domestic food production and export have led to major alterations to wetland ecosystems. For example, efforts have been made to utilize the wartime drainage systems to reclaim land for agriculture to increase the production of rice…. Alteration to the soil and hydrology of wetland systems also makes it difficult to rehabilitate the natural wetland vegetation, the resources which people can exploit on a sustainable basis and the valuable environmental services wetlands provide. In some cases, these man-made changes may prove irreversible.

Groundwater Depletion

A less detectable source of environmental risk associated with the shrimp boom is escalating depletion of the water table due to unregulated use of groundwater that has led to excessive exploitation of this source of fresh water. Two types of groundwater are recorded in Tra Vinh: shallow groundwater below sand dunes at 100 meters depth collected from rain; and deep groundwater called pleitocene that goes deeper than 100 meters. The depth of groundwater fluctuates between 0.4 and 0.8 meters, accounting for 44 percent of the natural areas (TVPC 2002: 8). Both these sources of groundwater are being overexploited. A Vietnam News article cited shortage of fresh water for daily use and irrigation as the main cause of rapid depletion of groundwater in many Mekong Delta provinces:
Excessive exploitation of groundwater in the Mekong Delta has seen water levels dropping from 12 to 15 meters. Without appropriate measures being taken immediately, the level of groundwater in Can Tho City and other provinces in the region is expected to be completely exhausted by 2014. Statistics from the Ministry of Natural Resources and Environment (MNRE) show that about a million bore wells 10 to 300 meters deep are in use in the Mekong Delta region. The southern most province of Ca Mau has as many as 178,000 wells, followed by Bac Lieu Province with 98,000 wells. Furthermore, hundreds of water supply stations are using hundreds of cubic metres of groundwater daily. Many towns in the region, including Ca Mau, Bac Lieu, Soc Trang and Tra Vinh, extract groundwater for domestic use mainly. Residents are also using groundwater to irrigate rice fields, orchards, vegetable gardens and aquaculture (Dr Duong Van Vien of the Water Resources University-2nd Base in HCM City, VNS 4/23/09).

UNICEF was the first to introduce wells to Tra Vinh late in the 1980s to address fresh water shortage for domestic use. Throughout the 1990s, improved income together with reduced costs of drilling a well enabled more households to have their own wells. The cost of digging a well has reduced significantly especially measured in gold value. In the 1990s, a teal of gold (cây vàng) cost only 350,000 đồng ($22). A well cost two teals of goal. Today, the same amount of gold is worth over 22 million đồng ($1,375), whereas the drilling of a well is less than two million đồng. The affordability of wells has resulted in a steady increase in the number of wells. In the village of My Quy, for instance, in 2006 and 2007, some households still had to share a well with others. By 2009, except for a few poor households, almost every household owned its own well. Some households had up to three wells to supply water for watermelon as their main cash crop. This rapid increase in popularity of local wells is responsible for the rapid fall in groundwater level. A My Quy farmer observed:

When the UNICEF started to drill wells here, drilling only needed to go less than two feet below the soil to touch plenty of water. Now you have to drill 16.4 feet.

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deep. I am afraid that when the rice season comes, there won’t be enough water because the canal has been converted to shrimp farming and contains no rainwater. Before the conversion to shrimp aquaculture in 2000, there was enough fresh water for cash crops. Some people even planted fruit trees. Ever since the water gate was open for shrimp farming, there is no fresh water supply for agricultural farming.

Exploitation of ground water for daily consumption is one thing, but using the same water source for agriculture and aquaculture production is another. In Tra Vinh, cash crops (cây màu) are a major groundwater user. Watermelon, bitter gourds and beans all consume a substantial amount of water daily. Watermelon needs three rounds of watering while vegetables require two rounds a day. However, the greatest consumer of groundwater is no other crops, but shrimp aquaculture a practice found elsewhere. In Taiwan, the farming of black tiger shrimp requires a lot of groundwater to achieve desirable salinity level in the pond. This has led to groundwater levels to decrease threatening to empty aquifers and increase salinization of adjacent land and waterways (Ronnback 2002: 9). Likewise, Tra Vinh farmers also believe that groundwater provides the ideal salinity level for shrimp farming. Since groundwater is free, many farmers have dug wells, an option more economical than spending on chemicals. A farmer explained how this works:

For my six shrimp ponds, I have dug four wells for a million đồng each but it is worth it. Groundwater provides a very good source of alkalinity for the shrimp; it is better than the products to maintain the alkalinity level in the water we find in the market. (Male shrimp farmer, Long Thanh, July 2007)

*Salinity and Acidity*

Salinity and acidity have been constrains to agricultural productivity in Tra Vinh coastal areas. In Duyen Hai, only within the past few decades, agricultural farming declined in
both area and productivity. For instance, 79 percent of Duyen Hai’s agricultural land (60,000 ha) was used for only one rice crop annually in 1992 (Hopkins 1995: 5).

Intensified salinity in recent decades has forced many households to give up agricultural farming. Some coastal communes in Duyen Hai reported a loss of between 50 to 90 percent of their paddy fields during a course of 30 years (Hopkins 1995: iv). However, until mid-1990s, very few raised natural shrimps, crap and fish (Hopkins 1995: 23), suggesting the abundance of wild fish, shrimp and other aquatic species, but also an absence of a market that could absorb these resources. Cau Ngang district, which was less affected by salinity and acidity, could cultivate one rice crop annually during the rainy season. Between 1990 and 1995, substantial investments from the government and international organizations were made to improve local irrigation systems, soil conditions, and facilitate rice intensification. Among these was the South Mang Thit Water Resource Development project funded by the World Bank. Unfortunately, the shrimp boom contributed to reversing the purposes of these investments making coastal areas even more prone to salinity and acidity. A farmer observed the spreading of salinity intrusion on his soil as follows:

This land [pointing to the shrimp farming area in front of his house] will probably last another three years. Then we have to move on and look for land elsewhere if we want to continue farming shrimp. Here, salinity intrusion spreads quickly. Right before the shrimp boom, the mango trees bore many fruits. Now, there are no more fruits. Many people think that salinity intrusion cannot spread so rapidly, but in fact, salt water penetrates the soil from below. It is too saline that nothing can grow. Across from my house, on the other side of the dike, a rice field has been destroyed. People are shifting to shrimp farming. We have no choice but to accept it. Sooner or later, the soil here will be barren, as it has been the case in many other [shrimp farming] countries. There is nothing you can do about it. (Male shrimp farmer, My Quy, May 2007)
Where the value of land is associated with the economic values of local crops, the shrimp boom cannot help but contributed to fluctuations in land prices. In My Quy, soaring land prices at the peak of the shrimp boom tempted many to sell some of their land for 15 million đồng (937 USD) a công, double the prices before the shrimp boom. In recent years, instability in the shrimp industry has caused land prices to fall.

Whereas in the past, land was valued for its suitability for agricultural production, today, land prices are assessed based on its suitability for shrimp farming. Land that has yielded good shrimp harvests fetches a higher price than ponds and farms where shrimp farming has failed. Shrimp farmers and investors also look for land with better access to river water, which can save them expenses that would otherwise be spent on running motor engines for pumping water into ponds from a distance. It is also believed that agricultural land is better for shrimp farming since the soil is still pure and that guarantees initial successful harvest. The local wisdom of “shrimp on new soil; rice on old land” (tôm đất lạ, mạ đất quen) fueled the spreading of shrimp farming into agricultural areas.

The hunt for “fertile” land for short-term commercial investments has not been free of problems. Investors who failed turn to renting land instead of purchasing their own land to build a shrimp farm. Rich farmers and investors seek to rent ponds and farms that have already been dug. This saves them the costs of clearing the land and building a shrimp farm from scratch for a lower investment. It is clearly a buyer and renter’s market where many who failed are desperately for someone to rent their land. A farmer in My Quy shared his agony of this dilemma as follows:

For the coming season, we are not going to farm shrimp but rent the land out. The households in the neighborhood are considering to do the same. Renting 10 công
(2.4 acres) of land for 3 years costs only 15 million đồng (937 USD). If you buy land, it is 15 or 16 million đồng per công. You also have to make extra investments. That’s why investors now prefer renting to buying land. Renting land is not only reasonable but also a more convenient option because you can leave whenever you want, not having to deal with finding another buyer for your land. Land renters are fully aware that after farming shrimp for a few years, when the shrimp start to die [of diseases], the land has also become more contaminated. (Male farmer, My Quy, July 2007)

The ease at which land can be bought, sold, rented out for any purpose means the long-term consequences of shrimp aquaculture will certainly passed on to landowners. Renters bear no responsibilities at all after taking the most out of the land for short-term benefits. Unlike agricultural farming where one can try out with different crops, land that has been exhausted by shrimp farming is unfit for agricultural purposes. Farmers who have converted land to shrimp farming unsuccessfully have to accept very little for the land or hold on to it hoping for the next best offer.

**Loss of Biodiversity**

For generations, mangrove wetlands and its rich biodiversity help to fulfill important economic needs of coastal populations. The richness of Vietnam’s wetland can be discerned from a study by Phan Nguyen Hong and Hoang Thi San (1984) that documents “78 plant species… in the *melaleuca* forest… of them several species served as medicinal and other use to the local communities. The Dat Mui mangrove forest possesses 21 plant species. Most of them are valuable resources for construction, charcoal, firewood, tannin, medicine, forage, and fuel. There are 51 plant species living in the mangrove forests from all over the country.” Mangroves maintain an integrated ecosystem of rivers, canals and creeks that supply a rich source of fuel, charcoals, bark, wild fish, shrimp and craps for
the well-being of the local population (Phan Nguyen Hong and Hoang Thi San 1993). Likewise, the Tam Giang Lagoon in Hue wetland used to provide local residents with a high living standard (Phan Nguyen Hong and Ogino 1996: 78).

Mangroves of the Mekong Delta have also supplied a wide range of goods and services essential to local livelihoods. Nipa and trà là, two of the most common mangrove species were used for housing construction. Trà là has a rough and durable trunk that is used to build frames in housing construction. The leaves of nipa, or diều nước, are used widely for roofing and walling. The plant has leaf panels resembling the coconut with long stamps stretching from its trunk all the way out to the muddy water a couple of meters away. People collect these leaf panels, dry and panel them into sheets used for roofing. Nipa leaf panels are also used to build walls and create partitions in housing construction. In the past, making nipa leaf panels was a source of livelihoods for the landless in the region. Some even migrated locally and make a living by renting land from which to harvest nipa leaf panels and sell them. Today, these leaves are becoming less popular, partly because of nipa plants have been cut down along with the excavation of mangrove forests and partly because of the emergence of new and modern construction materials. However, even though modern brick buildings are replacing thatched houses, local people prefer thatched roofs over concrete ones since it is the best material to protect them from the heat during the hottest hours of the day.
Changing Resource Regimes and Endangered Livelihoods

Since the beginning of the shrimp boom early in the 1990s, rapid land clearance for commercial farming has meant degradation in common-pool resources. In the beginning, mangrove clearance and canal digging started to penetrate the wetland ecosystem. This process enabled many households to obtain their red books, which enabled them to determine use of their land and access bank loans independently. Agricultural farmers were no longer restricted by the production decisions levied from the provincial and district authorities. However, since shrimp farming and digging of ponds were still done mostly manually, it took a household in Hiep Thanh, for example, four to five years to clear a hectare of land to complete the formation of a shrimp farm. The absence of mechanization and other modern technologies in shrimp farming and the use of low-input during this period explain the high success rate in the beginning.

Since 2000, under the rubric of agricultural restructuring and promotion of a farm economy, incentives such as tax reduction, interest-subsidized loans, and new technologies have been introduced to promote large-scale farming. Each year, more and more mangroves have been cut down for shrimp farming. Shrimp has also extended beyond mangrove areas into agricultural land competing for resources that were once the monopoly of agricultural production. The shrimp boom also attracted waves of supporting businesses to the province. Hundreds of hatcheries were born during this time to meet local demands for shrimp fries; dozens of industrial feed and chemical suppliers for use in shrimp farming set up their presence in Duyen Hai district. Used excavation equipment imported from Japan rapidly replaced manual labor.
The damages to the ecosystem caused by major changes in production systems, especially as a result of the shrimp boom, have led to the loss of many traditional livelihoods. Many residents in Duyen Hai are still nostalgic of the abundant fish supplies that were used for compost. Wild fish also helped many households maintain a living on đóng đáy, the most common fishing technique involving nets at fixed posts in the rivers. **Đóng đáy** season usually starts in April and ends in November. Early in 1980s, each đáy could harvest as much as 10 tons of fish each season. In 1983, Minh Hai province (Ca Mau) had 4,500 đáy, Cuu Long 2,400, Ben Tre 1,250, Tien Giang 1,000, Hau Giang 800, Dong Thap 545, An Giang 420 and Kien Giang 360 (Nguyen Cong Binh, Le Xuan Diem and Mac Duong 1990: 296).

In Tra Vinh, đáy farmers have to watch tidal waters to set the nets in the river. This is done twice a day. However, đóng đáy households make most of their income during tidal waters (con nước) twice a month according to the moon cycle, during full moon and at the end of the month when tidal waters bring the largest catch. Recalling the time when her family had just arrived in Hiеп Thanh, a woman from a đóng đáy family said:

> Oh my god! You wouldn’t believe how much wild fish there used to be. Each time we removed the net from the water and released the catch on the mud floor, I had to jump on the bed. Just one catch would fill up the floor with fish, shrimp and crabs. The crabs would crawl all over the place. I had to sit on the bed to avoid their attack. We then collected only the big ones, letting the small ones run off. [Sigh] Now hardly any fish are left. This profession is dying. (Shrimp farmer, 47, Cay Da, November 2006)

Having relied on **đóng đáy** for many years, she estimated the loss of wild catch as follows:
Three years ago, each period of tidal water (con nước) could bring about 2 to 3 million dông (over a hundred USD). Now if you are lucky, you fetch half that amount. In the past, the tax for đóng đầy was 100,000 dông for each fishing post. Now that there is not enough fish to catch, the government has decided to reduce the tax on đóng đầy. Probably we have lost about 70 percent in wild fish. The use of chemicals in shrimp farming must have killed off wild fish in the water creeks. Because wild fish and shrimp live in the mangroves, cutting down mangroves is like destroying their life support. (Shrimp farmer, 47, Cay Da, November 2006)

Local residents’ observation of declines in wild fish was supported by a more systematic count documented by the province:


Declines in the total volume of wild fish caught might be attributable to the increasing number of ships engaged in fishing. The number of ships in 1991 doubled that in 1981. Vessels increased in number as well as capacity. Still, the total catch fell, from 41,460 tons in 1980 to 37,200 tons in 1991. The number of ships engaged in 1995 almost tripled that in 1992. Even so, the catch increased only by 1.58 times, from 38,500 tons to 60,668 tons. The volume of fish caught did not improve much by the use of fishing nets that could go as deep as 30 meters, three times the usual fishnets (VNRP 1995: 43-5).

Hiep Thanh farmers are thoroughly aware of the decrease in wild catch following the shrimp boom that have resulted in loss of income for fish folks in Ap Cho and households across Hiep Thanh commune more generally. Together with the loss of wild fish, many traditional professions associated with wild fish have also disappeared gradually. However, in spite of the drastic decline in the volume of wild catch, local farmers indicated the continuing importance of wild catch as a source of subsistence and
cash income. Asked where a household finds income to meet daily needs in the midst of widespread shrimp disease outbreaks, most farmers in Hiep Thanh cited wild catch. People continue to collect wild fish in common waterways, creeks, canals and rivers. Although these sources are often hinted at as “insignificant,” income provided by them fills basic household needs, such as rice, vegetables and salt. In many instances, incomes from harvests during tidal waters are used as a form of collateral for farm households to purchase daily food and consumer items on credit in local markets.

In My Quy, where wild fish are scarcer than in Cay Da, Hiep Thanh, disease outbreaks were particularly hard hitting for local farm households. Farmers have come to realize that with input prices soaring, and output prices falling simultaneously, shrimp farming is no longer profitable even after a successful harvest. A farmer in My Quy explained the situation as thus:

For some reason, shrimp farming has not been successful. But even when you have a good harvest, you are forced to sell them for a lower price. Shrimp can no longer fetch the same profit it used to. In the past, profit was 80 percent; now the maximum profit is 50 percent. The price for everything, including renting a Kobe excavator, seed, feed, and chemical supplies, has gone up. After making all this investment, there is no guarantee that you will be able to earn a profit from a successful shrimp harvest. The way the prices are changing, probably very soon farming shrimp will no longer be profitable. (Retired farmers, 74, My Quy, November 2007)

Within the Long Thanh Industrial Zone, local residents voiced their anger over the prospect of permanently losing their livelihoods. A woman, who had moved to the area a few years before the construction of the zone said, “Ever since the industrial zone was set up, not a single fish can be found.” Frustrated by drastic changes in the environment as an outcome of the construction of the industrial zone, a resident of the Long Thanh
Industrial Zone who happened to be a successful shrimp farmer emphasized the severity of the damages that the industrial zone has caused to the environment. Asked whether he would trade the infrastructure put in place thanks to development of the industrial zone or a more benign and abundant natural environment, he said he would rather “choose the abundance of fish and shrimp supply [in the past] over the new road and access to electricity [that have been invested in the industrial zone]. Ever since the zone came into operation in 2003, the fish has also gone. [Shaking his head] I don’t know why.”

**Negotiating Resource Use**

Political ecologists attribute sudden and abrupt reforms and changes in resource use and the surge in individualism to be manifestations of social crisis (Peluso and Watts 2001). Where everyone does not benefit equally from the use of natural resources, unequal access to these resources become the foundation for violence as people react to economic insecurity. In Vietnam, rural conflicts over natural resources are well-known in rice farming areas, where a village had to guard its rice granaries from outside predators (Rambo 1973: 202). However, Rambo (1973: 251-252) also noted how resource scarcity determines the severity of social conflicts. In the North where the number of people per acre of arable land was greater, inter-communal conflicts were prevalent. In the South, conflicts tended to occur between two or more factions within a single village under the guise of religious or political differences rather than on land. The current situation in Tra Vinh somewhat transcends both these areas. Differences in productive resources such as land, water, labor and capital have become intensified by inequality in social and political
power. In Tra Vinh, social conflicts have been severe not only between rice and shrimp farmers, but also between local villagers and investors coming from outside. As a potentially profitable investment, shrimp aquaculture became the ground for competition among social groups whose ability to take advantage of the shrimp boom markedly differ due to the differences in their ability to make the investments required of the industry. Naturally, the aggressive conversion of natural resources to a production strategy that benefits only a small number of wealthy and politically powerful actors did not go unnoticed. Indeed, it has caused anger and jealousy among local people.

Rice or Shrimp

Across the shrimp farming areas of the Mekong Delta, conflicts have been most overt between rice and shrimp farmers. Like other provinces in the region, Tra Vinh's attempts to reconcile the needs of rice and shrimp farmers have only deepened conflicts among those involved. Since shrimp aquaculture requires brackish water while agricultural farming needs fresh water, a solution that is fair to both is really nonexistent. The priority given to one entails compromise of the other. As it happened in coastal areas of Tra Vinh, excessive focus on commercial shrimp farming has overshadowed other livelihood options, especially rice and agricultural cultivation. Likewise, where the focus is on rice farming, shrimp aquaculture does not get the needed policy and infrastructure supports

80 Some Like It Salty, Some Like It Not, Reporting Agriculture for the 21st Century reports the complexity of the water system in the Mekong Delta. A project implemented by the International Rice Research Institute in collaboration with University of Newcastle upon Tyne, ICLARM – the World Fish Center, Can Tho University, Department of Agriculture and Rural Development of Bac Lieu Province, Sub-Institute of Water Resources Planning, and the Integrated Resources Mapping Center. The UK Department for International Development is contributing to the cost.
for growth. For example, under the *Quan Lo Phung Hięp* Water Resource Development Project, 13 large sluice gates were to be constructed to prevent salinity intrusion to the benefit of thousands of rice farmers in Ben Tre and Bac Lieu cut off access to brackish water for shrimp farmers (To Phuc Tuong 2002).

Due to the unmatched profits in shrimp aquaculture, it became the most powerful argument for local government officials, investors and even local farmers to justify its costs. Instead of taking measures to control illegal activities such as cutting down mangroves, excavating soil to make way for shrimp farming in agricultural areas, and converting irrigation systems to supply water for shrimp farming, local authorities often accepted the status quo and even endorsed it quietly. In My Quy, at the height of the shrimp boom, the desire to convert agricultural land and irrigation systems to farm shrimp was so forceful that farmers who did not want to do so had no choice but join the crowd. This latter group was coerced to shift to shrimp farming. To accelerate the process, the province decided to use the sluice gates, initially built to supply fresh water for rice cultivation under the South Mang Thit Water Resource Development Project, to supply water for shrimp farming. A farmer in My Quy explained the collective coercion on agricultural farming households:

> There is only one small canal, if you let salt water in, how can anyone grow rice? In the dry season, salt water rises and penetrates the soil. The rice farming area has become too salinized that it burns when the sun is up high, flushing the acidity to the side. The drainage (*cống*) of the canals has been broken for months now. Although the authority is aware of the damage, nothing has been done to fix it yet. Before the shrimp boom, people without capital could make a living renting out labor. Now that we have shifted to shrimp farming, those without capital to invest in shrimp farming are stuck. Many of us can only farm shrimp on a small scale for fear of failure, in which case we cannot find money to pay back loans. So in 2000, a meeting was organized to seek consensus on the shift of paddy land to shrimp farming. By the time we shifted 10 *cong* of our rice land to shrimp farming, about
80 percent of the villagers had already shifted to shrimp farming. When the desire around you is so forceful, you have no choice but to follow suit. (Watermelon farmer, 52, My Quy, June 2007)

My Quy is where shrimp farming has only benefited a small number of households, who took over the water canals once used for agricultural farming. Since 2000, the transfer of the irrigation system to serve shrimp aquaculture made it all the more difficult for rice farmers to make a living from their land. Most agricultural farming households had no choice but to drill wells for groundwater. On the other hand, shrimp producers not only benefited from the use of the irrigation system, but also flush contaminated water back into public waterways, polluting the whole environment with bacteria and chemical residue while intensifying salinity intrusion in the agricultural area. Economic pressure resulting from lost investment in shrimp farming led farmers to intensify the environmentally destructive enterprise even further. In January 2008, when I last visited My Quy, shrimp farming had continued to encroach on agricultural farming areas. Some farmers had even dug ponds on their remaining rice land for shrimp farming without any consultation with their neighbors causing conflicts and arguments among neighbors.

_Shrimp, Fish, or Crab_

The competition for land, water, mudflats and natural resources for the culture of different water species simultaneously, though less visible, has also intensified in Hiep Thanh commune where agricultural land is too small to be a problem. While those with agricultural land were under pressure to convert it into shrimp ponds, most of the loss of
common-pool resources took place in mangrove areas during the peak of the shrimp boom between 1990 and 2000. The lack of recognition of the economic and social roles of the commons has meant that people are free to pursue production strategies that are environmentally destructive without taking into consideration the negative consequences on local livelihoods and well-being. It was not until 80 percent of the mangroves had been cleared that local people came to realize the value of the mangroves and that the integrated system of mangroves, rivers, canals, estuaries and waterways was declining and no longer able to supply the same services it had. Shrimp aquaculture not only affected fish folks in Ap Cho, but shrimp farmers in other villages as well. Mangrove cutting, soil digging for the construction of ponds, excessive use of chemicals and dredging of ponds together form a cycle of disruption to the living environment. Intensive exploitation of the ecosystem has damaged the breeding ground of wild fish and resulted in declines in the fish population. By 2008, when I returned to Hiep Thanh, even clams, which were thought to be the most sustainable investment due to low input and minimal cost for maintenance, could not survive the waves of ecological disruption. In their search for an ideal farming model, households in Hiep Thanh have alternated shrimp, fish, crabs and clams. Among these, clams were found to be the most low-input/high-profit investment. In 2003, such an assessment led Oxfam Great Britain to launch an initiative that supported the formation of three clam clubs in Hiep Thanh commune with an investment of £22,465. The project was considered a major success as stated in an Oxfam report:

The profit generated in 2004 has already exceeded the management and training costs for the project. Profits in the coming year, when the three clubs are all harvesting mussels [clams], are expected to be considerably higher, and will more than cover all the project costs. Mussel farming is certainly more profitable than most other activities that the members undertake, so the benefits for them are substantial. The project is also making a contribution to bringing about the wider changes that the program aims to achieve (Oxfam 2005).\(^{82}\)

The ease at which clam farming became a success story fueled its replication to other mudflats areas in Duyen Hai, intensifying competition in mudflat areas. From the initial idea of “pro-poor” clubs to help curb local poverty, clam clubs became the target for politically and financially powerful investors, most of whom are government officials at the district, commune and village levels. They dominate this investment opportunity by buying out shares from poor households, who could not find the money to invest in clam farming themselves.

Social Vulnerability

Economic and social goals can hardly be complimentary. Where competition for resources and economic gains intensify, social conflicts appear inevitable. When I returned to My Quy in July 2007, everyone was eager to share with me a recent incident in which three village boys under eighteen got together and broke into the largest industrial shrimp farm in the village. The farm was initially shared among three government employees in Tra Vinh town with an investment of over a billion dông. However, after failing two seasons continuously, the farm was sold to a new owner, also

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a government employee. Under the new owner, a fence was put up to protect the property. That night, the boys stole a large roll of cable several hundred meters long. Unfortunately, for them, since the cable was too heavy, they failed to move it out of the vicinity and had to leave it in the middle of a nearby rice field. A villager witnessed the event and reported it to the police, leading to the arrest of the boys.

This incident was just one among dozens of violations of shrimp farming properties in the area. For industrial shrimp farmers, tension was rooted in their fear of “bad luck” that is perceived to be the cause of disease outbreaks and investment failures. In other words, their vulnerability is defined by their perceptions of potential dangers in the environment. Agricultural and subsistence farmers, on the other hand, encountered a different set of challenges as they attempt to maintain a subsistence livelihood. In Hiep Thanh, with extensive shrimp farming failing to maintain the initial profit level and disease outbreaks becoming more frequent, farmers anxiously sought substitute incomes. While it is undeniable that no other income sources could compete with shrimp aquaculture in terms of profit volume, Hiep Thanh residents could still rely on the farming of fish, crab, and clams. In My Quy, due to limited agricultural land, households have fewer livelihood alternatives.

Social vulnerability among farming households is rooted in crisis in the commons as a result of changes in resource use and management following Doi Moi, and especially since the shrimp boom. While claimed to benefit both economic growth and poverty reduction, policy incentives to promote commercial shrimp farming have in fact undermined the resource base for subsistence among agricultural and subsistence producers. In what follows, I will discuss the theoretical linkage between crisis in the
commons and social vulnerability. I will then demonstrate how changes in resource use has undermined traditional livelihoods and intensified social conflicts. Even though poor and subsistence farmers engaged in the “everyday forms of peasant resistance” (Scott 1985: xvi) in responses to the collapse of their livelihood base, it is unclear how such actions contributed to a fairer redistribution of resources.

The diversity of coastal livelihoods is defined by the fact that natural resources such as coastal fisheries and mangroves are shared (Bailey and Pomeroy 1996). For generations, mangroves along the east coast of the Mekong Delta formed an ecosystem rich with biodiversity and provided local people with a wide range of goods and services. As discussed earlier in this chapter, modifications in the ways resources and mangroves are used and managed in recent years has resulted in declines in the quality and quantity of these common-pool resources. By focusing on the production of a high value export commodity such as shrimp, this growth strategy has often overlooked the values imbued in the linkage between social relations and the natural environment. Peluso captures such dynamics in the concept of “bundles of rights” as thus:

The “bundle” served the purpose of showing that property was a relationship among people rather than between people and things. As a set of social relationships, the processes and outcomes of allocation and distribution could be understood as dynamic and mutable. A bundle implied that there were lots of rights adhering to a particular resource and that these did not have to be held by a single person or group. The emphasis of bundles was on modes of cooperation; it showed that multiple rights could not be held by different people who could come to terms about access use (Peluso 2005: 5).

Negligence of “bundles of rights” and the intimate relationship between the environment and social relations demonstrates a common feature of neoliberal policies, which are supported by the logics of property privatization, liberalization and removal of
state intervention as ways to promote productivity and growth. However, such policies have often overlooked their social effects. As it has been well documented, privatization facilitates the encroachment on the commons and limits access to scarce resources to only a small number of powerful and external actors with state sanction (Mansfield 2007). Commercial shrimp aquaculture in Vietnam’s Mekong Delta is a case in point. In the search for high value and profit, shrimp aquaculture has appropriated the commons. Here, crisis in the commons implies the “collapse, disaster, or major re-organization” (Lebel et al. 2006) not only of natural resources, but social relations. Ultimately, crisis in the commons is a social crisis as changes in resource use violate the common livelihood base. In extracting resources for shrimp aquaculture, this growth model inevitably hurt those households who are not involved in shrimp farming. Social vulnerability can be understood not only in terms of how people perceive threats but how risk perceptions are translated into actions that undermine social relations and communal bonds that are the foundation for social buffer.

*Everyday Forms of Peasant Resistance*

A study conducted by the Environmental Justice Foundation (EJF), a London-based environmental NGO, shows a rise in violence across communities that have been affected by the shrimp boom. Violence associated with shrimp farming takes myriad forms. For example, in Bangladesh, shrimp farming was linked to murder, kidnappings, bomb attacks and rapes (EJF 2004). Shrimp farmers in Thailand and Honduras, on the other hand, have experienced physical abuses and murders (Vandergeest and Stonich 2001).
In rural areas, informal institutions comprised of reciprocal social relationships, kinship and communal networks, affiliations, associations, personal relationships and collaboration provide a safety mechanism. These institutions are essential for obtaining livelihood security, mitigating risk and strengthening assets (Bebbington 1999; Wood and Salway 2000, Moser 1998). They facilitate a household’s access to opportunities for diversifying income (Christoplos 2004; Scoones 1997; Hussein and Nelson 1998). It is through these channels that households are able to find entrance into short-term opportunities such as seasonal migration to obtain income from off-farm sources (Bryceson et al 2000). These very same institutions enable communities to deal with environmental degradation, lost income, and shrinking livelihoods (Scott 2001; Sikor 1999; Lijestrom et al., 1998). However, while local social networks provide important buffer for farm households, these may be undermined by the use of “everyday forms of resistance” (Scott 1985) in dealing with economic stress.

Coping strategies that resort to mechanisms outside of traditional social institutions, or “passive non-compliance forms of resistance,” are characteristic of coping strategies among the poor and marginalized. They represent “a vast and relatively unexplored middle-ground of peasant politics between passivity and open, collective defiance” (Scott and Kerkvliet 1986: 1). Farmers affected by the shrimp boom seek outlets in low profile strategies such as theft, malicious gossip and mourning. These are the “ordinary weapons of the powerless” (Scott 1985: xvi) who try to defend their interests against extractions of their livelihoods may well be the reason for blame. However, the lack of planning or coordination and avoidance of confrontation with those in power may leave long-term consequences.
According to Luttrell (2005), the use of “ordinary weapons of the powerless” (Scott 1985: xvi) implies certain dangers. Studying two communes in Ca Mau and Ha Nam provinces of Vietnam, she demonstrates how enclosure of the commons including mangroves and mudflats that have long been open-access resource into a forest enterprise has deprived local gatherers access to resources critical to their survival. Local people used to carry out low-intensity exploitation of marine and mudflat products. However, many of these investors contracted to exploit resources within the forest enterprise actually migrated from different provinces to the area. Such change in property rights was made possible due to uncertain rights and legislative status of open-access resources. In dealing with declined livelihoods and defending their position, local farmers in Ca Mau utilize weapons of the weak such as the subversion of official property rights, theft, and other acts of violation of private properties. These strategies may help to deliver their messages, but without legal backing, they may also threaten to weaken their positions.

In Tra Vinh, crisis of the commons unraveled in different ways. The shrimp’s proneness to diseases and indebtedness, and threats of losses from thefts, intensified social contention and insecurity. Suspicion, jealousy and mistrust became a barrier separating shrimp farmers from non-shrimpers, local people from outside investors, and winners from losers. In recent years, villagers reported increasing number of violations of shrimp farms and their properties. Thieves typically target shrimp ponds ready for harvest in the night. The shrimp in these ponds should be over three months in age and thus be large enough to fetch a good price in the market. A thief needs no more than thirty minutes to steal 100 kg of shrimp. Apart from shrimp, thieves also targeted farm equipment such as motor engines, cell phones, even livestock and anything of value.
Even in Hiep Thanh commune where the land is vast and few outsiders could penetrate it easily, violations of people’s farms have become more common. Local people are convinced that the thieves are not strangers but jealous fellow villagers. Otherwise, there are no convincing explanations for how strangers can know the area well enough to navigate local paths and steal a dozen of pounds of shrimp just within minutes.

The Long Thanh Industrial Zone has not been able to escape similar circumstances. The boundary created for industrial shrimp farms has also become a fence dividing local landless farmers and shrimp farm owners. The former is comprised of about 40 households having no land to farm and have to make a living on fishing (đồng đáy). Among these, many supplement their income with the harvest of wild catch (đồng lú đào) in public waterways. The construction of the industrial zone also meant the cutting off of their access to common waterways, canals and creeks. Driven off these commons, these local farmers are now forced to exploit the buffer zone beyond the dike. Those who practiced đồng lú đào have come under the watchful eyes of farm owners who openly express their concern about the danger posed by this group of mobile fishers. Unfortunately, the unrecognized value of commons has assumed dismissal of the rights of those who depend on them.

In the village of My Quy, the divide is most visible between shrimp farmers and traditional agricultural farmers. Skeptical of the risks from outside, shrimp farmers maintain a small circle of close kin and neighbors. Many are suspicious of others for fear that their own neighbors either do not tell them the truth or hide information from them. Social conflicts, whether in material or non-material forms, indicate deterioration in cultural values and mutual respect. A woman sees the rise in theft as a response to the
arrogance of the new manager hired to supervise the largest industrial shrimp farm in My Quy:

No fence can protect your farm. The fence is in your mouth. If you do not treat people with respect and are not careful about the way you talk, certainly people are not going to like you. Look at the previous manager. He was very good with the local people here. That is why even though the farm had no fence then, and all the machines were laying around, nothing was ever stolen. (Woman farmer, 64, My Quy, November 2007)

For shrimp farmers, the high incidence of theft is simply explained as a manifestation of jealousy as the “tied buffalo hating the grazing one” (trâu buóc ghét trâu ăn). Failed farmers avenged successful ones out of jealousy. Whatever the explanation may be, the increasing incidence of theft has only led farm owners to be more cautious and suspicious than ever. In areas where industrial shrimp farming dominates, people make every attempt to stay away from others’ farms. Villagers avoid visiting neighbors as well, especially during nighttime. In the village of My Quy, social division is most visible between shrimp farmers and traditional agricultural farmers. Shrimp farmers maintain only a small circle of acquaintances for their own safety.

Another category of “ordinary weapons of the powerless” is self-inflicting strategies such as alcoholism and domestic violence (Cruz-Torres 2001). In Tra Vinh, shrimp farmers who have failed often take to drinking as escape. Although drinking is common and popular medium for social bonding especially at social event such as weddings and funerals, excessive drinking has become seen as the cause of conflicts within households and even among local villagers. Drinking out of frustration with economic failure among some shrimp farmers is recent. Among frequent drinkers, their drinking habit has also been accompanied by domestic violence, quarrelling and fighting
among neighbors and friends. Many women in my study complained that their husbands’
drinking habit was the cause of poverty and unhappiness in their families.

Moral Economy in Global Economy

There is an entire range of networks and institutions outside the immediate family
which may, and often do, act as shock absorbers during economic crisis in peasant
life. A man’s kinsmen, his friends, his village, a powerful patron, even - though
rarely – the state, may help tide him over a difficult period of illness or crop
failure... It is important to note that the more reliable each of these options is, the
more resource-poor it tends to be (Scott 1976: 27).

Many features of the traditional moral economy in Southeast Asia continue to
exist in the Mekong Delta today. Miller (2003: 322-323) finds that in the Mekong Delta,
after kin networks, people turn to their neighbors for loans of rice to see them through
difficult times. In Tra Vinh, assistance can still be found among kin networks and close
neighbors in rice transplanting and harvesting, in housing construction, and for important
family events.

Weddings and funerals are more than just opportunities for social gathering. They
are occasions when mutual assistance is called upon, to reciprocate favors in cash or in
kind. Friends and family members are obliged to make financial contributions to help the
host family cover expenses for the event. And they are expected to reciprocate prior
favors received from them. It has been the norm that even if one cannot attend a wedding
in person for some reason, an envelope should be forwarded to the host family. The
emphasis on righteousness (tinh nghĩa) and norms of reciprocity does not mean that the
size of financial contribution is unimportant. In 2006 and 2007, depending on one’s
economic situation, contributions ranged from 20,000 dông (1.3 USD) for the poor to 50,000 to 100,000 dông (3 to 6 USD) for the better-off and rich. Contributions in smaller amounts are acceptable for the poor and older people. It is an unstated rule that family members spend a couple of days to assist with the entire duration of the event. The host can also seek help from shopkeepers in local markets by getting supplies on credit.

Settlement of these “loans” is expected as soon as an event is over. Such arrangements are common among villagers in Tra Vinh. People purchase basic supplies such as rice, food, gas and other basic necessities on credit. These “loans” are settled as soon as they secure money from other sources, usually in a few days. However, these measures only exist in very small circles of kin and neighbors.

Labor exchange is less common in the production of other cash crops for sale. For watermelon cultivation, people hire labor in the beginning of the season for transplanting (giáp dưa) since this task is considered the most difficult and cannot be done by everyone. Some even hire labor to help with watering the melon later in the season. In shrimp farming, the use of hired labor is more exclusive, especially among large farm owners. Mutual assistance is only found among very close kin and family members for smaller scales of operation on a pond or two. When such a farm is managed by the owner himself, male labor would be called on for digging ponds and building drainage. Female labor is only needed during harvest time. Although these may be considered “help,” compensation in cash or in kind is common. These households usually use the assistance from very close family members.

Labor exchange (đàn công) is a common feature in rice cultivation. People receive help from close kin and neighbors in transplanting and harvesting. In Tra Vinh,
the exchange of labor is still common among rice farming households due to the understanding that such assistance is to help ensure a household’s subsistence needs. On such occasions, the host provides food and water for those who come to help. In return, the host should anticipate to return the favor when called upon for help with others’ rice farming activities.

| Table 8.1 Moral Economy in Global Economy |
|-----------------|-----------------|-----------------|
| **Institutions** | **Production** | **Others**       |
|                  |                  |                  |
| **Formal**       |                  |                  |
| Government policies | Policies reforms and other incentives to promote farm economy, large-scale production, and industrial shrimp farming target mostly the rich and better-off. | The poor receive other packages under the government 135 program and others towards poverty reduction |
| Incentives       |                  |                  |
| Assistance       |                  |                  |
| Charity          |                  |                  |
| Investment       |                  |                  |
| **Informal**     |                  |                  |
| Cooperation      | Labor exchange still exists in subsistence farming but is not replicated in cash crop production, especially in commercial shrimp farming. | “On credit” purchases of food and household items among local traders and villagers. This form of reciprocity exists across social groups. |
| Reciprocity      | Households with extra land sometimes let other relatives lease for a lower price. | Kin and neighbors provide loans in cash and in-kind on important family occasions such as weddings and funerals. |
| Exchange         | Kin and neighbor provide small and short-term loans without collecting interest. | Local credit groups run by women provide short and long-term loans to members. |

Although the commercialization of social relations as an outcome of a market economy has long been feared to compromise traditional moral values of peasant society and the “faith in the collectivity and the necessity to subordinate individual interest to the
greater good” (Elliott 2003: 17), changes in the social structure and an increasing divide among social classes as a result of the changes in production organization in a market economy have become inevitable. Remarking on the impact of the American Commercial Assistant Program during 1954-1975 on local cultural values and behavior, Tran Van Giau, a major Party figure, said:

Commercialization also created a mentality of running after self-interest on the part of the small peasant proprietors and tenants who never – or hardly ever – used to think of self-interest. Whenever the mentality of “for profit” advances, the mentality of “for righteousness” retreats. How can it be avoided? People from the Nam Bo countryside who return after being away for two or three decades cannot help but feel pained when they notice this phenomenon of psychological degeneration!” (cited in Elliott 2003: 16).

History repeats itself. Economic liberalization has also made rural Mekong Delta more dependent on outside markets for consumer goods and for an outlet for their produce. However, modernization has had greater impacts on the older generations than younger people who are bombarded with images of modernity through local media. Underlying this process is the transformation in traditional cultural values. An elderly in Cay Da described the loss of traditional values using the metaphor of the button-down shirt being replaced by the t-shirt. The shirt buttons are a symbol of social hierarchy. With the t-shirt, one can just pull it down without the hassle of closing each button. Young people may prefer the t-shirt for its convenience, but by endorsing the new fashion, one discards traditional social orders and shows less respect for their elders.
Conclusion

This chapter has demonstrated the dynamic interaction between environmental, economic and social changes in Tra Vinh since Doi Moi. Since soil, mangroves, biodiversity, wild fish, waterways, groundwater and agricultural land are all intimately linked within an ecosystem, where a livelihood depends so heavily on natural resources, even partial destruction of the ecosystem can impact local livelihoods significantly. As this chapter has demonstrated, the loss of mangroves has resulted in declines in wild catch and thus increased livelihood vulnerability. Those who rely heavily on natural resources for survival are the most affected by these environmental changes. The environmental risks associated with economic development following Doi Moi therefore have deepened social inequalities.

The unequal exploitation of the commons across social actors means that environmental risks are unevenly distributed. Considering the distinction in the risk perceptions across social groups. While investors of commercial shrimp farming are concerned about the environmental and social causes of disease outbreaks, their own economic activities have contributed to the collapse of the commons and in turn threatened the resource base for subsistence farmers. My fieldwork data indicates that conflicts are rife where industrial shrimp farming dominates and alternative incomes are limited compared to areas dominated by the extensive farming model.

This chapter has demonstrated that environmental degradation associated with the shrimp boom has taken heavy toll on social relations, undermining social institutions that have traditionally been mechanisms for buffer. Reforms towards a market economy
following decollectivization has shifted productive resources from being collectively controlled to becoming the autonomy of the household, and with that, making farming increasingly an individual undertaking. Since both production and consumption have become the responsibility of individual households, market forms in rural areas have weakened the ability of rural communities to organize collectively.

Ad demonstrated in table 8.1, two types of “moral” institutions can be discerned from this study: formal government policies and informal local institutions. The former, comprised of a whole range of macro-economic restructuring discussed in Chapter 4, include policy incentives that exclude the poor. These policies target specifically the rich and better-off farmers and investors who are financially and socially positioned to take advantage of policies that promote farm economy and industrial shrimp farming. The poor can therefore look to an entirely different set of policies designed specifically for poverty reduction under Program 135. The lack of any collaboration in these two sets of policy implies automatic acceptance of the reality that economic development incentives can actually produce poverty and inequality.

On the other hand, some traditional forms of “moral economy” continue to exist. Mechanisms of reciprocity, cooperation and exchange are still be found among kin and neighbors, although these “moral economies” tend to be very localized, stratified and exclusive. However, the imbalance is revealed between the magnitude of risks and challenges under a market economy and the capacity of these local coping mechanisms. “Moral economy” mechanisms may be sufficient to offload short-term food and financial needs, however, their capacities are far from sufficient for handling the risk of indebtedness resulted from failed commercial shrimp farming.
PART 3. CONCLUSION
CHAPTER 9. CONCLUSION

“In the past we were poor, now we are indebted!” This statement, made by a young man during my first visit to the village of My Quy in 2006, succinctly captures the sense of vulnerability among the large majority of farm households that are being pushed further away from their subsistence security comfort zone after waves of interruptions brought about by market reforms. Within a decade, from a sparsely populated, remote and isolated region, coastal areas of Tra Vinh have now become part of the global economy, producing shrimp for export and, in return, consuming imported luxury items. Beneath the visible improvement in material wealth, an abundance of consumer goods, and greater mobility aided by a great number of motorbikes and a more accessible transportation network, is a more stratified social structure. Across the region, there is little doubt that social inequality is on the rise.

Shrimp farming has become a destructive investment as it evolved from an extensive system to industrial farming method. In mangrove-forested areas, following the extensive shrimp farming method with few shrimp fries per square meter of water surface, farmers were able to raise shrimp for a living while enabling the natural environment to revitalize itself. In the second phase of Doi Moi, adoption of the farm economy policy and the promotion of industrial shrimp farming since 2000 initiated policies that allowed for the intensification of environmental exploitation. During the first phase of reform, decollectivization replaced collective property ownership and production; households became the basic production unit; the 1993 Land Law allowed for privatization in land ownership. Property privatization, trade liberalization and the
reduced role of the state together complete a market economy according to neoliberal economic principles.

Through the story of commercial shrimp aquaculture in Vietnam’s Mekong Delta, this study has attempted to bring to light the dynamics of the economic, environmental and social interactions of these policies. Commercial shrimp farming provides a window for understanding the inherently unequal power relations between and among actors across scales, from global to local, and between international market regulatory institutions and national governments. This chapter recaps the issues that were laid out in the beginning of the dissertation on the process of agrarian change under economic globalization and the implications of intensification of risk, vulnerability and weakening of moral economy for the sustainability of rural livelihoods and development.

Risk, Vulnerability, and Social Differentiation

Analysis of sustainable livelihoods in Vietnam’s Mekong Delta is essentially about understanding the differences in the ways households deal with changes and uncertainties in a livelihood system. As section II of this dissertation demonstrated, livelihoods in coastal areas of Tra Vinh face continuous challenges of changing economic, environmental and social circumstances. In order to achieve sustainable livelihoods, individuals and households need to be able to manage risk effectively. Since households are not equal in terms of economic, social and political position, how they are affected by and able to affect changes in the external environment in turn define their differences. Although these social groups may appear distinctive, their actions are intimately linked. In Tra Vinh, households adopting industrial shrimp farming appear to be the most prone
to the risk in shrimp farming, which are not contained within the physical boundary of their properties. Environmental degradation, loss of common-pool resources, and water and soil pollution are forms of individual-turned-collective risks, leaving households even more vulnerable.

While the wealth gap is growing between different social groups, upward and downward mobility do not necessarily follow the pattern of the rich getting richer and the poor becoming poorer that has often been presented in studies of agrarian change (Akram-Lodhi 2005). Land, labor and capital remain key productive assets. However, these resources do not guarantee an increase in wealth. Farmers attribute their success to “luck” rather than having the needed resources to invest in shrimp aquaculture. As discussed in Chapter 5, success also depends heavily on how the production process is maintained by careful day-to-day management practices to minimize risks. Risk spreading includes a financially conservative approach with additional income sources to minimize threats to a household’s asset base. The threats of indebtedness, loss of productive assets and livelihood vulnerability are so great that inability to minimize risks can easily jeopardize the livelihood among better-off and average, not to mention poor households.

Rural social differentiation as an outcome of changing access to resources is actually rooted in a changing kind of relation among social actors (White 1989: 20). In Tra Vinh, property and production relations have been drastically modified by neoliberal economic reforms. Although not publicly discriminating against the poor, policies that focus on economies of scale effectively limit participation according to one’s available resources, making competition for resources and opportunities extremely unequal. Poor
and subsistence households are not on equal footing to compete with rich and better-off households. Furthermore, the gap between local farmers and outside investors is huge. These latter groups are by no means “farmers with strong determination, with the conditions and an ability to become rich by farming” (Lâm Quang Huyền 2000: 8). Many investors are indeed government officials or individuals who are politically, socially and financially better-off and who can more easily take advantage of new economic opportunities. To group these actors under the same category of “farmer” ignores their unequal power relations and thus contributes to entrenching and deepening social differentiation.

Such unequal power relations call for the need to make a distinction between a livelihood and an investment strategy for the purpose of capital accumulation. A livelihood gives priority to subsistence security whereas an investment is intended to harvest profits. For local farmers, as a livelihood strategy shrimp aquaculture offers potentially greater cash income compared to agricultural farming. On the other hand, government officials and outside investors see shrimp farming as an opportunity to generate extra profit besides their regular incomes. The important distinction to be made is that one relies on on-farm for subsistence security, whereas the other is guaranteed a stable income from off-farm sources. Unfortunately, policies designed to promote farm economy actually serve to protect the interests of those in power. It is in this process that financial and natural resources are channelled to the rich at the expense of the poor. And since this group does not rely on farming for their survival, they have little incentive to

83 Một bộ phận nông dân có ý chí, khá năng và điều kiện làm giàu theo con đường nông nghiệp, nông dân giàu.

protect the soil, water and natural resources, the value of which only lasts for as long as their investments are concerned. Such a short-term approach to investment has resulted in the treatment of land as a commodity, the value of which fluctuates according to the rise and fall of a boom and burst industry rather than on its importance for the sustainability of local livelihoods.

Moral Economy in Global Economy
Moral economy refers to social institutions that form mechanisms for a buffer. Kin and neighbor relations, community activities, and common property resources, etc., serve the functions of ensuring a subsistence security, especially of those in need. With “moral economy meets global economy” in the title of the dissertation, I do not intend to take sides with either the moral or political economist. Rather my purpose is to emphasize the central role of local social institutions in helping households and communities to bounce back from the shocks of hazards, disasters, economic crisis, and other unexpected circumstances, both natural and man-made. These institutions cannot be resilient on their own, but rather susceptible to changes introduced by external factors, including policies and market.

Reaction to crop failures and indebtedness among shrimp farming households calls for the need to revisit the notion of risk-taking popular among economists, who consider it a matter of choice and even manifestation of rational individualism (Hann and Hart 2011: 85). In the case of Mekong Delta farmers, in the face of repeated failures and dwindling household resources, can risk-taking be viewed as rational, or does it indicate a
lack of livelihood options and alternatives? Assistance from family, close kin and neighbors is often sufficient for meeting daily needs. Debts resulted from failed shrimp investments are often too large, forcing households to continue shrimp farming as their only hope; even those households who did and do not want to raise shrimp lose their ability to truly make their livelihood choices, as their land and water is also affected by neighbors who farm shrimp.

Though modern rural Vietnam may not suffer from the same sources of inequality and risk as described in Scott and Popkin’s work, unexpected circumstances in the pursuit of commercial farming for economic growth have been inevitable. Neoliberal reforms and weakening state power through deregulation have often been justified as essential for providing local actors autonomy over production decisions. However, rural producers have indeed become more dependent on outside forces. Engaging in industrial shrimp farming has forced them to adopt a whole new range of farming practices and becoming ever more dependent on the supplies of inputs controlled by the private sector. It also subjects them to fluctuations in the prices of outputs. Economic liberalization has widened the gap between producers and consumers. As US, EU and Japanese consumers seek cheap shrimp and governments are prevented from extending support to local producers, farmers are the ones who bear the double burden of increasing costs of inputs and decreasing prices of outputs, paying more for their investment while harvesting less for their produce.

Unfortunately, social institutions are either insufficient or ill-equipped to handle the imbalances between economic, environmental and social changes. Although local institutions themselves are hardly equal, the shrimp boom has actually weakened existing
ones. Family support networks and community organizations, the most effective means of buffer for most rural households, have been hampered both by households’ declining economic position and growing social divides as a result of the shrimp boom. A few support groups formed by shrimp farmers who share a similar economic goal are highly exclusive, limiting participation to only a handful of outstanding farmers, government officials and rich investors.84 On the contrary, farmers with small tracts of land, landless, land-poor and renting out labor are left to struggle on their own.

The situation of growing vulnerability among shrimp farmers in Vietnam’s Mekong Delta questions Vietnam’s claimed commitment to a market economy with a socialist orientation. Over the past decade, the government has introduced a number of safety measures, such as consumer subsidies, formal and targeted social insurance such as pensions that direct transfers to vulnerable social groups (Chu and Gupta 1998: Fford 2000). These formal social safety net measures only cover a small target of 2.2 percent of the total population. Clearly, Vietnam’s social safety measures still leave much to be desired. Leaving corruption aside, most of the current social subsidies and insurance money are short-lived and in many cases are countered by corruption and socioeconomic policies that intend to generate wealth while producing new poverty and social inequalities at the same time.

84 For example, in the Long Thanh Industrial Zone in 2007, a group of ten farmers got together to share information on the chemicals used and effectiveness of different coping strategies among themselves. Their shared identity either by their economic standing or place of origin enabled them to organize. Similarly, in My Quy, a group of industrial shrimp farmers and investors joined a pilot project of farming organic (tôm sạch) shrimp farming. In both instances, these groups were supported by local authorities.
Beyond Moral Economy

Unlike many coastal communities where people have protested against shrimp aquaculture (Stonich and Vandergeest 2001), agony over indebtedness among Mekong Delta farmers has only seen farmers placing the blame on themselves. This is due in part to the absence of private companies as elsewhere. But farmers’ self-blame is precisely because of the “impersonal processes without any readily identifiable agency” that are embodied in neoliberalism (Scott 1976: 58). Under the French, it was easy for a person to identify the sources of exploitation: the French colonial administrators who were asking for the additional taxes and confiscated land, or the landlords who cut a large share of the harvest. Now the blame is more diffuse. The lack of a clear target of “immoral institutions,” as the French were perceived to be then, makes it difficult for farmers to combat or protest against outside forces. There is no clear pathway to overcome the lack of conditions for collective action. Policy interventions designed for economic development and poverty reduction in rural areas that disregard such a reality may not be effective and further contribute to rural inequality in the short-run. However, not attended to in a timely manner, current trajectories of inequality in rural Vietnam may accumulate and grow out of hands and trigger another “tức nước vỡ bờ.”

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85 Tức nước vỡ bờ is a metaphor that refers to the conditions of overbearing. The saying literally refers to the powerful forces of water that can break a bund. But the saying is often used to refer to social suppression. People who have been surpressed too long are bound to break out and resist against those in authority. The saying is used for a chapter of a well-known novel by Ngô Tất Tố that describes the rising up of a woman farmer against the French colonial power.
### Appendix 1: From Decollectivization to Farm Economy

<table>
<thead>
<tr>
<th>Dates</th>
<th>Policy measures</th>
<th>Objectives</th>
<th>Main Features</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>Directive 100 of 1981 on “Output contracts to labor groups and individuals in agricultural cooperatives”</td>
<td>To provide economic incentives to farmers to improve the efficiency of resource use, output, and put the 1980 food crisis to an end</td>
<td>The co-operative contracted land to households, but retained overall control of the production process. Income distribution shifted from a per head quota to labor contribution basis.</td>
<td>Farmers received greater freedom on how to allocate family labor and dispose of output in excess of the quota. Farmers’ income improved both in cash and kind.</td>
</tr>
<tr>
<td>1988</td>
<td>Resolution 10 of 1988 on “Reforming economic management in agriculture” and Resolution 6 on 1989 on the farm household”</td>
<td>Agricultural production was to be radically restructured by transforming the existing structure into a diversified, community-based agriculture to encourage rapid growth. The resolution emphasizes calls for the elimination of prejudices against the private sector.</td>
<td>Household became the basic economic unit. Land was contracted out to households for 15 years for annual crops, and 40 years for perennial crops. Farmers had to pay agricultural taxes and irrigation fees to the government. Output quotas are retained, but eased, allowing farm households to keep a minimum of 40 per cent of average output. The quota was fixed for 5 years. Private food marketing was explicitly recognized.</td>
<td>The food crisis ceased. Farmers gained greater control over the allocation and utilization of land, labor and financial resources, and collective agriculture quickly lost its meaning.</td>
</tr>
<tr>
<td>1989</td>
<td>The trade and price liberalization of 1989</td>
<td>To end the subsidies and further spur the growth of the market.</td>
<td>Most macro- and micro-economic prices were liberalized. The quota procurement system and price controls ended. The exchange rate was devalued. Positive real</td>
<td>Agriculture, in particular rice production, grew rapidly, making Vietnam the third largest rice exporter in the world from being a net rice importer. Farm incomes</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
<td>Details</td>
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<tr>
<td>1993</td>
<td>The rural financial reforms of 1990 to 1995, and in particular the authorization of lending to rural households in 1993</td>
<td>The rural financial reforms of 1990 to 1995, and in particular the authorization of lending to rural households in 1993 increased, and rural living conditions improved in absolute terms.</td>
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<tr>
<td></td>
<td>The Vietnam Bank for Agriculture and Rural Development (VBARD) was established in 1990 to meet the growing credit needs of farmers, traders and agribusiness. The People’s Credit Funds (PCFs) were established between 1993 and 1995 to mobilize idle savings by providing local access to savings institutions, and to provide local access to credit for borrowing households and businesses. The Vietnam Bank for the Poor (VBP) was established in 1995 to contribute to hunger eradication and poverty alleviation. The VBARD expanded the bank branches it took over from the State Bank of Vietnam’s (SBV). Acquiring credit from the VBARD required land use certificates as the most commonly accepted form of collateral. Mass organizations were widely used to distribute credit and collect repayments, in order to reduce transaction costs and risk. The VBP is a non-profit bank that operates through the VBARD network but receives support from the SBV in the form of subsidized interest rates. Private credit’s share in total credit rose from 10% in 1991 to 82% in 1995. Increasing numbers of farms got access to credit, allowing them to sustain the expansion of production, and develop processing, storage and transport capacities. This speeded up the commercialization of agriculture in both the domestic and international arenas. The PCFs and VBP enabled many to escape poverty.</td>
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<tr>
<td>Year</td>
<td>Action</td>
<td>Description</td>
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<tr>
<td>1993</td>
<td>The 1993 Land Law and the 1993 land use tax ordinance</td>
<td>To provide farm households with more rights over contracted land, and in particular to secure long-term tenural arrangements, in order to improve the allocation and utilization of land, encourage investment, and increase the reclamation of land. Land tenure was extended to 20 years for annual crops and 50 years for perennial crops. Farm households could exchange, transfer, lease, inherit and mortgage land use rights. Agricultural land use tax was reduced from an average of 10% to 7% of annual output. Perennial crops farmed on newly reclaimed land were exempted from tax. Total cultivation area increased, especially for perennial industrial and export crops. Investment in land increased, boosting fertility and yields. The two contributed to high agricultural growth rates.</td>
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<tr>
<td>4.1994 7. 1994</td>
<td>Party Committee Session VII defined industrialization and modernization as the goal for national development. Central Party Committee session IX focused on the industrialization and modernization of the agricultural sector and creating a favorable environment for the private sector.</td>
<td>To stabilize people’s life, develop comprehensive production strategies, building rural areas in the direction of industrialization and modernization. Efforts were focused on flood protection, dike construction, roads, and salinity protection for rice intensification on the East and West of National Highway 80 of Kien Giang and An Giang provinces.</td>
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<tr>
<td>Year</td>
<td>Resolution</td>
<td>Description</td>
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<tr>
<td>1997</td>
<td>Resolution of the 4 Session VIII (December 1997)</td>
<td>Policies promoted the restructuring rural economy, commoditification of agricultural production. Farms with various forms of ownership (state, cooperative, private sectors) were encouraged to farm perennial trees, animal husbandry.</td>
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<tr>
<td>1998</td>
<td>Resolution 06/NQ/TW on November 10, 1998 of the Politburo</td>
<td>Family farms and other economic sectors are encouraged to organize to expand scale of production, run business, attract and support households in difficulties. To recognize the position of farm households operating holdings in excess of the 3-hectare maximum by legalizing the role of land accumulation and larger scale farms in the agricultural sector.</td>
<td></td>
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<tr>
<td>2000</td>
<td>Resolution 03/2000/NQ-CP (2/2/2000) on the Farm Economy 82/2000/TT- BTC (14/8/2000) Circular guideline on financial policy for farm development QD423/2000 QD-NHNN 22/9/2000 financial policy for farm development 09/2000/NQ-CP on a number</td>
<td>Tra Vinh committed to farm economy with successive policies introduced to promote economies of scale and encourage formation of large farms. Commercial farming is encouraged over subsistence farming. The first Industrial Zone for shrimp farming was constructed in Long Thanh according to Decision 315 and the Provincial People’s Council’s directive. Policy incentives to promote large farms facilitated access to resources necessary for the pursuit of economies of scale, technical assistance, and financial capital.</td>
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<tr>
<td>2000</td>
<td></td>
<td>A market in land started to take shape. Land transactions became more frequent. Rural areas experienced increasing disparity in landholding. An increasing number of households were reported to have lost land due to distress sales. These policies provided a legal framework for existing farms that exceeded the land ceiling defined by the Land Law. It also encouraged the formation of new farms. In Tra Vinh, farm economy led to rapid conversion of mangroves and paddy fields to shrimp farming. Heightened social conflicts...</td>
<td></td>
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<tr>
<td>Year</td>
<td>Decision/Resolution</td>
<td>Description</td>
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<tr>
<td>2000</td>
<td>Circular 69/2000/TTLT-BNN-TCTK</td>
<td>to provide guidance on criteria for defining “farms” on 23 June 2000</td>
<td></td>
<td></td>
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<tr>
<td>2000</td>
<td>Circular 74/2000/TTLT-BNN-TCTK</td>
<td>Committee’s Decision 279 with funding from the state budget.</td>
<td></td>
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<tr>
<td>2000</td>
<td>Committee’s Decision 279</td>
<td>among farmers pursuing different livelihood strategies followed suit. Farmers started to complain about indebtedness.</td>
<td></td>
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</tr>
<tr>
<td>2000</td>
<td>Provincial Decision 13/2001</td>
<td>To accelerate the development of large farms as well as large-scale production</td>
<td></td>
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</tr>
<tr>
<td>2001</td>
<td>Provincial Decision 13/2001</td>
<td>on the Development Plan for Farm Economy during 2001-2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>Provincial Decision 57/2001</td>
<td>on the implementation of policy incentives for farm economy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>Resolution 15/NQ-TW</td>
<td>at the V Congress of the Party, Session IX on 18 March, 2002 on forging industrialization and modernization of the agricultural sector and rural areas the 2001-2010 period.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>Circular 74/2003/TT-BNN (DARD)</td>
<td>on supplement and adjustment article III of circular</td>
<td></td>
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</tr>
<tr>
<td>2003</td>
<td>Circular 4/7/2003/TT-BNN (DARD)</td>
<td>Many farmers in Tra Vinh borrowed to invest in trang trại (farm economy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
<td>Year</td>
<td>Details</td>
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<td></td>
</tr>
<tr>
<td>2004</td>
<td>Provincial People’s Committee Decision 87/2004 on regulation regarding the implementation of policy incentives for farm economy in the province (December 2004)</td>
<td></td>
<td>Farmers, especially those invested in industrial ponds, complained of disease outbreaks that pushed them into indebtedness. Approximately 90% of households fell in debt.</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>Modernization in rural areas 28/7/2005, Prime Minister issued Resolution 24/2005/CT-TTg on Continuing to Foster the implementation of Central Party Committee Resolution 5 (Session IX) on fostering industrialization and modernization of the rural sector</td>
<td></td>
<td>Yet, land continued to be cleared for shrimp farming.</td>
<td></td>
</tr>
<tr>
<td>2005/2006</td>
<td>Prime Minister Nguyễn Tất Đực Decision 150/2005/QD-TTg that approved National Plan on Agricultural, Forestry and Fishery Production until 2010 and the Vision towards 2020. Turnover from the export of agroforestry and aquaculture for commodity production. Increase the value on each hectare of cultivation land based on market needs along with agricultural restructuring, application of science and technological advancement for improved quality.</td>
<td></td>
<td>Greater focus on the value of return per hectare of land. Emphasis shifted to crops with potential high earning values. Cau Ngang District encouraged the transfer of 204ha of rice land to shrimp aquaculture. This would increase shrimp area to a</td>
<td>Modernization and industrialization of the farming sector means households are entitled to large landholding so as to improve productivity. This process reversed key arrangements for social equity under collectivization.</td>
</tr>
<tr>
<td>2006/7</td>
<td>150/2005/QD-TTg approval of master plan for agro-forestry-aquaculture restructuring nationwide to the year 2010 and vision to 2020 (to support Resolution No. 09/2000 and form water supply system)</td>
<td>and quantity, together with the processing industry and market, forming concentration of commodity production zones. Total of 1,162 ha. To upgrade three level-II canal with a length of 4,300 m and a volume of digging 20,550 m³. Cau Ngang provided a total of 1.7 billion dong for 300 households.</td>
<td>Removal of the land ceiling overlooked the increasing number of landless and land-poor households.</td>
<td></td>
</tr>
</tbody>
</table>

- Aquacultural products to reach USD 11 billion in 2010 and USD 18 billion in 2020. Increase the value on each hectare of land from 30 million đồng in 2010 and VND 50 million in 2020.
- In My Quy many households falling indebted had to transfer land to outside investors. Towards 2008, outsiders no longer purchased but rented land from local households to farm shrimp. Some households in the LTIZ started to sell land to settle debt. Outsiders also came to rent land for shrimp farming in this area.
## Appendix 2: Export Value by Sector, Source: Vietnam General Statistic Office 2010

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>MILLIONS USD</strong></td>
<td>5448.9</td>
<td>14482.7</td>
<td>20149.3</td>
<td>39826.2</td>
<td>57096.3</td>
</tr>
<tr>
<td>According to economic zone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic sources</td>
<td>3975.8</td>
<td>7672.4</td>
<td>9988.1</td>
<td>16764.9</td>
<td>26724.0</td>
</tr>
<tr>
<td>Foreign investment</td>
<td>1473.1</td>
<td>6810.3</td>
<td>10161.2</td>
<td>23061.3</td>
<td>30372.3</td>
</tr>
<tr>
<td>According to commodity group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy industry and mineral</td>
<td>1377.7</td>
<td>5382.1</td>
<td>6485.1</td>
<td>14428.6</td>
<td>16800.0</td>
</tr>
<tr>
<td>Light industry and handicraft</td>
<td>1549.8</td>
<td>4903.1</td>
<td>8597.3</td>
<td>16382.4</td>
<td>24445.0</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1745.8</td>
<td>2563.3</td>
<td>2672.0</td>
<td>5352.4</td>
<td>9000.0</td>
</tr>
<tr>
<td>Forestry</td>
<td>153.9</td>
<td>155.7</td>
<td>195.3</td>
<td>297.6</td>
<td></td>
</tr>
<tr>
<td>Aquaculture +16:16</td>
<td>621.4</td>
<td>1478.5</td>
<td>2199.6</td>
<td>3358.0</td>
<td>4251.3</td>
</tr>
<tr>
<td>Gold and nonmonetary</td>
<td>7.2</td>
<td>2600.0</td>
<td></td>
<td></td>
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<tr>
<td><strong>PERCENTAGE</strong></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>According to economic zone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic sources</td>
<td>73.0</td>
<td>53.0</td>
<td>49.6</td>
<td>42.1</td>
<td>46.8</td>
</tr>
<tr>
<td>Foreign investment</td>
<td>27.0</td>
<td>47.0</td>
<td>50.4</td>
<td>57.9</td>
<td>53.2</td>
</tr>
<tr>
<td>According to commodity group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy industry and mineral</td>
<td>25.3</td>
<td>37.2</td>
<td>32.2</td>
<td>36.2</td>
<td>29.4</td>
</tr>
<tr>
<td>Light industry and handicraft</td>
<td>28.4</td>
<td>33.9</td>
<td>42.7</td>
<td>41.2</td>
<td>42.8</td>
</tr>
<tr>
<td>Agriculture</td>
<td>32.0</td>
<td>17.7</td>
<td>13.3</td>
<td>13.4</td>
<td>15.8</td>
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<td>2.8</td>
<td>1.1</td>
<td>1.0</td>
<td>0.8</td>
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<tr>
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<td>10.1</td>
<td>10.8</td>
<td>8.4</td>
<td>7.4</td>
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<td>Gold and nonmonetary</td>
<td>0.0</td>
<td>4.6</td>
<td></td>
<td></td>
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<tr>
<td>Village</td>
<td>Rich</td>
<td>Well off</td>
<td>Average</td>
<td>Poor</td>
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<td>------------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
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<td></td>
</tr>
<tr>
<td>My Quy</td>
<td>- Landholding 70 công</td>
<td>- Landholdings 20-40 công</td>
<td>- Agricultural land (15-20 công)</td>
<td>- 5 to 7 công of land, or landless</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Large shrimp farm</td>
<td>- Shrimp farm</td>
<td>- Main income from rice, vegetable and agricultural farming</td>
<td>- Poor thatched house</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Brick wall</td>
<td>- Semi-brick with ferroconcrete-roofed households</td>
<td>- Motorbike, bicycle, TV</td>
<td>- Bicycle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Concrete-roofed</td>
<td>- 50% productive labor (low ratio of dependents)</td>
<td>- 50% productive labor</td>
<td>- Widowed of old aged without children</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Tiled floors</td>
<td>- Hire labor</td>
<td>- Rarely hire labor</td>
<td>- Sell labor in the village</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Well furnished</td>
<td>- Produce enough to sustain the households.</td>
<td>- Better living standard</td>
<td>- Landless households</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Motorbike</td>
<td>- Have some savings.</td>
<td>thanks to income from water melon</td>
<td>excluded from credit access</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Plough machine</td>
<td>- Multiple sources of livelihoods</td>
<td></td>
<td>- Migrate to other areas or urban centers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Truck</td>
<td>- Well connected with local authority. Easy to ask for loans. Invited to meetings.</td>
<td></td>
<td>- Limited social network</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Refrigerator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Social relations (connection with local authority or family members in high places)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Off-farm income sources (from family members overseas)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cay Da</td>
<td>- 80 công of land with an exception of 150 công</td>
<td>- 60 công of land</td>
<td>- 20 công of land</td>
<td>- Landless or land poor (5 công)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Various income sources (shrimp, clam, agriculture is only a side income if at all)</td>
<td>- Furnished brick house</td>
<td>- Thatched house or incomplete brick house</td>
<td>- No stable income</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Well-connected socially (with local officials and other better-off households)</td>
<td>- Motorbike</td>
<td>- Farm shrimp</td>
<td>- Engage in renting out labor (mận mượn)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Industrial shrimp farm</td>
<td>- Diversity (rice, cash crops, shrimp, husbandry)</td>
<td>- 30 percent active labor</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Stable and more than one source of income</td>
<td>- 50% active labor</td>
<td>- Children may be able to finish secondary school</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Grown children (not attending school)</td>
<td>- Children attending school but few go to University</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hire more labor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appendix 3: Wealth Ranking in My Quy and Cay Da Following the Shrimp Boom
### Appendix 4: Livelihood Strategies, Potential Profit and Risks

<table>
<thead>
<tr>
<th></th>
<th>Sources of Income</th>
<th>Livelihood Strategies</th>
<th>Potential Profit</th>
<th>Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aquaculture</td>
<td>Shrimp aquaculture (extensive/intensive) Clam farming/ Crab farming/ Fish farming</td>
<td>Cash income used for large investment such as housing construction/ purchase of motorbike</td>
<td>Disease outbreaks, indebtedness (most frequent) – this risk can send household down the steep hill</td>
</tr>
<tr>
<td>1 a</td>
<td>Shrimp related businesses</td>
<td>Shrimp trading, Shrimp fries Feed supply Chemical supply</td>
<td>Very few with large capital and/or political power can engage in these shrimp related businesses</td>
<td>Sudden price fall (very rare) Competition for shrimp suppliers Suppliers of feed and chemicals risk losing sales on credit</td>
</tr>
<tr>
<td>2</td>
<td>Agricultural cash crops (màu)</td>
<td>Watermelon, corn, bean, vegetable… Vegetables for consumption</td>
<td>Can provide surplus if lucky Cash income for daily expenditure.</td>
<td>Drought (rarely) Unstable market prices</td>
</tr>
<tr>
<td>2 a</td>
<td>Agriculture related businesses</td>
<td>Renting out services with machine Selling pesticides and fertilizers</td>
<td>Yield good profit but require large investment</td>
<td>Injury</td>
</tr>
<tr>
<td>3</td>
<td>Animal husbandry</td>
<td>Cow/goat/pigs</td>
<td>Saving for domestic use and important events such as weddings, funerals and death ceremonies</td>
<td>Epidemics (bird flu). Price fluctuation (both goat and pig suffered steep price fall in 2006/7)</td>
</tr>
<tr>
<td>4</td>
<td>Others</td>
<td>Petty trading (small stall in the village)</td>
<td>Small income and dependent on local consumers</td>
<td>Loss of investment due to purchase on credit from buyers</td>
</tr>
<tr>
<td>5</td>
<td>Subsistence income</td>
<td>Renting out labor, bike repair, tailoring, motorbike taxi (xe ôm), play music for weddings and funerals, making leaf panels for sale, growing bamboo, grass and vegetables for sale, trading in cashew and manicure.</td>
<td>These sources of income are seasonal and irregular. Provide food and supplement income from the household. However, insufficient as the main source of income</td>
<td>Low risk, but also low income Infrequent Highly seasonal</td>
</tr>
</tbody>
</table>
## Appendix 5: Livelihood Stratification by Risk

<table>
<thead>
<tr>
<th>Livelihood Strategies</th>
<th>Visible Risk</th>
<th>Risk upon others (hidden risks)</th>
<th>Social Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Too much rain/Drought</td>
<td></td>
<td>These risks are not seasonal and can affect groups differently</td>
</tr>
<tr>
<td></td>
<td>Bird flu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stable off-farm income</td>
<td></td>
<td></td>
<td>Government employees and traders</td>
</tr>
<tr>
<td>Shrimp Aquaculture</td>
<td>Disease</td>
<td>Land and water pollution due to excessive use of chemicals</td>
<td>Group 1 and 2 include those benefiting most from shrimp aquaculture. At the same time, their pursuit of industrial shrimp farming is also inducing risks to the living environment, the cost of which is not accounted for.</td>
</tr>
<tr>
<td></td>
<td>Crop failures</td>
<td>Resource degradation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water pollution</td>
<td>Loss of biodiversity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Irresponsible neighbor</td>
<td>Loss of wild fish stock</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Theft</td>
<td>and subsistence sources of livelihoods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fluctuation in input/output prices</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Competition from outside investors and policy changes in favor of big investors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural farming</td>
<td>Water shortage and flood</td>
<td>Bugs and diseases</td>
<td>Group 2 and 3</td>
</tr>
<tr>
<td></td>
<td>Fluctuation in input and output prices</td>
<td>Chemical use that spill in the water way</td>
<td></td>
</tr>
<tr>
<td>Husbandry</td>
<td>Bird flu/Fall in price of livestock and farm produce</td>
<td>Incidence of penetration on others gazing areas</td>
<td>Mainly group 2 and 1. Group 3 can hardly engage in husbandry</td>
</tr>
<tr>
<td>Subsistence farmers who live on small-scale production due to small landholdings and earn extra income by selling labor</td>
<td>No stable source of income other than farming</td>
<td>No saving and constantly in debt</td>
<td>Group 3</td>
</tr>
</tbody>
</table>
Appendix 6: Shrimp Farming Models and Costs

Mekong Delta farmers adopt a wide range of farming techniques depending on farm size, environmental conditions, and farming model. Shrimp farmers have also been found to modify their techniques according to their capacity each season. However, one thing that different farming systems share in common is farmers all use chemicals in pond preparation, excavators in dredging and expanding ponds, and artificial fries. This has been the outcome of the introduction of industrial shrimp farming since 2000. The decision of which model to be adopted depends on one’s farm size, land type, location and capital investment. Other factors such as labor and income sources are less important.

In Tra Vinh, three main farming models are practiced: extensive (thà lan), semi-intensive (bán công nghiệp) and industrial (công nghiệp). The extensive model has been most common in mangroves forested areas like Hiep Thanh commune. Ever since the introduction of the farm economy policy, there has been a widespread shift from the extensive to more intensive farming model. Industrial shrimp farming is highly risky, but promises greater profit, whereas the semi-intensive model requires less investment, is less risky, but also promises smaller incomes.

The difference in investment between the extensive and intensive models on a hectare of land is approximately USD 7,000. For the extensive model, farmers use natural fries collected from common waterways and spend a moderate investment to dig or dredge ponds before casting shrimp fries. Some home-prepared or industrial feed are used when the shrimp reaches about two months old. Industrial farms, on the other hand, require heavy investment in the beginning for farm construction, dredging, cleansing, fries, and feed. While an extensive pond requires only five fries per square meter of water surface, an industrial pond holds about 20-25 fries on the same area. The need for high intensity also meant farmers have to use artificially produced fries and industrial feed, which boost farm inputs several times higher than investment in the extensive model. Furthermore, the cost of chemicals needed for a one-hectare farm adopting the intensive model is four times higher than that in the extensive model. Furthermore, additional expenditure can be substantial depending on how well a pond does. Unexpected expenditure may incur along with the age of the shrimp. A pond affected by diseases can increase investment costs substantially due to additional spending on chemicals and medicine for treatment. In recent years, shrimp farmers complained of the constant rise in input prices. Industrial shrimp farming is also far more labor intensive compared with the extensive model. However, higher investments in industrial shrimp farming do not guarantee profitable returns. In the event of disease outbreak, an industrial farm may earn a fraction of its investment by the sales of dead shrimp. The table below reflects the main costs calculated by the bank as a basis for approval of bank loans but do not include actual costs that incur during the season. Such costs vary significantly depending on the farm size, model, and need of a particular shrimp farm.
Appendix 6.1 Comparing Costs of Extensive and Intensive Shrimp Farming per Hectare

<table>
<thead>
<tr>
<th>Items</th>
<th>Extensive Model</th>
<th>Industrial Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unit</td>
<td>Quantity</td>
</tr>
<tr>
<td>Fixed costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pond construction M2</td>
<td>10.000</td>
<td>6.000</td>
</tr>
<tr>
<td>Drainage pipe, net Each 02</td>
<td>5,000.000</td>
<td>10,000.000</td>
</tr>
<tr>
<td>Oxygen fan 03</td>
<td>15,000.000</td>
<td>45,000.000</td>
</tr>
<tr>
<td>Other equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead cost</td>
<td>57,000.000</td>
<td></td>
</tr>
<tr>
<td>Pond cleaning M2</td>
<td>10.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Seeds Fry 80.000</td>
<td>9,600.000</td>
<td>250.000</td>
</tr>
<tr>
<td>Feed Kg 1.800</td>
<td>27,000.000</td>
<td>6.300</td>
</tr>
<tr>
<td>Chemical 5,000.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor person 02</td>
<td>3,000.000</td>
<td>6,000.000</td>
</tr>
<tr>
<td>Total</td>
<td>127,000.000</td>
<td>303,500.000</td>
</tr>
</tbody>
</table>

*Source: Vietnam Bank for Agriculture and Rural Development, Duyen Hai Branch Development based on which loans are calculated (2007)*
Appendix 7: Main Decisions, Directives, and Resolutions Relating to Aquaculture

- Decision 2985: Control of Trifluralin in containers of shrimp, tra, basa fish to be exported to Japan
- Decision 63. VFCP 15/10/2010 Support to reduce loss in post-harvests of agriculture and aquaculture.
- Decision No. 13/03/2009 300/Ttg-KTN v/v Solutions to support aquaculture businesses.
- Decision 56/2008/QD-BNN provides regulation on inspection and recognition of sustainable-oriented aquaculture
- Decision No 06/2006/QD-BTS on 10/04/2006 by the Minister of Fisheries to provide regulation on Safe Shrimp Culturing zone and Shrimp Farm Management.
- Decision No. 18/2002/QD-BTS dated 3/6/2002. The decision, with the attached regulations, is an ideal legal framework for shrimp culture on sandy land.
- Decision No. 01/2002/QD-BTS dated 22/1/2002 prohibiting the use of selected antibiotics and chemicals used in the production of fish and fisheries products.
- Resolution No. 09/2000/NQ-CP on agricultural restructuring. Aquaculture purposes are approved.
- Resolution No. 03/2000/NQ-CP dated 15/6/2000 on the Farm Economy addresses the issue of structural transition. Aquaculture, in particular the cultivation of shrimp, is identified as one of the investment priorities.
- Decision 224/1999/QD-TTg dated 8/12/1999 outlines the orientation of aquaculture development for 1999–2010. Development of aquaculture should be done while ecological environment is protected, to ensure productivity and stabilized livelihoods.
Appendix 8: Questionnaire Survey

Livelihood Household Survey in Duyên Hai & Cầu Ngang 2006

Greetings and Introduction
This questionnaire will be answered by the household head or its members. Others can be present. First of all, please explain the purpose of the research, which studies shrimp aquaculture and sustainable livelihoods. However, the data may also be used to contribute to the designing of policy and development programs by the government at the provincial and national level and by development organizations. The obtained information will be kept confidential. The household can choose to participate or can decline participation.

I. GENERAL INFORMATION

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Name of the interviewer</td>
</tr>
<tr>
<td>2</td>
<td>Location</td>
</tr>
<tr>
<td>3</td>
<td>Date</td>
</tr>
<tr>
<td>4</td>
<td>Household number</td>
</tr>
</tbody>
</table>

II. HOUSEHOLD HEAD CHARACTERISTICS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Name of household head</td>
</tr>
<tr>
<td>6</td>
<td>Gender</td>
</tr>
<tr>
<td>7</td>
<td>Current marital status</td>
</tr>
<tr>
<td>8</td>
<td>Name of spouse (if available)</td>
</tr>
<tr>
<td>9</td>
<td>Name of other participants (other than household head or spouse)</td>
</tr>
<tr>
<td>10</td>
<td>Relation with household head</td>
</tr>
<tr>
<td>11</td>
<td>Ethnicity</td>
</tr>
</tbody>
</table>
### III. HOUSEHOLD MEMBERS

Include members who have been with the household in the past 5 years and members who spend limited time at home

<table>
<thead>
<tr>
<th>ID</th>
<th>Name and Surname</th>
<th>Age</th>
<th>Gender</th>
<th>Relation with HH head</th>
<th>Highest education obtained</th>
<th>Main labor</th>
<th>Income outside agriculture or aquaculture</th>
<th>Absent</th>
<th>Reason for absence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td></td>
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<td></td>
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<tr>
<td>3</td>
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<td>4</td>
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<td>5</td>
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<td>6</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>(age)</td>
<td>Code</td>
<td>Code</td>
<td>Code</td>
<td></td>
<td></td>
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<td></td>
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<td>------</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 if &lt;12 months</td>
<td>1= male</td>
<td>1= household head</td>
<td>1= Main labor</td>
<td>1= yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2= female</td>
<td>2= spouse</td>
<td>2=absent</td>
<td>3= children</td>
<td>4= Voca tional training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3= children</td>
<td>3= Work in the provincial town or other cities</td>
<td>4= College/University</td>
<td>5= Away for treatment</td>
<td>6= Other reasons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4= niece/nephew</td>
<td>5= parents</td>
<td>1= Married</td>
<td>2= Study elsewhere</td>
<td>6= Other reasons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6= relatives</td>
<td>7= worker</td>
<td>7= worker</td>
<td>8= non relative</td>
<td>9= others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Code**:
  - 0 if <12 months
  - 1 = male
  - 2 = female
  - 1 = household head
  - 2 = spouse
  - 3 = children
  - 4 = niece/nephew
  - 5 = parents
  - 6 = relatives
  - 7 = worker
  - 8 = non relative
  - 9 = others

- **(age)**:
  - 0 if <12 months

- **Education level attained or currently pursued**:
  - 0 = never been in school
  - 1 = vocational training
  - 13 = College/University

- **Main labor**:
  - 1 = yes
  - 2 = absent

- **Reasons for absence**:
  - 1 = Married
  - 2 = Study elsewhere
  - 3 = Work in the provincial town or other cities
  - 4 = Currently away to help relative
  - 5 = Away for treatment
  - 6 = Other reasons
### IV. HISTORY OF IMMIGRATION AND EMMIGRATION

<table>
<thead>
<tr>
<th></th>
<th>Code</th>
<th>HH head</th>
<th>Spouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Place of birth</td>
<td>1= in commune</td>
<td>2= elsewhere</td>
</tr>
<tr>
<td>2</td>
<td>If migrating from other locations, which year? If not, skip to #5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Where did you migrate from?</td>
<td>1= same province</td>
<td>2= other province</td>
</tr>
<tr>
<td>4</td>
<td>Reason for relocation? (list 3 most important reasons)</td>
<td>1= marriage</td>
<td>2= follow a state resettlement program</td>
</tr>
<tr>
<td></td>
<td>First</td>
<td>First</td>
<td>Second</td>
</tr>
</tbody>
</table>

### V. CURRENT SOURCES OF INCOME

<table>
<thead>
<tr>
<th></th>
<th>Code</th>
<th>HH head</th>
<th>Spouse</th>
<th>Main Labor</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>The HH head and other members received income from which sources in 2005? List all income sources in order of importance</td>
<td>1= Aquaculture (shrimp, crab, fish)</td>
<td>2= rice</td>
<td>3= other agricultural crops</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15= driver</td>
<td>16= cooking wine</td>
<td>17= handicraft</td>
<td>18= transportation services</td>
</tr>
<tr>
<td>----</td>
<td>------------------</td>
<td>------------------</td>
<td>----------------</td>
<td>-------------------------------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>VI. HOUSING STRUCTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Total Area</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Area of the main building (including garden)?</td>
</tr>
<tr>
<td>2</td>
<td>Area of other building (including garden)?</td>
</tr>
<tr>
<td>B. Number of structures in the main plot</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>How many roofs are there in the main area?</td>
</tr>
<tr>
<td>5</td>
<td>Note the following information for each:</td>
</tr>
<tr>
<td>6</td>
<td>Year of construction</td>
</tr>
<tr>
<td>7</td>
<td>Roof</td>
</tr>
<tr>
<td>8</td>
<td>Outer wall</td>
</tr>
<tr>
<td>9</td>
<td>Floor</td>
</tr>
<tr>
<td>10</td>
<td>Bathroom</td>
</tr>
<tr>
<td>11</td>
<td>Toilet</td>
</tr>
<tr>
<td>13</td>
<td>Estimated price</td>
</tr>
<tr>
<td>14</td>
<td>Access to electric</td>
</tr>
<tr>
<td>15</td>
<td>Water for daily use</td>
</tr>
<tr>
<td>C. Other structures</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Number of other structure:</td>
</tr>
<tr>
<td>17</td>
<td>Note the following information for each:</td>
</tr>
<tr>
<td>18</td>
<td>Year constructed</td>
</tr>
<tr>
<td>19</td>
<td>Use purpose</td>
</tr>
<tr>
<td>20</td>
<td>Estimated price in Tra Vinh</td>
</tr>
</tbody>
</table>
## VII. ASSETS FOR PRODUCTION AND HOUSEHOLD USE

### A. Production

<table>
<thead>
<tr>
<th>Number</th>
<th>Number</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor for pond dredging</td>
<td>Tractor 2</td>
<td>Vehicle for transportation</td>
</tr>
<tr>
<td>D6 (used for fan pump)</td>
<td>Water pump</td>
<td>Sewing machine</td>
</tr>
<tr>
<td>Tractor</td>
<td>Electric generator</td>
<td>Rice thresher</td>
</tr>
<tr>
<td>Car</td>
<td>Produce dryer</td>
<td>Chemical spray</td>
</tr>
<tr>
<td>Feed processing</td>
<td>Ship/boat with motor</td>
<td>Boat for fishing without motor</td>
</tr>
</tbody>
</table>

### B. Household appliances

<table>
<thead>
<tr>
<th>Number</th>
<th>Number</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorbike</td>
<td>Radio</td>
<td>Fridge</td>
</tr>
<tr>
<td>Bicycle</td>
<td>TV</td>
<td>Stove (gas or electric)</td>
</tr>
<tr>
<td>Landline phone</td>
<td>Cell phone</td>
<td>PC</td>
</tr>
</tbody>
</table>

## VIII. ANIMAL, LIVESTOCK & GARDEN

### A. Animal husbandry

<table>
<thead>
<tr>
<th>Number</th>
<th>Number</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>Pig</td>
<td>Duck</td>
</tr>
<tr>
<td>Goat</td>
<td>Chicken</td>
<td></td>
</tr>
</tbody>
</table>

### B. Garden

1. Name plants in household garden:

2. What are the plants used for (state all relevant purposes?)

3. Which household members look after the garden?
## IX. LAND OWNED AND USED

Each plot is a separate piece of land not connected to another. Collect the following details for each plot (this does not include land that are rented on a seasonal basis).

<table>
<thead>
<tr>
<th>A. Land owned</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Type of land</td>
<td>1= forest</td>
<td>3= farm land</td>
<td>2= sandy soil</td>
<td>4= residential</td>
</tr>
<tr>
<td><strong>2</strong> Area</td>
<td>1= công</td>
<td>2= hectare</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3</strong> Red book?</td>
<td>1=yes</td>
<td>0=no</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4</strong> Under whose name?</td>
<td>1= wife</td>
<td>3= husband’s parents</td>
<td>2= husband</td>
<td>4= wife’s parents</td>
</tr>
<tr>
<td><strong>5</strong> How was the land obtained?</td>
<td>1= purchased</td>
<td>4= located by state</td>
<td>2= inherited from parents</td>
<td>5= occupied</td>
</tr>
<tr>
<td></td>
<td>3= exchanged</td>
<td>6= other reasons</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6</strong> Year obtained?</td>
<td>Year or “0” if not remember</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7</strong> Taxed?</td>
<td>1=yes</td>
<td>0=no</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8</strong> Does this land belong to the village?</td>
<td>1=yes</td>
<td>0=no</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Land use</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10</strong> What is the plot used for?</td>
<td>1= housing</td>
<td>4= plan trees</td>
<td>2= shrimp</td>
<td>5= unused</td>
</tr>
<tr>
<td></td>
<td>3= rice and agricultural crops</td>
<td>7= rented out</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11</strong> Who is in charge of the plot?</td>
<td>Use same code on section III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>12</strong> Did the household borrow, rent, or purchase land in past 10 years?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13</strong> Did the household sell any land in past 10 years?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>14</strong> Any plot lost or given to children in the past 10 years?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## X. INCOME GENERATING ACTIVITIES

<table>
<thead>
<tr>
<th>A. Agricultural production</th>
<th>productivity/công</th>
<th>Number crops/year</th>
<th>Total product 2005</th>
<th>price/kg</th>
<th>income/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Rice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2  Watermelon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  Peanut</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  Vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5  Perennial crops (peach trees, bamboo, v.v..)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Husbandry</th>
<th>mother</th>
<th>seed</th>
<th>Number sold</th>
<th>price/seed</th>
<th>income/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>6  Cow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7  Pig</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8  Goat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Aquaculture</th>
<th>Crop/year</th>
<th>Crop/year</th>
<th>Total product</th>
<th>price/kg</th>
<th>income/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>9  Shrimp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Crab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Fish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Clam</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Wild catch (other fish)</td>
<td>Where</td>
<td>Crops/year</td>
<td>Product/crop</td>
<td>Price/kg</td>
<td>Income/year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Other sources of income</th>
<th>Which month in the year</th>
<th>Income daily</th>
<th>Income/month</th>
<th>Income/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Selling labor locally</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Migrating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Trading</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Music for wedding/funeral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Support from children</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Salary or welfare</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 Other sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### XI. EXPENDITURE

<table>
<thead>
<tr>
<th>A. Agricultural production</th>
<th>Seed</th>
<th>Chemical/ fertilizer</th>
<th>Irrigation</th>
<th>Hired labor</th>
<th>Total expenditure/crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Rice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Watermelon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Peanuts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Perennial or industrial trees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Animal husbandry</th>
<th>Seed</th>
<th>Vet service</th>
<th>Feed</th>
<th>Hired labor</th>
<th>Total expenditure/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Cow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Pig</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Goat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken/duck</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Aquaculture</th>
<th>Seed</th>
<th>Medicine/feed</th>
<th>Gasoline/Equipment</th>
<th>Hired labor</th>
<th>Total expenses/crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Shrimp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Crab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Fish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Clam</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Living expenses</th>
<th>Expense/daily</th>
<th>Expense/monthly</th>
<th>Expense/yearly</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 Rice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Clothing and appliances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Tet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Gas (if a gas stove is used)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 Electricity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Water bill</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E. Education</th>
<th>Number of children in school</th>
<th>Monthly expenses</th>
<th>Annual expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 School fee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 Books/materials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 Rent and other expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F. Health</th>
<th>Number of doctor’s visit/year</th>
<th>Expense/visit</th>
<th>Annual expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 Medicine</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
24. Doctor fee (including expenses for hospitalization)

25. Travel expenses

G. Other expenses

<table>
<thead>
<tr>
<th>Number/month</th>
<th>Expenses/month</th>
<th>Annual expense</th>
</tr>
</thead>
</table>

26. Funeral

27. Wedding

28. Temple visits

29. Other contributions to state funds

30. Production tax

31. Other taxes

32. Housing repair

33. Loans provided

### XII. SOCIAL CAPITAL

#### A. Use of social services

Ask both husband and wife about their participation in social and financial organizations

<table>
<thead>
<tr>
<th>How many visits does the husband/wife make to the following places monthly/annually?</th>
<th>Husband</th>
<th>Wife</th>
</tr>
</thead>
<tbody>
<tr>
<td>District market</td>
<td></td>
<td></td>
</tr>
<tr>
<td>District hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>District bank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School (usually located in district town)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trà Vinh provincial town</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCM City</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### B. Credit

<table>
<thead>
<tr>
<th>Do you currently have any bank loan?</th>
<th>1=yes, If not, move to number 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who took the loan?</td>
<td>Husband</td>
</tr>
<tr>
<td>Sources of loans</td>
<td>NHNN</td>
</tr>
<tr>
<td>Most recent loan taken when (year)?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loan amount</td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Settlement terms</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Settlement terms</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Settlement terms</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. Other social assistance

<table>
<thead>
<tr>
<th></th>
<th>Have you received assistance from the following organization?</th>
<th>HPN</th>
<th>HND</th>
<th>OXF/A</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Form of assistance</th>
<th>1= loan</th>
<th>3= labor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2= technique</td>
<td>4= material</td>
</tr>
<tr>
<td>13</td>
<td>Form of assistance</td>
<td>1= loan</td>
<td>3= labor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2= technique</td>
<td>4= material</td>
</tr>
<tr>
<td>14</td>
<td>Organize the importance of these assistance by 1,2,3,4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D. Labor

<table>
<thead>
<tr>
<th></th>
<th>Are you involved in the local labor exchange</th>
<th>husband</th>
<th>wife</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Are you involved in the local labor exchange</td>
<td>1=yes</td>
<td>0=no</td>
</tr>
<tr>
<td>17</td>
<td>Has the households hired labor?</td>
<td>1=yes</td>
<td>0=no</td>
</tr>
</tbody>
</table>
### XIII. CHANGES IN LIVELIHOODS

**Changes in household life and livelihoods**

<table>
<thead>
<tr>
<th>Main changes in the households in the following 4 phases</th>
<th>1986</th>
<th>1996</th>
<th>2000</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Changes in the use of land (evaluated based on information from section VII)</td>
<td>1=land used mainly for rice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2=land use mainly for aquaculture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3=insignificant (sell/give away)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4=no land for cultivation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Changes in the use of labor</td>
<td>1= sell labor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2= labor used for household production</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3= hire extra labor/machine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4= no change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Changes in gender roles</td>
<td>1= husband main labor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2= both husband and wife work on household land</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3= husband away, wife main labor</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>4= both husband and wife</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Changes in purpose of production</td>
<td>1= for household consumption</td>
<td>2= for sale</td>
<td></td>
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<td>-----------------------------</td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>Sources of income in order of importance</td>
<td>1= aquaculture</td>
<td>2= rice/agriculture</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3= selling labor</td>
<td>4= other sources</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Importance of wild catch</td>
<td>1= 50% of total income</td>
<td>2= 25% of total income</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3= insignificant</td>
<td></td>
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<tr>
<td>6</td>
<td>General comments about changes in household livelihoods in the past 15 years and main factors of change according to time (climate/market/policy/population, etc.). Note the opinion of the wife vs. the husband</td>
<td>wife:</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>husband:</td>
<td></td>
<td></td>
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<td></td>
<td>IX. COMMENTS BY INTERVIEWER</td>
<td></td>
<td></td>
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<td>---</td>
<td>--------------------------------------------------------------------------------------------</td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>How has the information outside survey (soil, water, social relation, etc.) affected</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>household livelihoods?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Production asset:</td>
<td></td>
<td></td>
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<td></td>
<td>Access extension services and credit:</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Any substantial income not yet counted:</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>What kinds of risks has the household encountered in the past 10 years and how did they</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>cope?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Changes in gender roles: who makes decisions on production and consumption in the household?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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