CHAPTER II
THEORETICAL RELEVANCE AND LITERATURE REVIEW

In this chapter, I will review three concepts relevant to my research. These are (1) the politics of forest conservation, (2) poverty in connection with mangrove degradation, and (3) local knowledge as a livelihood strategy. These three concepts are useful for basic analysis and discussion of the literature. This chapter also describes the conceptual framework of the study.

2.1 The Politics of Forest Conservation

Forest conservation is a long term development process, with the aim of achieving the production of a continuous flow of forest products and services without exploiting the forest's inherent value and future productivity, and without undue negative effects on the physical and social environment. Forest conservation can be a motivator to protect, improve, or create functions and services that benefit people living in a given forest, or people living far from forests; or it might pre-suppose the right to survival of threatened life forms and habitats, and not presume human benefit at all. In the context of livelihood improvement, forest conservation is often in conflict because the interests of differing forest stakeholders are frequently at cross-purposes. Most states have also applied forestry management policies as a strategy to reach and maintain financial stability, social control and national security. Conservation initiatives may thus be a means for states to assert their authority over peoples and enforce environmental resources control, thereby strengthening their position in relation to other actors (Peluso, 1992).

The history of conservation clearly reflects elements of coercive statecraft. Space conservation and controlling surrounding communities, is a central and primary goal in the history of environmental conservation. Even while apparently opposing state control; therefore, the overall system of "governmentality" is extended even by NGOs (Bryant, 2002).

Institutional issues such as aquaculture as a development strategy, the low economic rent of mangroves, overlapping bureaucracy and conflicting policies, corruption, weak law enforcement and a lack of political will, are all relevant to this decline in the politic of forest conservation. Recommended policies are based on these institutional factors and the experiences gained in mangrove rehabilitation, including community based efforts and government programs. These recommendations include: conservation of remaining mangroves, the rehabilitation of degraded sites, including abandoned ponds, mangrove-friendly aquaculture, community based and integrated coastal area management, and the provision of tenurial instruments (Privamera, 2002).

In 1856, Burma's Forest Department was created and the Colonial Government of India ordered the scientific management of Burma's forests to aid long-term commercial timber production. Scientific forestry was introduced during the years 1856 to 1881 and was dictated by economic and political considerations (Bryant, 1997). Scientific forestry itself has three main problems. First, scientific forestry is harmful because its claim to a privileged status, and for its mode of knowing which legitimizes colonization and the exploitation of the object of its knowledge. Second, "scientific" is used to justify short-term commercial practices rather than the pursuit of genuinely long-term interests. Third, it contains direct state control, which compounds the problem even further because of corruption, inefficiency and waste. Scientific forestry is always affected by social and political factors (Forsyth, 2003).

The effect of scientific forestry on peasants, shifting cultivators and timber traders is an important matter. Scientific management elsewhere in Asia represents a belated attempt by various states to rectify the damage caused to valuable forest by earlier laissez-faire policies. Both colonial and contemporary foresters define scientific management as that which is governed by a systematic adherence to working plans for cutting and replanting the forests, according to prevailing principles of silviculture developed through experimental trials over time. The development of scientific forestry law in Burma was concurrent with other changes in the nature of the colonial state and affected the structure of the Colonial Forest Service. Scientific forestry, managed by German specialists, was pushed in order to ignore customary rights and criminalize the access of local people as 'forest theft', 'encroachment',

'squatting', and 'illegal grazing'. All these forest policy changes affecting peasants' everyday lives provoked peasant resistance movements and religious revivals (Peluso, 1992).

The ideology of scientific forestry was embraced by the colonial state and its foresters, while the local institutions of forest access and property were gradually removed from the legal discourse. The conflicting ideology of forest conservation justified state control of key forest land and masked the reality of production forestry, as in Java for example. The ideas of this period and the impacts of this policy on the lives of forest dwelling people remain significant today in Indonesia. The last forest laws affected by the Dutch government were written in the late 1920s and continue to dictate contemporary Indonesian forestry. Most third world notions of conservation and "scientific" forest management originated in the West, under differing political economic and ecological conditions, and continue to be reflected.

Burmese forest policies need to be understood in relation to three notions: first, the forest as a contested resource; second, the Forest Department as a resource manager; and the third, conflicting perceptions of forest use. These three things are useful to situate the Burmese experience in a comparative perspective. Forest policy in colonial Burma was an escalating process of control and resistance. It highlighted the ambiguous relationship between colonialism and the emergence of modern indigenous politics on the one hand, and scientific forestry access control and conservation on the other. In enhancing national socio-economic development and ensuring ecological balance and environmental stability, the recent Myanmar Forest Policy (1995) was formulated in a holistic and balanced manner within the overall context of the environment and sustainable development, taking full cognizance of the forestry principles adopted. In conformity with new forest policy and legislation and for the purpose of supporting the economic development of the country, regaining environmental stability and addressing the basic needs of local communities, active participation by the rural population was urgently needed to plant trees in barren land and to reforest degraded areas. To achieve these goals, community forestry instructions were adopted in 1995 and the establishment of community forests is still being carried out by users groups, progressively. Community forestry is defined as forestry operations which are carried out by the local community itself, for the

establishment of wood lots, the planting of trees and for the exploitation of forest products in order to obtain food supplies and consumer products, as well as to generate income at the farm level. Community forestry is neither a regional development forestry operation, nor a large-scale forest operation to import industrial enterprise based on forest products (Myanmar Forest Department, 1995). Community forestry means different things to different people. It also means different things in different social, political, geographical and ecological contexts. There are some basic components common to most definitions of community forestry. Community forestry is about using or managing natural or plantation forest at the local level, in a way that is compatible with local objectives and values. It involves a degree of decision making separate from state forestry agency control and it also is an attempt to match simultaneous environmental, economic and social objectives related to forest resources.

Community forestry activities are long-term. Benefits should be enjoyed after waiting a long period of time. Therefore, community forestry activities implemented by the local people should produce benefits both in the short and the long term. Community forestry directly affects the user groups of a local community. However, scientific forestry focuses on whole countries economically, by extracting logs and introducing forest protection for sustainable yields, often at the expense of those living off the forests. It supports the timber traders for their business and benefits a country's economy by creating revenue from log extraction. The literature on colonial forest policies examines the impact of scientific forestry on state-civil society relations, but in doing so has tended to neglect changes occurring within the state itself. Community forestry involves a number of users who live in the same area and is primarily carried out by peasant farmers or smallholders and involves human use of the biosphere so that it may yield the greatest sustainable benefits to the present generation, while maintaining the potential to meet the needs and aspirations of future generations (Adams, 1993:309).

Mather (1986) explains patterns of land use on the basis of two approaches. One emphasizes the role of the physical environment. This approach assumes that land use is determined by the nature of the physical environment, in the same way that

natural vegetation is related to climate. Another approach is based on the assumption that land use is an economic activity and therefore, is determined by economic forces.

The ideology of modern natural conservation comes from the state, but not all state agencies perceive it similarly. Local people are not passive actors; but they are not always dragged in by the state's intervention. They have their own knowledge and the power to respond to outside intervention. Land use patterns are essential to natural resources and environment conservation. Land is the most important economic resource, as most people earn a living by agriculture. Land use planning should be a decision making process that "facilitates the allocation of land to the users that provide the greatest sustainable benefits" (Pinkaew, 2001).

Moore (1996) highlights the struggle over land rights of local people as a discursive practice. In order to control resources, different powerful agencies have their own discourses to legitimize their rights. Local people also have their own discourses, which they attempt to use against those powerful actors. Local villagers have their own perception of the forest and their own way of managing and using the mangrove forests. They perceive the forest differently from the state and outsiders. They believe that mangrove forests are not only a source of material, such as trees, plants and animals, which then provide food, housing, fuel and other items, but also as having cultural, social and economic value.

Nature conservation is as a discourse the role of securing access in order to realize conservation, and in reality, most of the third world has applied bio-diversity conservational policies, but the background ideology is really to serve economic purposes (Seth, 1997). The ideology of the policy is positive toward people, but in the process of implementation by different agencies, the original idea is interpreted and applied differently, because different enabling actors have different perceptions. When the state propagates an ideology about forest management, different actors implement it variously and so at the same time, villagers in the same community are affected differently.

Political and economic factors often play an important role in stimulating states to adopt forest protection policies. In practice, there is usually assumed to be a maximization of profit, although other goals such as physical survival or conservation

of capital (among old established families seeking family continuity on the land), could be equally well accommodated in the rational model (Popin 1979).

The literature on colonial forest policies examines the impact of scientific forestry on state-civil society relations, but in doing so has tended to neglect changes occurring within the state itself. Forest use can only be fully understood in relation to the political processes which condition the forest access. The effect of scientific forestry on peasants, shifting cultivators and timber traders is an important matter. In the process, the new management system can set the forest department on a collision course with indigenous peoples, who resist the subversion of pre-existing patterns of forest access and use.

Bryant (1997) emphasizes the central role of the state in shaping forest use and management in Burma. He examines how the Forest Department transformed forest access and use in colonial Burma, and also the way in which the colonial legacy was reflected in post-colonial Burmese forest policies. He mentions also the Burmese experience from a comparative perspective, in order to highlight how that experience is similar to, or different, from the experiences of other Asian countries. Scientific forestry was introduced for political and commercial reasons during the years 1856 to 1881.

2.2 Poverty in Connection with Mangrove Degradation

In my study village, most of the villagers use natural resources from the mangrove forests. After the mangrove forest degraded, they became increasingly poor. Given that this is the case, I emphasize the connection between poverty and mangrove degradation and so have reviewed literature regarding the linkages between problems of poverty and natural resource degradation.

Poverty occurs because of changes in the value of the two main parameters; which are endowments and exchange entitlements, and these constitute the basis of household or individual claims to social products and basic needs (Kabeer, 1994).

Rural poverty and "land hunger" have been historically linked to "theft" of forest products, or "squatting" on state or co-operative forest lands. Land, and peasants access to cultivated land, becomes a more pressing issue when states appropriate large bodies of land. In many cases, the state simply denies the legitimacy

of prior systems of land rights for land-based resources, thus establishing new relations with respect to these means of production. The losses of relative autonomy and forest access (for local people) are particularly acute when the state uses its control to monopolize resource exploitation. Most state forest management systems in the third world have failed to overcome either forest degradation or rural poverty. Indeed, some state systems exacerbate forest degradation, because they also exacerbate the poverty of villagers living on the edge of the forest (Peluso 1992).

There are close linkages between problems of poverty and natural resource degradation. However, each problem is complex and linkages are not simple in any casual sense. The ecological and geographic constraints of location are major contributors to the spatial concentration of rural poverty. Indeed, most of the rural poor worldwide are found in those least favored areas, where natural and human factors combine to constrain agricultural production and market access.

Poverty, environmental degradation and governance issues tend to converge in the so-called least favored area zones of marginal agricultural production, that is, those that have the weakest natural resource endowments, the least political power, and are the most remote from core markets. In principle, there are four ways in which forest based poverty alleviation can be realized; first, by converting forests to non-forest land use, such as permanent agriculture, second, by assuring access to forest resources and achieving this, either by protecting the existing benefits that forest provide to rural people, or by redistributing access to, and benefits from, forest resources, third, by making transfer payments to forest dwellers who protect forests, and finally fourth, by increasing the value of forest production through technologies that: increase physical output, create higher production for forest products, increase processing and forest based value adding activities and also, facilitate the development of new products (Chaumba, *et al.* 1995).

Poverty and environmental degradation co-exist in developing countries. Poverty cannot possibly be alleviated without ensuring environmental stability and vice-versa. Therefore, it is essential to address both problems simultaneously. Social factors, that is, communities as a whole, are becoming more and more important, especially when directed towards environmental conservation. A multi-disciplinary and integrated approach is the right way to handle the present situation (Ohn, 2004).

Poverty is described as a major shortfall in household purchasing power. It is represented by the average amount of income necessary to purchase enough food for all members of an average sized household, in order to meet their average daily-recommended calorie requirements. Households are classified as poor or non-poor, depending on whether their income is below or above the poverty line. While any attempt to reduce poverty to quantifiable dimensions necessarily entails simplifications, there are particular dangers in reducing it to a single un-dimensional index. Conceptualizations and measures of poverty offered by economists tend to focus on the scarcity of means, rather than the achievement of ends. The poverty line, one of the most widely used measures of poverty, exemplifies this approach. The primary cause of poverty in rural areas is the absence of any entitlement to the social product, other than what can be acquired through the cause of unskilled labour power. Poverty is a dynamic phenomenon, a process that reflects changes in the underlying causal mechanisms which determine the distribution of claims and entitlements. The way in which we 'know' and measure poverty has implications for how we deal with it. Our discussion of a gender differentiated framework for analyzing poverty highlights some of the problems with more conventional approaches. Focusing solely on household level poverty gives rise to poverty alleviation strategies which target only the male heads of household, on the assumption that the welfare of other members is thereby assured (Kabeer, 1994).

One aspect of the relationship between environmental degradation and poverty tends to go unnoticed, and yet it is fundamental to conceptualization solutions. Severe rural poverty and remaining natural forests in developing countries tend to share overlapping space areas. The view that poverty should be considered a grave problem requires little justification. However, it is necessary to explain why deforestation and forest degradation are a problem, which is, because these phenomena have been part and parcel of a process of agricultural expansion and economic growth which, arguably, has benefited billions of people. There are many geographic areas without forests in chronic poverty, but there are also some forest areas without chronic poverty in developing countries (Sunderlin, *et al.* 2005).

2.3 Local Knowledge as a Livelihood Strategy

Local knowledge is the information people in a given community have developed over time. It is based on experience, adapted to the local culture and environment and is continuously developing. Local knowledge is used to sustain the community, its culture and to maintain the genetic resources necessary for the continued survival of the community. Local knowledge is dynamic in nature. It may include experimentation on the integration of new plant or tree species into existing farming systems (FAO, 2006).

While conservation of bio-diversity has been enshrined as an official objective of international policies in treaties related to the conservation of biological diversity, little attention has been paid to the role that bio-diversity plays in the productive and cultural life of rural and coastal communities. There is no food security without farmer security and that in turn is linked to the maintenance of bio-diversity. Maintenance of bio-diversity and enhancement of genetic resources has been carried out by farming communities all over the world; wherever localized food production prevails (Wolfgang 2002).

Ironically, natural hazards themselves can also lead to growing state control over community resources, with the motive of resource conservation. In some cases, natural hazards are associated with degradation of natural resources, leading to top-down conservation projects (McSweeney 2005). She describes how changes in forest policy undermined the capacity of some communities to adapt, because of a change in access to forest resources and the ability to reconstruct their homes and re-establish the agricultural base. She concludes that forest conservation policies often discourage local people from protecting forests, as they are forced into wage labor. She suggests that incentives in terms of forest resources would prevent labour migration and encourage local monitoring of forests.

The maintenance of sustainable livelihoods is based on people's adaptation to environmental changes, including natural hazards, together with economic and political changes (Batterbury and Forsyth, 1999).

It is important to learn how local people in a particular area view and interact with their environment, whether or not they have the local knowledge that helps them monitor, interpret and respond to the dynamic changes in ecosystems and to the

resources and services that people generate; and whether or not their knowledge can be used to design appropriate interventions, including disaster preparedness (Berkes *et al* 2000).

Livelihood comprises five capitals: human, natural, social, financial and physical capital and people's capability to access these capitals determines the living standards gained by the individual or household. Livelihoods often focus on diversification in an attempt to characterize the survival and income strategies of individuals and families in rural areas of developing countries. Ellis (1998) points out that livelihood strategies are diverse and that the level of diversification of the household portfolio is influenced by life-cycle family characteristics, and by the objectives of the household and individual. Livelihood diversification as argued "includes both on and off-farm activities, which are undertaken to generate income additional to that from the main agricultural activities, via the production of other agricultural and non-agricultural goods and services, the sale of waged labor, or self-employment in small firms and other strategies undertaken to spread risk".

Livelihood has been defined as comprising the capabilities, assets and activities required for a means of living. A livelihood is considered to be sustainable when it can cope with and recover from stresses and shocks and can maintain or enhance its capabilities and assets, both at the present time and in the future, while not undermining the natural resource base (Carney 1998).

UNESCO (2002) points out that insufficient attention has been paid to the relationship between indigenous knowledge and power, and they advocate that increased attention be focused on the context within which indigenous people live. Particular attention should be paid to political relations. It is important to develop a relationship between the scientific community and the holders of traditional knowledge. This calls for a more equitable partnership that fully respects indigenous peoples, their territories, and their self-determination (Lambrou and Laub 2006).

With particular regard to natural resources management, the conventional 'indigenous knowledge' approach shows that shortcomings can be circumvented through a subset approach called 'traditional ecological knowledge', which adds an explicit ecological emphasis to the conventional development method (Dudgeon and Berkes, 2003).

According to Bryceson (1997), livelihood systems are defined as the mechanisms that people pursue to ensure household social reproduction, garner income, and meet the various obligations of self and society. Also Baber (1996), in two case studies of the Northern Province of South Africa, showed the significance of remittances, non-farm activity and pensions to the livelihoods of rural households. While agriculture remained an important source of income, other activities were often more essential to household survival. The finding shows no clear indication that participation in communal property associations led to more secure livelihoods measured through income, livelihood strategies, or food security (McCusker, 2002).

Patterns and associations of wealth and poverty have become more diffused and diverse, as non-farm opportunities have expanded and heightened levels of mobility have led to the de-localization of livelihoods. This, in turn, has had ramifications for the production and reproduction of poverty in the countryside, which has become progressively de-linked from agricultural resources (Rigg, 1997). Livelihood has become de-linked from farming; poverty and inequality from land ownership; and poverty and inequality from occupation and activity. In Europe, it may have taken half a century to grasp the nettle of rural development and see farming as just one of many activities in rural spaces.

The benefits of livelihoods analysis are widely recognized, including, for example, their stress on: the importance of people-centered change, a holistic-approach, people's access to different assets, poor people's vulnerability, partnerships, sustainability changes and on the multi-faceted nature of livelihoods. What I argue is that there is an important gap in much of the conceptualization and application of livelihoods approaches, namely, a lack of emphasis on the market and its role in livelihood development and poverty reduction. Given that one of the roots of livelihoods thinking was Sen's concept of entitlement, this lack of emphasis is surprising. If the roles of markets and market relationships are not properly addressed in livelihoods analysis and action, it can lead to a failure to identify and act on livelihood opportunities and the constraints arising from critical market processes, as well as institutional issues that are important for pro-poor market development. These are intimately related to macro and meso processes of change, in national and local economics (Carney, 1998).

It is argued that more explicit attention to interactions between institutions, technology and assets in livelihood thinking may be valuable in conceptualizing and managing programs for livelihood development and poverty reduction. The livelihood approach is most simply encapsulated by the sustainable livelihoods framework, and this can be amended to give more explicit recognition to the importance and roles of markets, institutions and technology. This framework introduces three main innovations. First, it places the demand for livelihood outputs at the center of processes regarding livelihood development. This requires a distinction between a livelihood strategy and its component activities, which utilize inputs to produce outputs. Second, the set of innovations is the location and content of the policies and institutions box. The contents of the box give particular emphasis to issues of access, specifically to interactions between access, markets, power, rights and services. These policies and institutions may affect access to any livelihood component. Third, technology is largely ignored in the classical sustainable livelihood framework, and it is not easy to find a place to locate it. However, institutions and technology are related to livelihood assets, and so a simple but powerful framework emerges to elate widely different kinds of intervention to potential livelihoods impacts (Dorward, *et al.* 2003).

Multiple livelihood strategies have generally been examined against people's preferences for income and risk. The final outcomes, however, depend on the trade-offs between one value preference and another, and the perceived levels of risk and return. Individuals make trade-offs and, particularly at the level of the household, outcomes may be negotiated through conflict or bargaining. Trade-offs may vary by age, gender, religion and class, being both culturally and individually determined.

Chambers (1995) argues that the notion of well-being allows people themselves to define the criteria of a good life, criteria that are important to them. This may result in a range of outcomes including self-esteem, security, happiness, power, as well as more conventionally measured material concerns. However, utility pre-supposes that people have the full power of agency to make logical choices and construct economic strategies. Well-being is a purely descriptive term with no underlying assumptions about the feasibility of achieving the desired outcomes, nor the constraints that may act to limit choice. The livelihood framework emphasizes the importance of, access to and control of resources in determining livelihood

possibilities. Also, it emphasizes the importance of broader socio-economic issues of structure, such as policies, institutions and relations of power, in determining the extent to which people are able to turn these resources into satisfying, stable and progressively better lives. People are able to renegotiate these policies and institutions, in order to improve the quantity and productivity of the resources to which they have access.

The use of traditional knowledge may benefit development by providing more realistic evaluations of local needs, environmental constraints, and natural resource production systems. Involvement of the local people in the planning process improves the chance of the success of development (Warren 1991b; Warren et al. 1995). The use of traditional knowledge in a scientific way has a relatively short history. However, as some of the unforeseen consequences of agricultural modernization, such as loss of crop bio-diversity have become clear, interest in traditional knowledge has been renewed. Indigenous knowledge is a neglected and marginalized resource that has a legitimate place in development programs. Putting indigenous knowledge to work, he argues, can result in a peoples' science and a decentralized, participatory research method and development system that would support rather than displace local initiative (Richards, 1985).

Traditional knowledge is considered at four inter-related levels. First, there is the local knowledge of animals, plants, socials and landscape. This level includes knowledge on species identification and taxonomy, life histories, distributions, and behavior. Based on empirical observations, all such knowledge has obvious survival value. But local knowledge may not be sufficient by itself to ensure the sustainable use of resources. At the second level of analysis, there is a resource management system, one that uses local environmental knowledge and also includes an appropriate set of techniques tools and practices. These ecological practices require an understanding of ecological processes, such as the functional relationships among key species and forest succession. Third, a traditional system of management requires appropriate social institutions, sets of rules-in-use, and codes of social relationships. For a group of interdependent hunters, fishermen, or agriculturists to function effectively, there has to be a social organization for coordination, cooperation, and rule-making, in order to provide social restraints and rules enforcement (Berkes

1989a). A fourth level of analysis is the worldview, which shapes environmental perception and gives meaning to observations of the environment. Whitehead (1929) argues that knowledge has components of "observational order" and "conceptual order". The first of this order is constituted by our direct perceptions and observations. The second is constituted by our ways of conceiving the universe. The third level supplied by our conceptual order, the worldview, invariably provides the interpretation of our observations of the world around us. The fourth level includes religion, ethics, and more generally, belief systems, and rounds out the knowledge-practice-belief complex that describes traditional knowledge.

The role of local knowledge is to deal with change and how it can improve the knowledge base to respond and change, because it combines an adaptive management perspective with the idea of co-management, or the sharing of management power and responsibility between government and local resource users. In particular, the management system and social institution that governs it are often so closely coupled, that the distinction between them may seem artificial. One might argue that the management system and social institution are one and the same. It must also be pointed out that there are feedbacks among the levels, and the linkages are dynamic in relationship. Local knowledge may grow; both management systems and institutions may adapt, change and fall apart, and may be renewed. World views shape observations and social institutions, but may themselves be affected by changes occurring at other levels, such as a collapse of management systems (Berkes and Folke, 1998).

Local knowledge is the term of choice of some scholars, because it is the least problematical (Ruddle 1994a). It can be argued that indigenous ecological knowledge is a subset of local ecological knowledge. But the term 'local knowledge' conveys neither the ecological aspect of the concept, nor a sense of the temporal dimension and cumulative cultural transmission. Local knowledge is used when referring to recent knowledge, as in non-traditional knowledge. The term indigenous knowledge is more broadly defined as the local knowledge held by indigenous peoples, or local knowledge unique to a given culture or society.

2.4 Conceptual Framework

In my conceptual framework, I aim to see mangrove forest degradation in a more holistic way, or as an ecosystem, to illustrate the dynamics and complexities of ongoing processes and changes. The basic analysis on resource degradation is developed with respect to the politics of forest conservation in Myanmar, versus the current local resource management situation.

At the heart of the politics of forest conservation, I place 'conservation discourse', which is the basic idea inherited from the British colonial times, to the forefront of Myanmar Forestry Policy. The focus of inquiry here is related to the question of 'for whose benefits and whose rights?'

My main argument addresses the issue of the conflicting politics of forest conservation and the consequent results in terms of mangrove resource degradation and poverty. The number of Government agencies, such as the Ministry of Forestry, Ministry of Agriculture and Ministry of Fishery and the lack of coordination between them, has resulted in conflicting policies in the resource management area. Also, the critical gap between law enforcement in practice and in reality has exacerbated resource degradation. The conservation law written on paper has not reflected the reality in the local context and consequently de facto implementation has failed. Local people's livelihoods that depend on those resources are hindered by the result of this misleading policy.

Therefore, poverty is closely related to natural resource degradation and vice-versa; poverty-stricken people also in-turn contribute to the resource degradation. So, I would like to focus in two ways on mangrove ecosystem dynamics. First, how the government forest conservation policies have affected ecosystem management and forest conservation, and secondly, how local people have controlled natural resources for their sustainable livelihood, using local knowledge. Also included is conservation discourse, the centralization of power and *de-facto* laws and regulations. Within the local community's resource management framework, there are included indigenous knowledge, equal access to resources and customary rights. Local communities use natural resources and depend on this demand for their survival. The government controls the natural resources and natural forests through rules and regulations, but then over uses natural resources for the country's economic development. So, later,

the communities become poor and find it very difficult to survive and/or continue their current livelihood.

On the other hand, the extension of paddy fields, charcoal making, shrimp farming, saltpans, and timber extraction, which have been the main causes of the degradation of mangroves, and which emerged due to government policy flaws, have themselves created new livelihood opportunities for the local people. Despite the structural bottlenecks, local actors have found a way to access natural resources through their negotiation with local authorities.
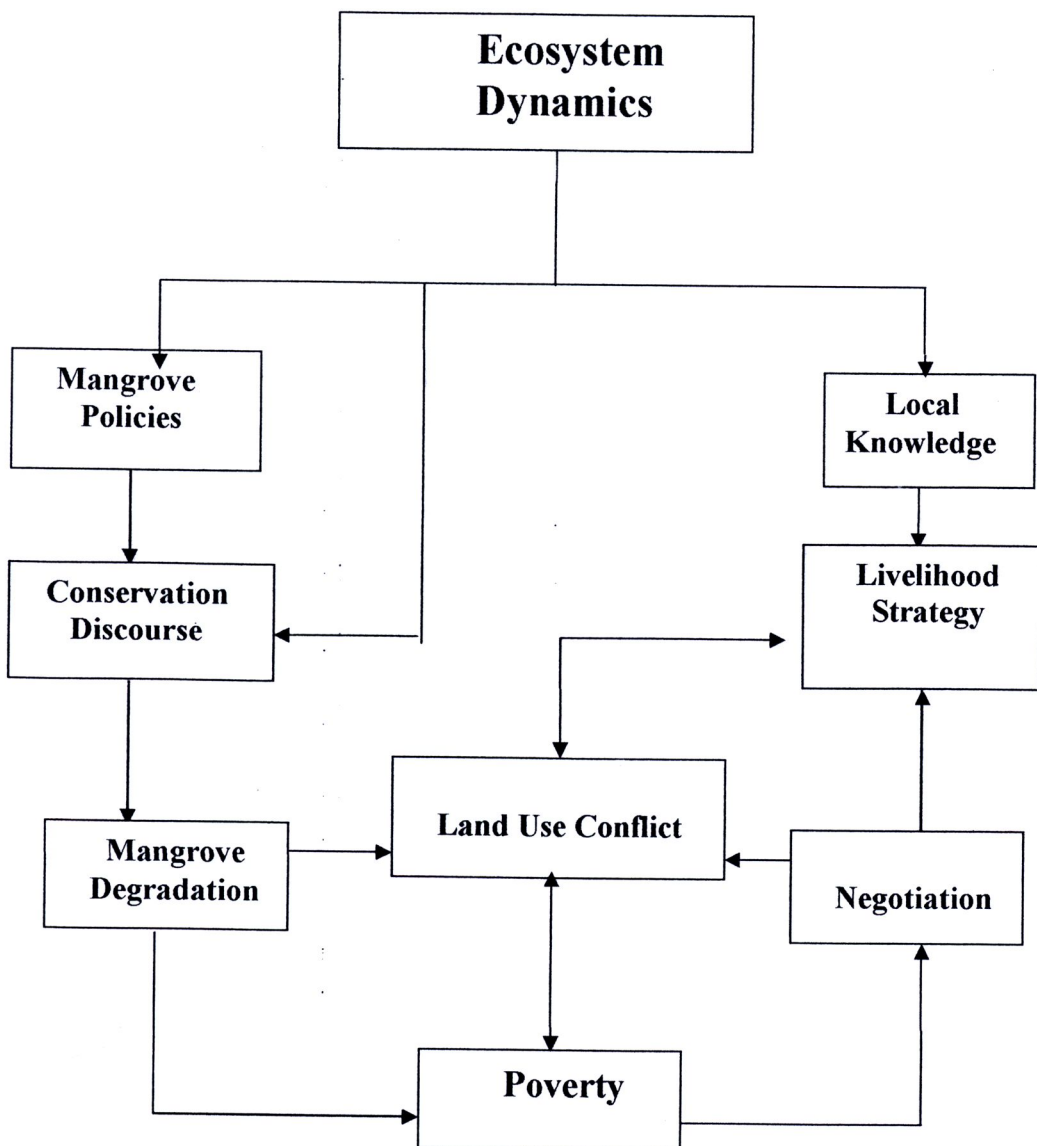
Figure 2.1 Conceptual Framework