CHAPTER II

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

This chapter presents the theoretical background and reviews relevant literature for the study. First, some of scholars' point of views about rural development and agroforestry development in China will be reviewed. Second, theories and concepts of farming system research as well as agroforestry practices are presented. These include access to resources, needs discourse, and decision-making in farming system. Finally, associated with these literatures and concepts, a conceptual framework is formulated for this study.

2.1 Rural Development Studies and Agroforestry Practice in China

China's rural development environment has tremendous changed since the establishment of the People's Republic of China in 1949. During past decades, many scholars have studied the rural transformation and resources management in China. Most of them focused on the Maoist planned economy and the Dengist market economy in China. Other scholars studied how land and forest policies changes impacted on resources management as well as rural development. I will review these point of views from the political economy and political ecology perspectives.

2.1.1 Analysis of Change From Maoist Planned Economy to Dengist Market-oriented Development

Muldavin (1996) compares Mao and Deng period differentiation of rural development in China. He points out that in the Maoist era, rural development in China adopted on collective system. The state was based on the economic plan controlled productive resources and organized all agricultural activities. He also identifies that after 1979, Deng modified the Maoist collective system as well as dismantled the commune system in rural areas. Deng ranked economic construction before the socialist revolution, and held up the banner of the 'Four Modernization' (*shige xiandaihua*): agriculture, industry, national defense, and science technology, as well as abandoning the policies of class struggle.

In his study about productive organization change in China, Scott (1994) argues that Mao thought that economy must always be in accordance with, as well as serve politics. A prominent feature of China's rural development in the Maoist period was that people spent

more time on political struggle than on economic development. China's economic development program before 1979 was essentially based on the Soviet model in both its organization and its principle. He also points out that after Deng Xiaoping re-emerged in political arena in 1979, the market became a main issue relating rural development. Deng was able to dismantle much of the collective control of land through the introduction of subcontracting and land division which parceled out per capita shares of equivalent pieces of land to every family—the Household Responsibility System. Farmers received more free space of agricultural production.

Blecher (1994) studies political economy of cropping in Maoist and Dengist China. He argues that Mao's concept of social development was revolution that involved proletariats in political dimensions. Mao firmly believes that revolutions are the locomotives of history and can resolve all problems: political, economic and social. Mao emphasizes that people share resources with a common and egalitarian distribution of common resources. Blecher also argues that Deng stressed on the priority of economy over politics. Deng believed individual competition better than collective organization. After 1979 China government adopted Deng 'trickle-down' theory. In the rural area, commercial activities of individual household were encouraged, such as, raising pig, exchanging forests products, establishing small stores, etc.

In his study of socialism and the Chinese peasant, Potter (1993) describes that under Maoist period (1949-1979), maximizing the physical outputs of key agricultural products was the basis of agriculture plan, and the policy known as, "Taking Grain as the Key Link"[1] (*zili gengsheng*). Actually, all agricultural production was identified by food self-sufficiency. Potter also identifies that in the Maoist era, the state's plan had been fulfilled by production teams or communes. Land cultivation always followed the state's plan of rice sufficiency. Therefore, land cultivation in rural areas was very simple. Rice and cotton were produced everywhere. Under the Maoist era, farmers were just a 'machine' that worked everyday in the communal farm, farmers had not any chance to determine land-use and labor distribution. Similarly, Potter describes that under Deng's era, land contracting was distributed into individual household. Farmers were required to provide the state with contractual rice at below-market price in exchange for long-term land-use rights. After fulfilling the terms of the

[1] advantage, compelled farmers to engage in less profitable activities. Thus, data suggest that the cultivation of cereals was not only less profitable The overwhelming emphsis on the achievement of grain self-sufficiency during the Cultural Revolution decade (1966-76) is a good example of such tension. This policy, which was implemented at a local level throughout China and ignored the dictates of principle of comparative than that of other food and cash crops, but often yielded a negative return per unit of sown area.

contract, individual households were free to manage their land for either their consumption or sell their remaining output in the free market (formerly the 'black market'). Land was still 'collective property', but farmers received usufruct right for 50 or 20 years.

Wong (1991) studies the central-local relation in the post-Mao China. He has argued that Mao had great faith in the power of socialist collective farms in mobilizing labor and capital in raising output. In reality, the experience of over 30 years (1949-1979) showes that Mao had been too optimistic in his expectations. Actually, the collectivization organization as well as class struggle was difficult for economic development. Farmer's enthusiasm of agricultural production was radically restricted by the communal organization. Wong also identifies that after 1979, Deng's reform-open policy was adopted in China. Experiences of last two decades showed that the Deng's market-oriented development was significantly increasing rural production.

In short, to summarize all scholars perspectives, I concluded that: 1) the socio-economic context changed from Miaoist planned economy to Dengist market economy led to rural production become more and more liberalization. 2) The social organization from collective production was changed to individual household contract system. The Deng era increased reliance on market incentive, and encouraged diversification rural production. The market became the key issue influencing farmer's lifestyle and agricultural production structure.

2.1.2 Analysis of Market Reform and Agroforestry in China

(1) The Political Economy Perspectives

Many scholars have adopted a political economy framework or productive approach to study rural development in China. Watson (1988) reviews the agricultural reform in China. He argues that market reform was a key component of China's development policies aimed at shifting from a centrally planned economy to a market-oriented economy. Market economy changed the socialist idea in China. Market economy developed in socialist county from impossible to possible. He discusses the agricultural market in China. And points out, as early as 1981, long-distance trading by private traders began to be accepted legally in China. The role of private commerce was encouraged and it was accepted that merchants would be allowed to take their goods to wholesale stations. This indicates a change in socialist ideas about the market in China's context. Agricultural products could be sold freely on the market. Watson also observes that the commune system as being in decline and the number of local

markets increasing rapidly. Farmers buy their daily commodities on the market. Some households have begun to plan at least part of their surplus production specifically for sale on the market.

Robert (1994) studies the relationship between peasant and State in China. He argues that China's initial reform of market in 1985 led to a decentralization of economic authority to the household level. In the reformed system, Prices were established by negotiation between the buyer and the seller within the framework of the relevant state regulations and laws. Once begun, this process fed backward into production by encouraging further specialization and diversification by stimulating the emergence of long-distance trade carried out by specialist merchants and traders. In fact, the free market began to act as an engine of economic change, shaping both the structure of agricultural production and employment and the network of new economic linkages through the emerging hierarchy of market centers.

Blecher (1994) indicates that after the rural reform in China, land was distributed to individual households. Farmers would transfer land use rights in return for payment, but it encouraged farmers to invest in land and work hard on the fields. Farmer could decide their production activities by themselves. He also points out that after the market reform in China, farmers' income varied with the level of output. Farmers' production changed from dependent on state service to dependent market demand. Under market-oriented period, not only should they considered what crops to grow, but also identified what products are marketable. These structure changes stimulated rural production to diversification, which responded to the increase of national market demand and international consumption.

In his overview about rural reform in China, Oi (1999) notes that after the market reform in China, farmers received more freely rights of cultivation and alternative earning chances. Markets had a direct effect on food supplies and food prices, and also influence food production system. At same time, Potter (1993) describes, after the rural reform in China, farmers controlled their own labor and they could grow whatever crops seemed likely to be the most profitable in their fields. In the past, such people were classed as capitalist speculators and their activities were illegal. Now they were seen as providing an essential service in market operation and playing a positive role in promoting economic efficiency and the commercialization of the rural economy. Although many uncertainties remained over the precise boundaries between legitimate commercial activity and speculative market dealing, it is clear that these farmers were officially supported and encouraged. Farmers could become

peddlers in the local market economy, they could sell their products and buy daily commodities at the five-day market or engage in other market-related activities. They were also free to seek employment in towns and cities (many urban factory managers have hired peasants because they constitute a cheaper labor force and receive no benefits).

In his study of rural reform in China, Croll (1994) uses the term of "from heaven to earth" to explain China's rural transformation after 1979. He notes that during the collective period public provision of services, state monopoly in agricultural marketing, and government pressure for pooling together peoples' efforts for the sake of public goods (i.e., self-help projects and village farms) mitigated the process of contractualization of access to resources. But after the market reform, "traditional" negotiation gave way to "contractual" negotiation in rural areas. Contractual negotiation over access to resources was generally the rule in subsistence agriculture in the village.

In sum, based on these scholars' views, I would like conclude that: 1) the context of rural development fundamentally changed in China during the past decades. The market became main factor that influenced agricultural production as well as rural development; 2) after the 1979 market reform, farmers in China received a free space. Farmers controlled productive elements by themselves, such as land, labor, and capital. Farmers became determined grow whatever crops seemed likely to be the most profitable on their fields. But they also faced risks from marketing fluctuation; and 3) farmers changed their productive practice while they adapted or responded to market economy.

(2) The Political Ecology Perspectives

Several scholars have studied China's transformation by adopting political ecology views to examine China' s political structure change which led to resources management change as well as environmental degradation. Muldavin (1996) studies the political ecology of agrarian reform in Heilongjiang province of China. He uses village case study to show how privatization in China has permitted the exploitation of labor and resources. He identifies that state policy changes have led to environmental degradation. According to him, China shifting toward market orientation within a predominantly collective economy allows peasants to employ long-term decision-making strategies in production alongside short-term market ones. This arrangement can spread the increased risk of market mechanisms over larger groups. He points out that China's emerging post-1978 derivative hybrid of socialism and capitalism

(authoritarian, speculative, exploitative of labor and nature) is based on fundamental contradictions that will not simply go away with the completion of transition to a market economy. Some of the potentially negative results of the rapid agrarian change are: 1) a decline in the role and power of the collective in organizing production for long-term communal goals; 2) a change in cropping patterns to become more intensified; 3) increased risk for individual households as a result of a shift to cash crops and increased dependence on the market; 4) production practices shift towards those providing short-term returns, often through exploitation of natural resources and labor (household and hired); and 5) introduced new negative elements which exacerbated environmental problems and reduced sustainability in China.

Wei Hu (1997) studies household land tenure reform in China, He describes that rural reform since 1979 has formulated a system of individual household land tenure. Farmland was allocated to each peasanct household on the basis of family size, and farmers have been given the right to till the contracted land for several years. He notes land reform led to another extreme for the high return on cash crops compared to the low gain production which has contributed to a trend of declining grain production since reform. The major problem of land reform in China was to fragment the farmland. In some instences, farmers abandon their land to pursue other business, although they pay cash for tenure of the uncultivated land, this represents a waste of land resources. Land reform led to both deforestation and reforestation in rural areas, depending upon what farmers needs and market demand. Under market-oriented condition farmers could increase or decrease land use in accordance to their economic objectives. Nowadays, Production factors, i.e., land, and labor, are directly determined, to a large extent, by supply and demand. Farmers' tree cultivation usually follows market demand. They grow diverse species in the farms in order to reduce risks.

Wang (1997) studies Jingpo ethnic village's resource management in Yunnan province. He notes that off-farm economic activities have predisposed many farmers to engage in lucrative economic pursuits. Since the state opened the urban labor market in the mid-1980s, more and more farmers, because of low profits in agriculture, migrated into towns and cities to work as builders, miners, salesmen, peddlers, porters, delivers, cleaners or baby-sitters in order to get a much better economic return. Wang also pointes out that following the implementation of the "Two Mountain System Policy", households only own management rights on forestland,

forestland, but farmers have no rights to dispose land. Property rights were not fully defined and transferred to local communities.

Kung (2000) studies common property rights and land reallocations in rural China. He describes, under what is commonly known as the Household Responsibility System, farmers are essentially assigned the use rights and the right to a residual income subject to certain tax and sales obligations. Under no circumstances can farmers alienate the land they have contracted from the village, although some can farm it out on a short-term basis and appropriate a rental income in return. Kung also points out that after 1979 land reform in China Farmers large accept the customary practice of making marginal changes to the land labor ratios in response to changing family demographics. Indeed, Croll and Huang (1997) study migration for and against agriculture in eight Chinese villages, they point out market reform in China have increased commercialization of rural life. Commercialization of rural life means the rising levels of "contractual" vis-à-vis "traditional" social negotiation over access to resources, such as, land, forestry, labor, markets and food. They conclude that the market reform has both positive and negative impacts on agricultural production as well as resources allocation. This reform has increased the productivity of agriculture. Farmers tend to consider only their own immediate interests. And this policy tends to encroach into state-owned resources, such as forest and land. It also had led to the degradation of forest and the shifting of forestland to plantation crops or commercial trees.

From political ecology point of view, it can be concluded that: 1) China's political structure change from planned economy to market economy leading to resources management altered. The land and forest policies are important factors that influence resources management and tree cultivation in rural China. When land and forest policies changed, farmers also changed their practice in both pattern of land-use and choice of species of tree cultivation, 2) market intervening leads to change of values of resources. Under market economy, farmers managed their land and forestry pursued profit maximization and faster returns, and 3) commercialization of rural life led farmers to rational decisions regarding their resources management and farm cultivation.

2.2 The Approaches to Studies of Agroforestry Practice

Scholars' studies, reviewed above, from broadly social and economic sectors identified that socioeconomic transformation affected rural development in China. Market impact on

agroforestry practices was presented on general picture. Although, in some cases, scholars also found that socioeconomic change related to tree cultivation. In fact, in terms of local response and interpretation of the socioeconomic changes, these studies were limited, especially in ethnic minority areas. Actually, the local differentiation of response to market is important for social research, because different context as well as access to resources farmers have different practices both in productive practice and discursive practice. Thus, to understand local practice changes of agroforestry, three main concepts have been applied in this study. These include concept of access to resources, concept of needs discourse, and decision-making in farming system. Three concepts are essentially related to the issue of agroforestry practices and aim to create understanding of difference of farmers' response to market in Tageba community.

2.2.1 Access to Resources and Social Meanings in Agroforestry Practice

The term "access" is frequently used by property and natural resource analysts and by other social scientists as well. In my study, I use this concept to explain farmer response to market differently, because different access to resources and markets leads farmers to have different practice. For Macpherson (1978:23), property is characterized as "...a right in the sense of an enforceable claim to some use or benefit of something." An "enforceable claim" is one that is acknowledged and supported by society through either law, custom, or convention (Ribot and Peluso, 2001: 5). Property is conceptualized as legitimated claim or right to gain benefit from things. Further, Ribot and Peluso (2001) contend that access is "the ability to derive benefits from things, person, institution, or symbol." Access analysis provides a framework for empirically exploring the factors that shape how people benefit from things through histories of particular places and sets of social relationship. Property generally evokes the socially acknowledged and supported claims or rights whether by law, custom or convention. Someone may benefit, however, through unsanctioned or illicit practices, ideological and discursive manipulation, and indirect relations of production and exchange (Peluso, 1992:45).

Access implies a broader net of social relationship than property or property relations; it goes beyond the notions of physical control and 'ownership.' Access depends on an individual's position and power within particular sets of social relationship. 'Place-based' and 'non-place-based' affect resource use. Ribot and Peluso (2001) point out that resource access have "place-based resource access" and "non-place-based resource access". Place-based access includes physical access—a direct human-environment interaction—and the ability to

benefit from natural resources through webs of local social relations. Non-place-based access includes the influences of labor relations, market organization, authority structure, access to complementary resources, and the mobilization of ideologies and discourses on benefit flow. Local social relations are nested within—and often constitutive of ---non-place-based networks of social ties.

To frame access dynamically, Ribot and Peluso indicate that the dynamic aspects of this concept emerges when we break social action into "access control" and "access maintenance." Access control is "the ability to mediate others access and power over other"(Weber,1978: cited from Ribot and Peluso, 2001: 4). Control "... refers to the checking and direction of action, the function or power of directing and regulating free action" (Peluso and Padoch, 1996: 34). Access maintenance requires expending resources or power to keep a particular sort of resource. Maintenance and control are thus complementary. They are constitutive of relations among actors vis-à-vis instances of resource appropriation management or use. In addition, the meanings and values of resources are contested, negotiated and constructed among those who control and those who maintain access (Ribot and Peluso, 2001: 12).

Based on different contexts, access to resources have different ways (Ribot,1998: 123), such as access to land, access to forest, and access to social relation. In order to gain access to benefit, people will change or maintain their ability. Change or maintain ability decides what benefit they want from things and which is the better way for them to get benefits. The ability to benefit from resources can be mediated, enhanced or complemented by a number of indirect elements including technology, market, labor and authority. Property is a single factor in a larger array of institutions, social processes, and discursive strategies that shape which benefits from things. Some of these are not recognized as 'legitimated' by society.

Social relations are central to all other elements of access. Access to and use of labor, capital, authority and knowledge are based on social relations. Social relations enter directly and indirectly into people's ability to benefit from things. Resource access is composed of direct physical access, market access, labor access, access to capital, access to authority, access to social relation and access to knowledge. These, in turn, are shaped by and help shape legal and extra-legal mechanisms and processes that are part and parcel of access and access control. Hence, access analysis requires attention to law, custom, and convention as well as relations of production and structural complementarities, all of which contribute to the patterns of benefit distribution and flow.

At the local village level, access to land or trees depends on community social organization and one's position within that social structure. Resource access includes recognized property institutions of customary or formal legal tenure and the *ad hoc or de facto* claims and actions of resource users (Peluso,1995: 386; Fortmann and Bruce,1988:65). Access is also related to labor institutions, which become more important means of acquiring resources as they later become scarce (Vandergeest and Peluso, 1995:386; Peluso, 1995:512).

Vandergeest (1997) suggests that property not only functions as rules and laws, but also as ordinary, everyday practice. Agroforestry systems are nested within complex social relations (Peluso,1995:389;Fortmann,1990:196). Agroforestry relates to land-use, household subsistence, forest management, farmers' labor organization, and capital distribution. It is embedded in and actively reshaping particular social, ecological, political and cultural context as well. Thus, in agroforestry cultivation, access is a significant factor that affects people's practice. Depending on different access to market, land, labor, and social capital, people have different strategy selection. At same time, with social change, the ability of people accessing resources also will change. Thus, in order to get benefits from things, people maybe change or maintain their practice. Therefore, in my study, the concept of access was used to identify farmer's practices differentiation, because different access to market, land, and labor, results in farmer having different cultivating practice on agroforestry farm.

2.2.2 Needs Discourse in Agroforestry Practice

A need is something that is deemed necessary, especially something that is considered necessary for the survival of the person, organization, or whatever. The concept of needs is widely used in the social sciences, with especial attention being placed on so-called human needs. It is widely used to explain variations in human activities and outcome. Needs are commonly contrasted with wants (or desires); needs referring to things that are necessary, wants to those that are desired. Since the concept itself suggests, it has frequently been invoked in the rhetoric of political and policy debates, notably in support of claims for action and intervention (Marshall, 1994: 350). As Marshall points out that sociologists, especially those of a functional persuasion, have also used the concept of need in studying the functioning of societies whish used to explicate the function prerequisites of the social system—the things necessary for the survival of the society—such as adequate motivational support for the system itself.

Needs are the basic requirements of sustaining human life in accordance with personal values. Depend upon different social conditions needs—*i.e.,* wishes, aspirations, ambitions, ideals, values, and goals---usually constantly change and proliferate (Jary,1991:419). According to Jary (1991), needs have a hierarchy from the basic physiological needs for food, safety and shelter, to psychological needs of belonging, approval, love, and finally the need for self-actualization. In fact, needs are hypothetical as well as self-actualization process, being neither 'true' or 'false' (also called basic needs and false needs), it is important to have empirical indicators of their existence and impact (Renshon, 1994:224). Needs are a particular mode of discourse. Needs are daily language practice that people follow prior experience or knowledge image future or present desires. Generally, needs as special language confer on things are not a reality, but a fictive or imagination (Palan, 2000:222).

Escobar (1995) argues that the question of 'needs' is central to social changes analysis. The definition of needs presumes the knowledge of experts who certify 'needs,' and the introduction of 'social services' by the state. He argues that development experts, universities, and social welfare agents elaborated needs discourses. Needs discourse constitutes veritable 'acts of intervention' (Fraser,1989: cited in Escobar, 1995:224) to the extent that the political status of a given need is an arena of struggle over how it is interpreted. The process of needs and its interpretation and satisfaction is clearly and inextricably linked to the development apparatus. In my view, local needs discourse is also important concept in rural development, because it represents local desires as well as understandings. Needs discourse shows how people understand their resources, social condition, and way of life. It can illuminate what the people like and dislike. Then, following their desires, we can make clear why local people change practice always.

The struggle over needs usually creates a new way to redefining development and nature. The language of "needs" itself must be reinterpreted as one of the most devastating legacies of modernity and development (Escobar,1995:225).When needs occur in the modern development discourse, however, it accelerates people's rational practices. Needs usually is regarded to the standard for development strategies by both developer and local people. The interpretation of needs has created meanings of development discourse (Illich, 1995:91).

Needs, as a term and as an idea, occupy a place within current mental topology that did not exist in the constellation of meanings of previous epochs. Illich (1995) pointes out "the human phenomenon is no longer defined by what we are, what we face, what we can dream;

nor even by the modern myth that we can produce ourselves out of scarcity; but by the measure of what we lack and, therefore, need." The needs discourse becomes the important factor of introducing people's action within requirements. Within the development discourse, the concept of 'needs' becomes increasingly attractive. For example, WCED (1987) uses needs to delimit the concept of sustainable development. The concept presents that "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." However, needs becomes the most appropriate term to designate the moral relations between people in a dream of world made up of a well-fare society. As Illich (1995) has described that needs is newly used within new context of development, it 'functions' as a euphemism for the management of citizens who have been reconceptualized as subsystems within a population.

In the Third World, the process of needs and its interpretation and satisfaction is clearly and inextricably linked to the development apparatus. Basic needs as a main strategy in the Third World, is based on a liberal human rights discourse and on the rational, scientific assessments and measurement of 'needs', lacking a significant link to people's everyday experience. The challenge is to come up with new ways of talking about needs and of demanding their satisfaction in ways that bypass the rationality of development within needs discourse.

To understand farmers' decision and motivations that they participate trees cultivation, the needs should be examined (Arnold and Dewees,1999: 278). Needs help us explain farmer's activities and outcome, because needs links people's demands and practices (Dewees, 1999:132; Renshon, 1994:226). In practice, farmers are not in favor of continued isolation, and they are desperately trying to increase the productivity and profitability of their farming system in order to gain a higher standard of living. Needs practice is for explaining wants and behavior, because needs drive peoples' actions. Needs ethics can help us understand unity-in-variety and social transformation (Illich, 1992:98).

In fruit-based agroforestry practice, needs as a form of farmers' responses to pressure under market economy. Needs represent some meanings as well as particular imaginations of farmers based upon their understandings. Needs leads farmer to work hard on their farm and rational decision-making. This study focuses on the farmers' needs of tree cultivation in order to understand the farmers' interpretation of structural changes as well as responses.

2.2.3 Decision-making in Agroforestry Practice

Decision-making is a process of strategies selection. Growing tree farmers use a number of strategies to reduce the risk of changing farm systems. Agroforestry is a land use system. Agroforestry cultivaiton reflects resources restriction and different livelihood strategies (Arnold and Dewees,1999:294). So in this sector, both land use and tree cultivation decision are reviewed.

Land is the most important resource for tree cultivation. Land is an essential productive resource used to satisfy livelihood needs, particularly important in mountain region where most people earn a living via agriculture. Access to land is important for household welfare, aggregate tree cultivation. However, at one extreme, the objectives of an individual farmer and many other types of land users are to produce income by exploiting natural resources (Mather, 1986:5). The primary objective of most land users is to meet their immediate needs for food, fuel and income. To do so, land users apply their energy, skills and technologies to utilize resources on the most efficient and cost-effective way. In other words, land users act according to what they think is best for them (Fortmann,1990:197). Under the right conditions, the best strategy for achieving their objectives is to increase production and conserve the productive potential of their land (Bruce and Fortmann, 1999:238).

Farmers' land-use applies a rational goal or de facto objective (Cooper, 1984:24). In practice, this goal is usually assumed to be maximization of benefit, although other goals such as physical survival (among subsistence cultivators) or the conservation of capital (among old-established families seeking family continuity on the land) can be equally well accommodated in the rational model (Popkin,1979: 12). Two important points are involved in this assumption: first, the land user optimize, such as intercropping, diversity cultivation, etc. Land users pursue low input and high output. Second, he does so in the direction of the single goal of profit. When making decisions, the land user takes into account the characteristics of the land, their available resources, and economic factors, such as, the availability of market. The objectives of individual farmer land use, particularly if poor, tend to be short-term in nature.

Land use is a process of decision-making. As Mather (1986) points out, land use facilitates the allocation of land to the uses that provide the greatest sustainable benefits. Farmer's decision of land use basis on two elements: 1) Land use emphasizes the role of the physical environment. In its extreme form, 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; 2) Land use is based on the assumption that land use is an economic activity and it is determined by economic forces (Mather, 1986:27). However, for economic activity, the land user can attempt by rational means to optimize in any of the directions for which he wants to achieve the maximum income. The farmer may try to protect himself against the possibility of both poor prices and poor weather conditions by spreading the risk and aiming for a diversified pattern of cropping.

Land use always changes because land users have higher economic goal. Mather (1986) contends that objective of the land user is a dynamic process of change. An economic dimension is present in the great majority of land-use decisions. A satisfactory level of income is likely to be a priority, and only after it has been achieved will other factors such as personal preference become significant in choice of land-use. In practice, he or she seeks a single objective, such as, maximization benefit. Instead, he is more likely to seek several objectives concurrently. For example, he may wish to combine an acceptable standard of living with an adequate amount of leisure time and an opportunity interest.

Decisions about the use of land involves multiple factors: the objectives of the land user; the process or means by which he reaches a decision, and the background factors that consciously or unconsciously influence his decision. These include both intrinsic personal and psychological factors, and also external influences stemming from the nature of the land unit and its wider setting. As Mather (1986) points out that "the decision maker obviously has to operate within the limitations of the information available to him. Having access to information on technology, marketing and other matters are becoming more important in determining success in farming than the traditional agricultural knowledge about crops and animal husbandry." Actual land-use choices cannot be expected to conform fully to the land-use patterns predicted or prescribed by economic theory and assumptions of benefit maximization (Mather, 1986:41). This does not mean that decision-making is completely irrational nor that land-use choices are chaotic and incapable of explanation. Rather is means that the rationality of the decision maker is confined within certain limits.

Tree cultivation can recognize the high variability in farmer forest options and land use by promoting a "farm of choice" of species and systems. Farmers are likely to benefit from expectation to "reality" and to expect costs and benefits on their land (Orr, 2001:1342). Farmers who grow trees consider maximize returns to land in situations where land and capital

are limited, and tree/crop/livestock combinations permit use of available labor than alternative uses of the land. Farmers who change cultivation patterns consider shorter return use of land as well as expect more frequent harvests (Scherr, 1995: 787). Farmers frequently establish trees in annual crop fields (often modifying spacing and densities to accommodate the crops), even where the ultimate intention was a pure tree stand, to reduce establishment costs and generate early cash income from the plot.

Farmers determine tree cultivation as a process to allocate how much land to devote to the tree. This decision may be selected either from the perspective of the number of trees planted or from the perspective of the proportion of land devoted to the perennial crop (Peluso, 1995:511). In short, the logic of farmer's decisions that in a given sample of farmers, optimal crop shares are dependent on factors common to all farmers in whole community (e.g., current and expected prices of crops under consideration), and factors specific to each farmer (e.g., the amount of land available for planting).

Farmer' s strategies of tree cultivation were determined jointly on the basis of economic, social, and cultural criteria, as well as more straightforward economic geographical considerations. Farmers depend on different social context and access to resources. They invest assets (such as land) in agroforestry cultivation considering differently and adapting different strategies (Peluso,1992:45). Someone growing trees may be expressly for commercial sale and others may be retained and used for home consumption. Someone may employ mono-crops planting and others may be a mixture of annual and perennial crops. Farmer's planting trees will be guided by both economic and non-economic considerations. In practice, farmer's action of growing trees is a response to household needs and market opportunities. Farmers growing trees usually considered the faster returns that related to returns from alternative use their land. An important factor in the decision tree cultivation may include whether markets demand the crops; whether planting materials are available; or whether the farmer is willing or able to wait for trees to mature. As Scherr (1995) points out that farmers grow trees by focusing on how poverty and economic risk reduce incentives to invest. Therefore, in practice, someone may be adapting a large tree farm because they have large land or labor force. Someone may be employing non-interest tree management. The different strategy selections reflected farmer's experiences accumulated and access to resources differently. Hence, this study applied the concept of decision-making to understand farmer's strategies selection on agroforestry practice.

2.3 Conceptual Framework

The conceptual model illustrated in **Figure 2-1** shows agroforestry practice changes in rural China. The changes both in productive and discursive practice are farmers' responses to market economy and Chinese rural development policy.

In this model, firstly, the market economy and rural development policies are considered. As I mentioned in Chapter I, since 1979 China's land use and forest management policies have tremendously changed, collectively owned land and forest were distributed to individual households. Under the new policies of "Household Responsibility System" and "Two Mountains System," farmers now have the rights to decide how to use their land. At the same time, the market economy has been adopted since the beginning of the 1980s, while private trade and production have been encouraged in rural areas. Farmers can sell their farm produces and buy their daily goods in the free market. The market has introduced new social norms and values into rural society. In responding to the market and policy changes, farmers change their pattern of tree cultivation according to their self-interests and perceptions. Some of them change their traditional tree cultivation to grow fruit trees in order to earn cash income rapidly. Others maintain the traditional practices in order to reduce the risk. Thus, market and rural development policies are major external factors affecting agroforestry practice.

Furthermore, I apply Gudeman's notion (1992) of "practice" for the analysis fruit-based agroforestry practice. In order to understand in details about farmers' practice changes in agroforestry cultivation, I focus on two dimensions; productive practice and discursive practice. These two dimensions of change not only illustrate what farmers "did", but also explain how farmer "said." Investigation of the two dimensions will allow me not only to understand how farmers change their practice of tree cultivation, but also know why farmers change their practice.

At the productive level, therefore, my study focuses on land use pattern, labor distribution, and capital arrangement on fruit-based agroforestry cultivation, because agroforestry is a land-use system (Michon and Foresta, 1999:381). Land, labor, and capital are major elements relating to tree cultivation. In investigating land-use pattern and labor distribution changes can help me to understand how farmers respond to market opportunities and development policies in production dimension. However, based upon their different interests as well as access to market, land, and labor, farmers may choose different strategies of tree cultivation. Therefore,

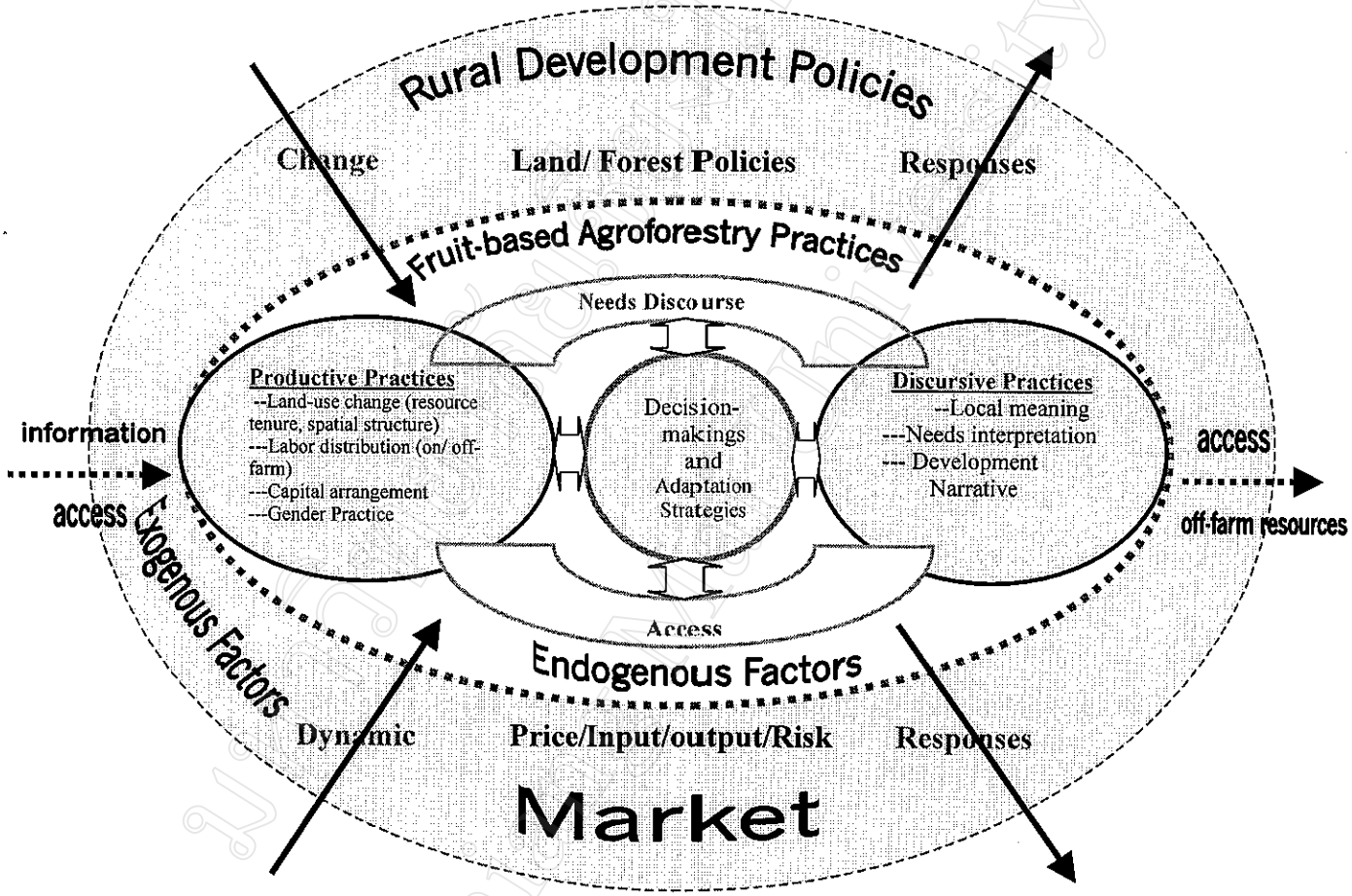
the concept of access is relevant in understanding differentiation of their responses to market.

I classify farmers' households into large, middle, and small land sized households. Then, I identify their different ways of agroforestry practices. Differentiation of tree cultivation in responses to market among five villages in Tageba is taken into consideration. Women's practices of tree cultivation are also examined in order to understand their access to resources and market in Miao society.

At the discursive level, the interpretation of agroforestry is taken into consideration in this model. Fruit based agroforestry is often involved different needs, such as, subsistence needs and economic needs. I follow Fortmann's (1995) lead on "contestations over resources by many meanings" to examine the meanings of tree cultivation as interpreted by farmers. In fruit tree cultivation various interpretations as well as needs discourses are manipulated by different people interests, experiences, and knowledge. They overlap and make claims on the same practice of tree cultivation. Farmers pursue subsistence needs, governments pursue political needs, and businessmen pursue economic needs. Different meanings and needs have to be interpreted by different groups. I therefore use Hoben's (1995) term of "cultural script for action" as well as Hefner's (1990) interpretive approach in order to understand why various actors participate in tree cultivation as well as change their practice. In this model, therefore, local meanings, needs discourses, and development narratives on tree cultivation are taken into consideration.

Moreover, differentiation in decision-making is considered. Based on different understandings, access to resources and market, farmers adopt different strategies of tree cultivation. Indeed, the factors of affecting farmers' agroforesty decision-making have been discovered. The farm is a social relation that relates to internal and external factors. Farmers' plan may be influenced by such access to land, price, technology, education, etc. In this model, I consider both exogenous and endogenous factors that affect farmers' decision-making of agroforestry practice. The exogenous factors include market, road, price, information, and technology. The endogenous factors concern family land size, labor, education, and social capital. I examine how farmers choose strategies and what factors affect their decision-making of tree cultivation. In short, the principal components of the framework include market and policies intervention and assessment of the changing practices of agroforestry: land-use, labor distribution, capital arrangement, local meanings, and needs interpretation.

Figure 2-1. Changing Practices and Decision-making on Fruit based Agroforestry Farm



Summary

In this Chapter, the relevant literature was reviewed. First, to understand China's changes from planned to market economy, some scholars' point of views about differentiation between Mao era and Deng era were discussed briefly. Then, studies on rural development and agroforestry pracitce were reviewed. After the market reform in the 1980s, farmers in China received the free space of production and opposite security resources tenure correspondingly. Moreover, this process increased the productivity of agriculture and gave more benefit to

farmers. Consequently, in past decades the production of most agricultural commodities has grown after marketing reform. But market liberalization led to rural development more complexity as well as increasing commercialization of rural life. After these literature review of socio-economic changes and agroforestry practices in China, Actually, the concept of access to resource was introduced to realize how farmer response to market and development policies differently. The concept of needs discourse was presented to analyze farmer responses complexity and decision-making rational. Then decision marking on agroforestry practice was reviewed to understand farmer-determined land-use and changed cultivating pattern as well as tree species. Finally, the relevant theories and concepts are reviewed and recorporated into a conceptual framework for this study.