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Transformation of rural space from an institutional perspective

Socioeconomic development and
land use change in Xishuangbanna,
Southwest China

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Socio-economic development and land use change in Xishuangbanna, Southwest China

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Preface

Landscapes and societies in Xishuangbanna, a prefecture in Southwest China have undergone unprecedented changes over the last 60 years. These transformations within the landscapes manifest themselves as land cover change, for example intensification of traditional land use systems and introduction of monocultures leading to deforestation, loss of biodiversity and other forms of environmental degradation. At the same time, communities and societies within these landscapes have experienced a certain degree of economic development, mainly through exploitation of natural resources. They have also faced profound transformations within their social and socio-cultural configurations. Little is known about the environmental and social changes and their interrelations in the PR China, which has been closed off to researchers until recently. Having the opportunity to conduct fieldwork in a region as remote, but at the same time as diverse and dynamic as Xishuangbanna, brought a valuable opportunity for exploration and research. Research for this thesis was undertaken within a multidisciplinary research project titled "Conservation of cultural landscapes through diversification of resource-use strategies and technologies for agro-ecosystems in mountainous Southwest China", also known as "Living Landscapes China" (LILAC), funded by the German Federal Ministry for Education and Science and coordinated by the Centre for Agriculture in the Tropics at the University of Hohenheim. Researchers from several universities¹ were involved in developing an "interdisciplinary decision tool integrating ecological, socio-cultural and economic models for supporting land-use planning towards conservation of cultural landscapes and their diversity in Xishuangbanna".² The LILAC project was divided into four clusters and several subprojects: ecology (ECOL), economy (ECON), sociology (SOSI), and the modelling cluster for Land Use Cover Change (LUCC) as the integrating subproject. The research objective of the SOSI-B subproject was to develop of the "Institutional, socio-cultural and local political framework for landscape conservation", to be integrated into the LUCC model. Doing research within the multidisciplinary team of the Sino-German research cooperation provided many advantages. Conduction of fieldwork in a difficult political environment was facilitated and many infrastructural, administrative and bureaucratic obstacles lessened, in particular through the intensive cooperation with the Administration of the Naban River Watershed National Nature. The multidisciplinary nature of the research team provided an advantageous environment to share thoughts, information and even data. Through informal discussions with other project members and frequent workshops information was shared and knowledge generated. The exchange allowed us to discover processes and aspects which had previously gone unnoticed. Topics and issues were discussed from various angles, which allowed us to develop new perspectives. Resources could be used more efficiently through cooperation in data collection, for example through a common survey with the ECON-B subproject from the University of Giessen. Being part of the LILAC project and the need to supply data also brought about some restrictions. The requirement and challenge to deliver data and to take part in developing a social model for land use cover change largely determined the research design and the research process. Some aspects could not be examined as closely as desired.

¹ University of Hohenheim, Leibnitz University Hannover, Humboldt University Berlin, University Kassel-Witzenhausen, Justus-Liebig University Göttingen, in tandem with several Chinese research institutions, such as Xishuangbanna Tropical Botanical Garden, Yunnan Academy of Social Sciences and others.

² Adopted from the Project Proposal

1 Introduction

1.1 Main concept and research questions

Finding appropriate approaches to investigate and work on those research questions, linking and pervading various, geographical, temporal and scales of social aggregation was a challenging task. The geographical and social processes and structures which are sought to be understood in this study are embedded in and interrelated to networks of actors and processes beyond the local sphere. In relation to land use:

“(...) changes are the result of multiple actors and structures combining in complex, synergistic ways. Moreover, critical exogenous forces, especially international and national policy decisions, may have profound effects on land-use and land-cover change. These forces can be seen as shocks to the existing land management system that fundamentally alter the pathways and trajectories of change.” (GEOGHEGAN ET AL. 1998:54)

In order to comprehend the complexities of social and material space and their interrelationships, a broad range of subjects need to be considered. To understand underlying causes of processes and transformations, especially in regard to land use modelling, it does not suffice to look at land use cover changes which become visible in the material space, for example through the lens of satellite imagery, aerial photographs, etc. as Rindfuss and Stern point out:

“Changing land use, road and building construction and the like are regarded as manifestations of more important variables, such as government policies, land-tenure rules, distribution of wealth and power, market mechanisms, and social customs, none of which is directly reflected in the bands of the electromagnetic spectrum.” (RINDFUSS & STERN 1998:2)

This conclusion postulates a holistic research approach, as processes which manifest themselves on the local landscape and social level can only be understood by embedding them into a wider context. This study therefore consists of two parts: the first looks at the bigger picture, contextualizing local processes of land use and social change, and the second part directly looks at processes on the local level. The first part elucidates the historical, political and social processes of Xishuangbanna’s development in a wider context. Furthermore, based on a social structure analysis of communities within the research areas, the “social topography” of the Nature Reserve is being introduced. The analysis and description of interrelational and complex processes on a local, regional and national level, which indirectly determine land use change, offers a framework in which local processes and practices can be understood. The second part focuses on the local level and adopts an analytical approach. The analysis focuses on those institutions which directly and indirectly determine land use and land use change. These institutions and related processes, which are localized on different levels, can only be understood within the larger context which is provided in Chapter 2 and 3. An important objective was the provision of data for the LUCC model. Building a model, a simplified or abstracted representation of reality, requires reduction of complexity. Based on these findings, in the last part of the thesis relations between institutional change and land use change are analysed in their relation to socio-economic dynamics on the local level.

1.2 Holistic approaches and multidisciplinary

Topics of human-environmental interrelations require a multi-scalar as well as a multi-perspective path of exploration. The questions as such are inter- or multidisciplinary and complex. Thus it is unlikely that an approach grounded in an individual scientific discipline can find satisfying answers. Within a three year PhD project, interdisciplinary research is a very challenging task. However, the work within the multidisciplinary research team offers certain opportunities and allows to integrate the outcomes of substantiated research on agro-ecology, forest ecology and hydrology into the discussion, or rather even into a multi-faceted model of spatial processes in the NRWNNR (Naban River Watershed National Nature Reserve). Looking at landscapes and processes therein is a typical field of geography and its several sub-disciplines. Landscape ecology, as a branch of geography, looks at (for example) vertical and horizontal morphologies of landscapes, and patterns and functions, including physical processes and anthropogenic influences. However, the analysis of landscape function in particular is facing shortcomings, due to lack of reliable methodologies and disciplinary rivalries (HOBBS 1997). The construction of material and social space, and their interrelation is a focal issue in social geography, as demonstrated for example in Werlen's Action Theory. Particularly in the Chinese context, range and possibilities for individual action are limited. A research focus on institutions, which determine individual behaviour and action, is deemed a more appropriate approach. Nevertheless,

"[a]the orientations which the agent adopts in concrete situations of action in relation to the physical, social or subjective worlds have to be systematically and meaning-adequately reconstructed. To this end, spatial frames of reference must be developed whose definition establishes particular characteristics dimensions which coincide with the ontology of the (physical, social or mental/subjective) object to be located." (WERLEN 1993:144)

In searching for methods to understand human behaviour and determinants and forces which shape social and thus geographical space, concepts of institutionalism offer suitable approaches. While there has been so far no universal definition of an institution for the use of sociologists, economists and others alike, Scott offers a rather comprehensive one:

"Institutions consist of cognitive, normative, and regulative structures and activities that provide stability and meaning to social behaviour. Institutions are transported by various carriers-cultures, structures, and routines - and they operate at multiple level of jurisdiction." (SCOTT 2008:48)

While Scott refers to levels of jurisdiction, institutions are not limited to jurisdiction only. Rather, they are also related to other levels of social space. This scaling paves the way for analysis of societal processes with spatial components, or frameworks, as postulated by Werlen. Here, methods from political economy offer a useful concept, namely the framework of Institutional Analysis and Development (IDA), developed by Elinor Ostrom. This approach focuses on processes and negotiations within the social space - between actors or participants in so called action arenas. However, it also acknowledges the existence of repercussions on exogenous variables such as biophysical and material conditions (OSTROM 2005).

Not clarifying whether he refers to fellow scientists or the subjects of research, Amartya Sen titles one of his articles "Rational Fools" (1977). In this article he criticises paradigms of rational choice, profit and utility maximization which are considered as the

basis for decision making in classical economic models. Commitment and sympathy, apart from other complex psychological factors, are important variables determining individual decision making (SEN 1977). This does not only refer to household economics, but also to use of common or collective property. In the last decades, theoretical approaches, including institutional and behavioural aspects of decision-making have entered agricultural economic research (MENDOLA 2007), but standard models are still commonly used in research practice. Methodology of agricultural household economics only help to explain certain parts of complicated decision making processes in remote areas of South Western China. Influences of institutions, based on cultural, political or social aspects are hardly taken into account, which have been proven to be of utmost importance to land use change. Nonetheless, methodologies have helped to compose a quantitative picture of household and community socio-economic structures. Degrees of subsistence and marketization orientation of households and villages can be assessed, but it is questionable whether land use and therefore land use change can be projected based on this quantitative data alone.

This is where the discipline of sociology offers useful concepts. The theory of "moral economy", for example helps to explain traditional socio-economic and political relationships in communities of Southeast Asia. For Chinese border villages with strong historical ties, this offers an analytical frame to compare villages and communities throughout different stages of development, for example, based on their degree of subsistence, leadership structures and land use regimes. Patron-client relationships help to explain the power structures within villages and larger administrative spaces (EISENSTADT & RONINGER 1999). Applied to institutional analysis, it enables understanding of power differentials between actors and the nature of negotiation processes within action arenas, particularly on the operational level, which is characterized through personal rather than bureaucratic relationships.

Political ecology, which claims transdisciplinarity, is a framework which has offered several ideas for this research, particularly those of ROBBINS (2004) and SCOTT (1998, 2009), who both highlight the importance of historical configurations for current processes. Particularly the development of property rights, tenure and access regimes are considered as important within this study.

Aiming to discover interrelations between the social and the ecological spheres, ecology and biology cannot be disregarded. However, despite efforts of different sub-projects to understand environmental processes, relatively little information is available on the development of soils, habitats and hydrology of the research area. Therefore, generalizations regarding these often preliminary results need to be avoided. Particularly when looking at earlier attempts of the discipline of political ecology, the discipline has been disapproved of as being uncritical - basing concepts and assumptions on unscientific environmental narratives of irreversible degradation, "with little consideration of either the hegemonic impacts of northern citizen science (...) or of paradigmatic shifts in the biophysical sciences regarding ecological dynamics and complexity." (SULLIVAN 2000:16). In order to avoid this trap, ecological processes or transformations could only be integrated into the research to a limited extent. Firstly, only a fraction of ecological processes could be looked at by members of the LILAC team and secondly, few research outcomes had been published at the time of writing. ROBBINS (2004) also considers the lack of data as a limiting factor in political ecology research. Furthermore, he criticises that chains of explanation as postulated by BLAIKIE & BROOKFIELD (1987) tend to follow

explanations upwards in hierarchical order. With the environment and landscape at the bottom as a mere recipient and subject to increasing scales of interaction, these chains determine a hierarchy of power and causalities which do not gauge multi-level and complex causalities (ROBBINS 2004). Rather, as already mentioned above, the environment is considered as an agent itself and not only a stage for power struggles over resources. Contemplating different actors, including the physical environment, as a network (or in order to reduce complexity, a series of networks), the model becomes more dynamic and less deterministic. ROBBINS (2004: 212) points out: "Rather than manipulating or waiting for changes in global political economy to trickle down a chain, a network allows us a range of places for progressive political action and normative change."

1.3 Methodology and data collection

Apart from secondary sources used for historical contextualization, most data for this thesis was gathered through intensive field work in the research area between 2007 and 2009. The aim of the extended field trips was to attain, as close as possible, an emic perspective of local realities, perceptions and livelihoods. Exploring and observing Xishuangbanna's landscape and people over a period of more than three years also enabled the witnessing of rapid transformation processes in "real time". With the aim of doing research from a multi-disciplinary perspective, a multi-disciplinary approach to data collection was chosen. This included the application of methods from social sciences and geography, and also the use of secondary data in the form of research results from team members working in natural sciences, such as botanists and hydrologists.

The research procedure followed the rules of Grounded Theory which stipulates that "a researcher does not begin a project with a preconceived theory in mind (...). Rather, the researcher begins with an area of study and allows the theory to emerge from the data." (STRAUSS & CORBIN 2003:12). In practice, the research design was not strictly "set in stone" before commencing research in the field. Rather, literature review on development and land use change in rural China and mountainous Southeast Asia was undertaken as preparation to the field work. The methods were mainly, but not exclusively, based on qualitative research methods. According to Strauss and Corbin, "the qualitative should direct the quantitative and the quantitative feedback into the qualitative in a circular, but at the same time evolving, process with each method contributing to the theory in ways that only each can." (STRAUSS & CORBIN 2003:35). Apart from qualitative interviews and participatory methods, a quantitative survey was conducted and statistical data from the government was obtained.

Qualitative and quantitative approaches

In February and March 2007, a pilot study was conducted, including 15 semi-structured interviews with village heads and staff from the Naban Nature Reserve. This data allowed gaining a general overview about respective villages and their socio-economic structure in the research area, and also an insight into local environmental issues.

Another important part of the research included a "baseline survey", conducted by almost all members of the LILAC research team in January 2008. Participatory methods from the "toolbox" of the 'Rural Participatory Appraisal' were used, including community and resource mapping, village tours and transect walks, timelines on village history and land use change, and festival calendars (SALAS ET AL. 2007). In small focus groups, consisting of two to three members of the LILAC team and two to three villagers, different topics were discussed and explored. After a short period of reluctance, villagers be-

came increasingly enthusiastic and willing to participate and engage in new methods such as drawing and other modes of visualization. The baseline survey was conducted to provide the members of the research team with a basic understanding of different topics in the research area and the people within it. It also aimed at introducing the foreign researchers to the local people (or at least to the local elites). In many villages, the participatory workshop worked as an icebreaker, showing that many researchers are genuinely interested in and appreciate local and traditional knowledge and expertise.

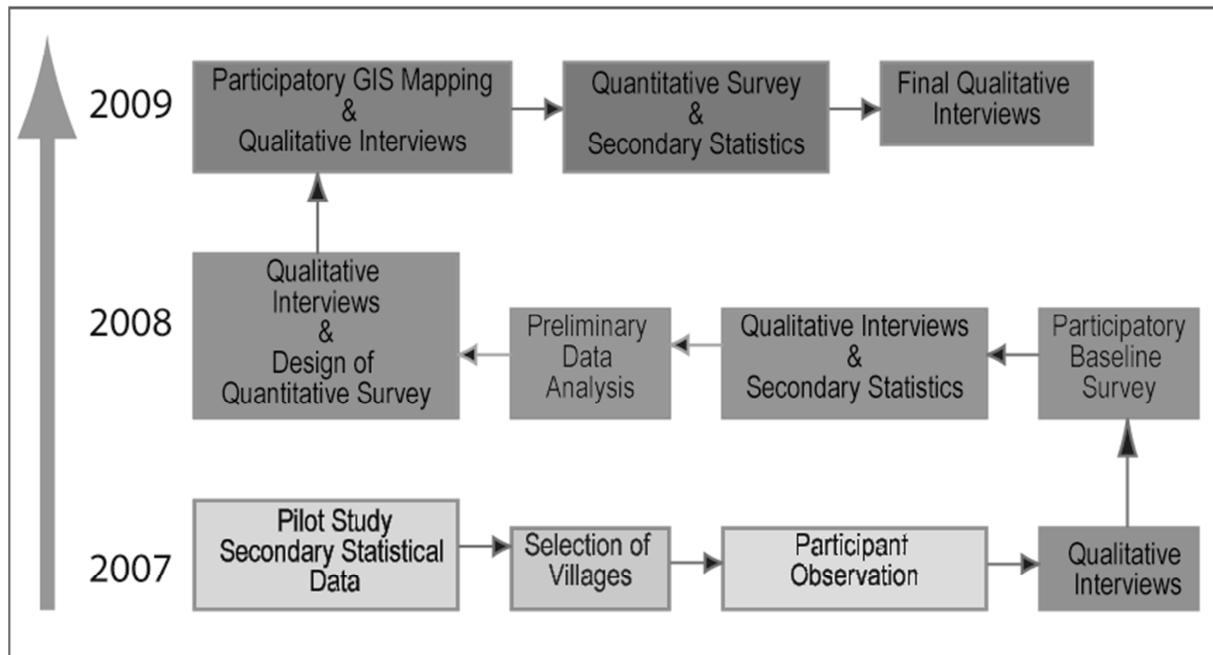


Figure 1: Itinerary field work

While it took several months for the official research permit to arrive, the first few months in the field were used mainly for informal communication and participatory observation of agricultural practices, festivals and everyday life in the villages. Case studies of selected villages were undertaken. Villages were selected according to a set of criteria, including ethnicity, elevation and economic situation. Considering the size of the whole research area, the selection of case study villages, which can be considered as independent social units, were also necessary as a point of reference for the spatial units. Different types of interviews were conducted, including semi-structured household interviews, interviews with village heads, life-histories and qualitative interviews on specific topics (like history, land use history, migration etc.). The selection of interviewees was random: either the research team was introduced by the village leader or another person already familiar with us or the research team just walked from door to door in the village until someone was willing to participate.³ Mainly during the period between January 2008 and March 2009, about 180 interviews were conducted directly in the research area.

Apart from household interviews, about 25 expert interviews were conducted with staff from the NRWNR administration, township administration and different government departments related to land use on county and prefecture level. Despite the official research permit it was very difficult to get an appointment or interview with these authorities. Thus the initially intended amount and scope of expert interviews had to

³ The research team consisted of one or two Chinese (-Akha) research assistants and myself.

be reduced. Interviews were conducted in Chinese, Dai or Akha language and then transcribed and translated into English. Analysis and interpretation of data was facilitated through the use of Atlas TI programme, which facilitated the finding of suitable categories, and coding without losing the “bigger picture”.

Apart from the qualitative interviews and observations, a quantitative survey of 100 households was conducted in cooperation with the ECON-B subproject. This data was also collected by the research assistants, fed into an Excel-Database and analysed with SPSS.

Participatory GIS mapping

Obtaining spatial data and cartographic material from (official) sources is a difficult task in China. However, to link social and spatial data, i.e. landscape and society, at least some references were necessary. The unavailability of this data was an inspiration to engage in participatory GIS mapping with local villagers based on an aerial photograph of the research area. In session lasting 1-2 hours, participants became acquainted with the new technology of aerial photography and the unfamiliar perspective it offers. Participants were asked to point out the village boundaries, certain land-use types and special areas and locations within their village area. Application of this method offered more information than mere administrative boundaries between the villages. It provided an insight into the depth of the local knowledge of the landscape and the people’s perceptions of the landscape. Also, during the session, valuable information on land use and land use history could be gathered.

Methodological reflection

Reflecting on the research process, some issues which emerged during the field work are worth mentioning. Research in a Chinese rural mountain area is a culturally and socially challenging task for both the researcher and other people involved in the research setting. Epistemological differences became very obvious during field work. A first indicator was that many villagers had little understanding of the idea of research. Thus, we were often mistaken for “development experts”, and were asked for money, infrastructure improvements or other forms of aid. The idea of a German girl asking questions for the sake of scientific research was as alien to them as the experience of being awakened by political and practical announcements of the village head at 6.00 a.m. through the village PA every day was to us. Only a limited degree of reflection was necessary to become aware of the constructed nature of different local Chinese realities and of course, the constructive nature of the research and the emerging data. However, to improve understanding about people and processes in a research area about which little is known, the chosen approach proved suitable, since it fulfilled necessary prerequisites, as Guba & Lincoln point out: “constructivist inquiry is iterative, interactive, hermeneutic, at times intuitive, and most certainly open.” (GUBA & LINCOLN 1989:183).

1.4 Theoretical considerations on space, environment and landscape

Definitions of the concept of landscape and nature and particularly the question whether nature and environment are social constructs or scientific facts have become the focus of scientific debate. This debate did not merely originate as an issue of theoretical and philosophical interest, but also from emerging global environmental issues. The debate has placed possible implications of social constructivism and the inherent relativism on protection or conservation of nature and environment on the agenda. A scientific

community of conservation biologists and other natural scientists call for a “non-questioning” regarding outcomes of environmental research, on which environmental protection schemes and instruments should be based on. For example, Soulé and Lease argue that “(...) certain contemporary forms of intellectual and social relativism can be just as destructive to nature as bulldozers and chain saws” (SOULÉ & LEASE 1995:XVI). This critique on social constructivism, particularly in its relativist extreme is understandable, especially when considering the “global warming myths” debate in relation to climatic change that threatens the livelihoods of millions of people.

The disputes fought in the realm of theory of science, based on centuries old philosophical and epistemological differences of opinion are almost impossible to resolve. Proctor (1998) enters a reconciling path, emphasizing that social constructivist ideas come in different intensities and “point to ways that geographers and others whose business and concern it is to represent nature can indeed have something to say.” (PROCTOR 1998:352). A compromise is offered by the school of social institutional constructivism, as followed for example by SULLIVAN (2000). This approach accepts the validity of scientific facts, but also considers aspects of social constructivism. While this approach still faces philosophical weaknesses (ROBBINS 2004, PROCTOR 1998), it is appealing when looking at environmental and land use change, since it offers space for scientific facts and social interpretation. When observing the research area, it does not seem useful to deny certain environmental change phenomena. Deforestation, loss of biological diversity and erosion, for example cannot only be measured through objective scientific procedure. Being aware of the “trap” of environmental narratives, land cover change and likely detrimental effects become tangible to non-ecologists. The underlying concept of this research is Foucault’s idea that natural science does not offer the ultimate truth, but merely one perception or interpretation of reality. Nevertheless, the sciences do offer frameworks which are useful when analysing environmental and land use change.

Environment is defined in terms of a biosphere concept, including species, ecosystems and interlinked bio-geochemical processes (VATN 2005: 231). The biosphere concept represents the environment as a network of factors and processes, which are mutually interdependent and influential. From this point of view, the social sphere and humans as one species of many are easily integrated into the environment. Following the above argumentation of constructivism, not only nature is socially constructed, but also the social is a construct, an outcome of nature and therefore an inherent part of nature. This is also corroborated by the assumptions of the Actor Network Theory (ANT). Latour criticizes the distinction and separation of the world into nature, culture, psyche and god and considers this fragmentation as the “constitution of modernity” (LATOUR 1998:22). One of the more radical assumptions of the ANT is that all entities are social actors, not only humans. For example humans do not only operate a machine or treat a piece of land but interact with it in most cases. Humans, acting on animate or inanimate objects will receive repercussions, since the objects in question exert influence on the initial actor. Thus, the separation between nature, culture, psyche etc. cannot be upheld, rather they are interlinked within interdependent and mutually influencing networks. Though recognizing the critique that inanimate and non-human objects do not act purposively, consciously or actively, the holistic approach of the ANT is helpful. Following this line of thought, the geographical space of NNNR, the natural envi-

ronment and its particular conditions are considered as interwoven with the social spheres and the institutions which exist within.

Once upon a time, the area now called Xishuangbanna, or to focus further, NRWNNR was what we now consider as a natural landscape; covered by primary forest, with different vegetation types, the variety of eco-systems originating from different biotic and abiotic factors of the environment. The landscape and ecosystems of NRWNNR have been under human influence for several centuries and have turned into a cultural landscape. According to Antrop,

“[a]landscapes change because they are the expression of the dynamic interaction between natural and cultural forces in the environment. Cultural landscapes are the result of consecutive reorganization of the land in order to adapt its use and spatial structure better to the changing societal demands.” (ANTROP 2005:21)

The terminology of “landscape”, “natural environment” and “geographical space” were chosen deliberately here, in order to express the social constructivist nature of landscapes, which is for example constituted by BERGER & LUCKMANN (1967). According to GREIDER & GARKOVICH (1994), natural environments are transformed into landscapes through symbols and different meanings. The degree of human influence on landscapes varies considerably; it can be considered as function of human intervention and physical characteristics, such as water-availability, gradient or temperature. Thus, the type and degree of human intervention is influenced by the landscape itself. The appropriation of the landscape by humans to varying degrees has led to a fragmentation of the physical space, the emergence of socio-ecological systems and the construction of social spaces within those landscapes.

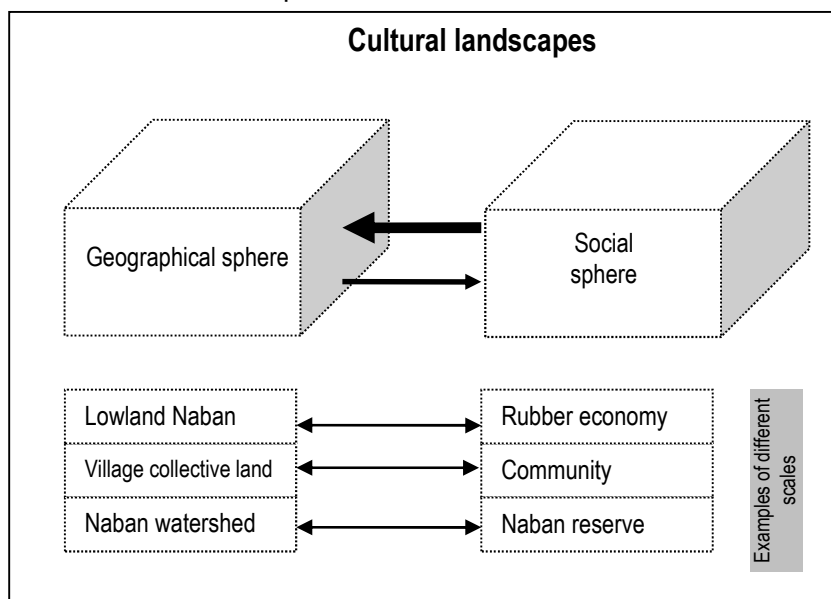


Figure 2: Cultural landscape as a function of geographical and social space

These become perceptible for example through land use patterns and land use classifications as social constructs. Escobar examines the concept of biodiversity, which is a key issue of land use change in Southeast Asia from a social constructivist perspective. When defining biodiversity loss as the measurable decline of species, varieties and habitats in a given area, in Xishuangbanna, biological diversity decline

is a scientific fact which is well researched by several national and international scientists (SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY 2001, ZHU ET AL. 2004). At the same time, biodiversity “(...) must be seen as a discursive intervention of recent origin. This discourse fosters a complex network of actors, from international organizations and northern NGOs to scientists, prospectors, and local communities (...)” (ESCOBAR 1998:53). Loss of biodiversity and other forms of environmental changes which are

perceived as negative and threatening or even have negative impacts within the social sphere need to be addressed through focussing on human organization, as pointed out by BRECHIN ET. AL. (2002).

Landscapes and land use on the one hand and social processes on the other hand are the focus of this research. Figure 2 shows the underlying concept of space and landscape with their interrelations and their multiple scales. For example, the individual community influences land which belongs to their community, i.e. the village collective land. Depending on the characteristics of the land and the geographical and material variables, the community decides on appropriate land use practices and on appropriate tenure and access systems. The challenge now remains to integrate variables from different spheres to gain a better understanding on proximate and underlying causes, processes and interrelations of land use and social change.

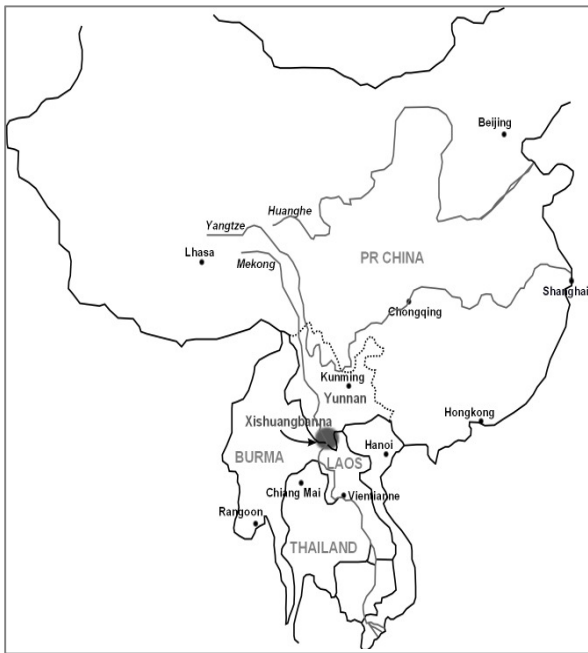


Figure 3: Xishuangbanna as a transition region between China and mainland Southeast Asia

2 Xishuangbanna from a geographical perspective

“Xishuangbanna - what place in China has greater fascination! In my mind it meant beauty, natural wealth, a subtropical paradise.” (ZHENG 1981:1). This passionate description reflects very well the image invoked in many Chinese and Thai people when talking about Xishuangbanna, the former Dai kingdom of Sipsong Banna in Southwestern China. Only relatively small, Banna displays an astonishingly high degree of cultural and biological diversity.⁴ This setting has always made Banna attractive and special, but also vulnerable to external interests and interventions. Geographically and politically wedged between

the powerful neighbouring empires of Burma and China, the Buddhist kingdom, ever since its founding in the 13th Century, had struggled to keep its independence. The Dai as the ruling class of a feudal state settled and dominated the lowlands, while in the remote and topographically challenging uplands, various ethnic groups followed relatively secluded and independent lifestyles and livelihoods. Never being directly exposed to European colonial ambitions (like the neighbouring areas of Laos and Burma), Banna was increasingly influenced by the Chinese Empire, and later on the Republic. After 1950, Banna lost its remaining spheres of sovereignty and was absorbed into the People’s Republic of China (PRC). Banna became subject to many folded external influences and interests. It was integrated into a national and global economy as a supplier of natural resources, and became recipient and target of ambitious projects of civilization, modernization and development, implemented by the Chinese state. Over the last decades, the social and physical landscapes of Banna completely changed their face, function and structures.

2.1 A place and history

To understand the human and social landscape of Banna, a basic understanding of its environmental and physical conditions is valuable. Past and present likewise are interwoven with the environmental characteristics of the region. Environmental factors still directly and indirectly influence recent economic and social developments. Nestled between 21 and 23 degrees north and 99.5 and 105.5 degrees east, along the Tropic of cancer, Banna is in many aspects a transition zone, a zone of overlapping influences supporting a high degree of biological and cultural diversity. Annual mean temperatures hover around 22°C in the lower areas and around 16°C in higher altitude areas of Western Banna. Average rainfall mounts up to 1400 mm per year (with microclimatic variations). In the rainy season between May and October, the south-western monsoon de-

⁴ Subsequently, Xishuangbanna will also be referred to as Banna, for reasons of brevity and also in reminiscence of the historical name Sipsong Banna.

livers hot and moist air masses from the Bay of Bengal. The months from November throughout March are practically free of rainfall. Annual precipitation is increased through about 145 foggy days during the dry season, being crucial for the native tropical vegetation (ZHU 1997). Banna's topography is diverse, with altitudes ranging from 450m to 2500m above sea level. With the foothills of the Himalayas running from north to south, the landscape features rugged mountains and steep valleys, but also undulating hills and basins. These basins, only constituting 5% of the terrain, have always been ecologically favoured areas, agricultural *Gunsträume*, and spaces for permanent settlement. One of the most striking features is the Lancang Jiang or Mekong River, which winds through Banna from north to south, fed by tributaries from twenty watersheds (LI ET. AL. 2006:1734). Before becoming a natural border between Laos and Burma, the Mekong already carries 16% of total flow on her long way from the Tibetan highland to the Mekong Delta (MEKONG RIVER COMMISSION 2003:7). In recent years, the Mekong has become focus of infrastructure development, i.e. the construction of a large dam near Jinghong, and several ports.

Banna is also a transition zone between the flora and fauna of tropical Southeast Asia and subtropical and temperate China. It is the region with the highest biodiversity in China: covering only 0.2% of the country's total land mass, it is home to 5000 species of higher plants (16% of those found in China), 102 species of mammals (21.7% of those found in China) and 427 species and subspecies of birds (36.2% of those found in China) (ZHANG & CAO 1995:229). As an old cultural landscape with a long history of settlement, it also hosts a high degree of cultural and agricultural diversity. Over many centuries, livelihoods and land use techniques have become highly adapted to the diverse local environments. Regarding its physical geographical features and the historical configurations, Banna can be considered as part of mountainous mainland Southeast Asia.

2.1.1 Political and social order of the multiethnic Buddhist kingdom

The first written evidence of human settlement in the area dates back to 206BC, when the region and its inhabitants were first mentioned in Chinese chronicles. Regarding settlement history of the wider region of Southeast Asia, it is likely that groups moved in even earlier (ZHU 1992:3). The largest and most dominant group have been the Dai Lue, who, after their advent from the North, have settled in the fertile valleys and displaced other groups into less favourable environments in the hillsides. The history of statehood began in 1181 AD, when the local Dai chieftain *Chao Bhaya Cheeng* founded the Dai kingdom of Sipsong Banna, the State of Lue, and the area became an autonomous political entity. The fertile valleys of Banna, where paddy rice cultivation had flourished for centuries, allowed the production of surplus and thus facilitated the development of social stratification and political organization. Besides the dominant people of the Dai Lue, many other ethnic groups, like Akha, Lahu, Bulang, Yi and others had settled in the mountains of Banna. These peoples, hunters and gatherers, some with a semi-nomadic lifestyle, had little to no political organisation beyond the village gate and little internal social stratification (KUNSTADTER 1967, WALKER 1974).

The concept of the "paddy line" helps to understand social and cultural processes and structures in historical Banna. The paddy line, a socio-ecological boundary, divided Sipsong Banna into two spheres: the paddy cultivating areas, corresponding with the orderly and legible irrigation landscapes of the valleys, and the non-paddy cultivating areas, untamed, mosaic landscapes of shifting cultivators. Determined mainly by environmental factors like topography, water availability and temperature, different groups

with different cultural characteristics developed and co-existed. Below the paddy line, in the valleys of the Mekong and its tributaries, the Dai people established a feudal Buddhist kingdom, with a certain degree of centralization and the development of urban centres. Beyond the paddy line, in the mountainous areas, the non-centralized and politically non-organized territories of the non-Dai groups spread. These areas were rugged, difficult to access, heavily forested and extensively used mainly by shifting cultivation activities.

The centre and the court of the feudal kingdom was located in Meng Chen Hung, (today's capital Jinghong). The town constituted the political, bureaucratic and spiritual centre of the state. As head of a Buddhist kingdom, the *Chao Phaendin* derived his legitimacy from the Theravada concept of dhammaraja (HILL 1998).⁵6 The political structure of the kingdom was stabilized through the clergy of the strongly hierarchical monastic society, with its headquarters- the Vat Long - close to the *Chao Phaendin's* Palace (BAUMLER 2007:196 FF.). Administratively, the kingdom was divided into 30 principalities or Meng.⁷ The principalities were ruled by hereditary leaders, themselves members of the royal class. The control of the *Chao Phaendin* over the rulers of the Meng was neither stable nor uniformly strong, as CHEN (1949:19) hints: "Their relationship with the Zai-pilin varies from time to time, nor is it of the same degree of intimacy."⁸ The kingdom was centralized, but degree of power and influence of the central court over the Mengs and the territories of the kingdom was fluctuating.

The political order was upheld by a strictly hierarchical social system. The society was divided into a royal class, commoners, and slaves. Institutions governing access to land were closely linked to the social hierarchy. According to class affiliation, people had access to land resources or were forced to work as agricultural labourers or servants of the royal court. Basically, "all land and water belong to *Zhaopianling*" (GAO 2006:791), who granted land to the leaders of the Mengs in order to establish an indirect control over resources and also to the peasants who had usufruct rights to agricultural land. Little knowledge is left about the old institutions and only general characteristics of the former land ownership and structure of usage right can be distinguished (SETHAKUL 2000, GAO 2006, CHEN 1949).

Peasants had usufruct rights to arable land, mainly paddy fields. Only for small parts of land rent was to be paid to the village community. The villages had to pay taxes to the state, but as a lump sum from the village rather than on an individual level. Village land was frequently redistributed within the village and adapted to fluctuations in the amounts of households. Local village leaders and officials had access to larger amounts of land than ordinary peasants. These leaders were not members of the royal class; they were elected by the villagers but needed legitimation through the prince of the Meng, a system similar to today's appointment of village leaders in China. Private, individually owned land (except the *Chao Phaendin's*) was uncommon, at least in the traditional ownership structure. However, with increasing influence of the Chinese magistrate and Chinese traders, land started to turn into a negotiable private good in the 19th Century, a finding which is corroborated through own research results. *Na Cha* translates into Crown Land. Owned by the royal class, peasants had to deliver corvée labour with vary-

⁵ "*Chao Phaendin*": the title of the king of Sipsong Banna, literally translates into "Lord of the Earth".

⁶ The king rules his people according the teachings of the Buddha (Pali language: Dhamma).

⁷ Many places in Banna still carry the syllable "Meng", in Thailand the syllable Muang is corresponding.

⁸ *Zai-pilin* or *Zhaopianling* are different spelling for *Chao Phaendin*.

ing degrees of exploitation. Under the labour rent system, peasants had to produce and deliver the complete harvest, only receiving food in return. The “rent in kind” system was less burdensome and peasants could at least keep 60 to 70% of the harvest.

The system governing the lowland Dai can be classified as feudal with communitarian qualities at the local level (CHEN 1949, GAO 2006). It remains unclear how much influence the king and the Dai administration actually had over the territory and its resources. It is likely that upland groups, mainly shifting cultivators, followed their own local institutions governing the access to resources. To show their allegiance and their acknowledgement to the *Chao Phaendins*'s nominal supremacy over natural resources, the villages paid tribute to the court. According to STURGEON'S (2005) research on Akha in Jinghong County, the upland villages practiced a collective access system with flexible village borders. Access and use rights were governed by demand. Our own research among Akha and Lahu in Menghai County indicates the existence of private property dominated by local landlords.

The intensity and quality of relations between upland and lowland people is hard to assess.⁹ The writings of many Chinese scholars paint a rather dark picture of the existing political and social order in the old kingdom: “Before liberation the Dai region writhed under the dark rule of a serf society. (...) Xishuangbanna was liberated and the slaves in the old society became masters in the new.” (CHENG 1981: 7). These writings seem biased, attempting to underpin the legitimacy of the Communist Liberation from backwards, feudal structures. Despite the limited information on Banna itself, drawing on other sources of Southeast Asian state formation processes, it can be concluded that the Buddhist State of Sipsong Banna was a feudal, but not necessarily a totalitarian one which included all areas and subjects likewise. From the centre of Jinghong, influence and power was, similar to the concept of the “mandala polity”, declining towards the outer regions of the realm (WOLTERS 1999). The different, politically non-organised ethnic groups in the periphery of the kingdom, beyond the paddy line, were not under direct control of the king. The Dai rulers limited their intervention to the economic sphere of upland communities: to the extraction of taxes in-kind and in silver. Apart from taxation and strictly ritualized, deferential behaviour towards Dai people upon encounter, the “hill tribes” enjoyed a high degree of autonomy on internal affairs. Leach's extensive research on highland Burma also extends to understand the structures in adjacent Banna. Even though the lowlander or valley people saw themselves in a superior position, their control was limited. They assured the allegiance of the hill people: The valley prince “could organize punitive expeditions and levy tribute, or he could pay protection money to the hill tribesmen as a reward for their loyalty.” (LEACH 1960: 59).

Hill dwelling ethnic groups ranged at the bottom of the kingdom's social order. The many different groups seemed to have led a more or less peaceful coexistence, with periods of war and internal struggles (GIERSCH 2006). The Dai, as the dominant group, had little aspiration to assimilate the other ethnic groups. Even though interethnic marriages did not occur, there was mutual acceptance of each other's' culture and difference. However, the acceptance of ethnic belonging did not mean acceptance at eye level. The Dai clearly regarded themselves as the superior group with the highest level of civilization, assessing the other groups as inferior to different degrees, sentiments which are still, albeit subtly, abound in modern Banna.

⁹ Reliable data is hardly available. Historical sources, for example from Dai manuscripts were mostly destroyed during the Cultural Revolution.

2.1.2 Agriculture and land use systems of Sipsong Banna

Like in many regions of Southeast Asia, particularly in the mountainous Mekong region, two main traditional agricultural systems can be found in historical Banna. As indicated before, the paddy line is as much an ecological as a sociocultural border, since the land use systems were closely linked to the culture and natural environment of the ethnic groups. One important system is the paddy rice culture of the lowland Dai. For the Dai, paddy rice production was an integral part of their identity and most of the Dai rituals and festivals evolved around water and the paddy production cycle. The less intensive form of land use dominant in Banna were shifting cultivation regimes of the slope and highland dwelling groups, whose lifestyle and culture was closely intertwined with the practices of slash-and-burn. The shifting cultivation (also referred to as swidden or slash and burn agriculture) systems are highly diverse. They vary between different ethnic groups and between different regions of Xishuangbanna, sometimes even between neighbouring villages of the same ethnic group (SAINT-PIERRE 1991, YIN 2001).

Over the centuries, the Dai have developed a sophisticated system of irrigation which is closely linked to their social and political order. On the one hand, the production of surplus gave the opportunity for the development of a non-producing and non-productive class within the society. On the other hand, the irrigation schemes could only function and generate those surpluses through a strict order within the society. The establishment and maintenance of irrigation schemes were tasks of which success depended on cooperation and a certain degree of bureaucratic organization. Some irrigation schemes were of course established and maintained by single village communities, but especially in the larger basins, the schemes could also be more extensive. In the Jinghong area for example, the longest channel stretched over 25 km and supplied irrigation water for eleven villages (GAO 2006:775). Unlike today, glutinous rice was the major produce, and the share of non-glutinous rice ranged below 20% in 1940s (CHEN 1949:37). In 1962, a survey found 144 different varieties of rice in Jinghong County alone (GAO 2006:633), with varieties highly adjusted to local environmental conditions. Traditionally, only one harvest was produced per year. Shortly after the Water Splashing Festival in April, which brought the end of the dry season, the rice growing season started. During the half-year fallow period between November and April, grazing animals fertilized the paddy fields with their manure. Other sources mention that in the second half of the year, vegetables, peanuts and tobacco were cultivated in the paddy fields, a practice still found today. These products were not only for personal consumption, but also for exchange. CHEN (1949) points out that there was already a specialization of villages on one or two goods or products. These products were basis of an inter-village exchange, and also basis for exchange with highland people. Home gardens were cultivated mainly for subsistence.

Beyond the visually and functionally well-ordered and fertile paddy landscapes of the valleys and plains, dense forests, interspersed with shifting cultivation agriculture shaped the landscape of mountainous Sipsong Banna. As Sturgeon points out, landscapes and boundaries of land use were fluid (STURGEON 2005). Basically all ethnic groups, even the Dai who lived in more mountainous areas were engaged in shifting cultivation (or swidden/slash-and-burn) agriculture. Soil conditions did not allow for permanent cultivation of the same plots of land, so after a certain period of cultivation, a plot was left fallow and secondary forest could regenerate. After several years or decades, the initial block was cleared and burned again and a new cycle started. Unlike rice

cultivation practices, which were ritualized and institutionalized throughout Dai communities in Banna, shifting cultivation practices showed a high degree of diversity. According to population density, labour availability, cultural specification and of course environmental conditions, each group or locality had, over the years, developed specific sub-types adapted to their particular environment. The Jinuo, for example, mainly for spiritual reasons, had kept a fallow cycle of 13 years, while the more practically oriented Bulang varied their cycles between 10 and 20 years (YIN 2001). Opening up new swidden fields was also a communal task, and mutual assistance within the village, particularly between extended families and friends, was also an important aspect of culture and social structure. However, the mutual dependencies within the highland villages did not result in such highly organized and socially stratified structures as among the Dai in the valleys.

Crop variety of the swidden fields was huge, consisting of upland/dry rice, buckwheat, corn, cotton, taro, and many other vegetables, spices and other plants. Yin for example has compiled lists for different swidden agriculturalist communities in Banna, giving an indication on the tremendous diversity of the past (FU ET AL. 2006, YIN 2001). During the fallow period, the naturally succeeding flora and fauna provided a variety of products for consumption and other uses such as medicines and raw material for handy crafts. For centuries, upland or dry rice was the most important staple good and grain for the mountain dwellers. The upland groups, like the Akha, settled in closer proximity to the Dai. Those communities with access to suitable land had also adopted paddy rice cultivation in addition to upland rice.

Even though agricultural production focused on covering subsistence needs, some groups have started to engage in cash crop production. One important product which is still an important cash crop in Banna is tea. Bulang, Jinuo and Akha people started to cultivate tea (*Camellia Yunnanensis*) centuries ago (HILL 1998). Tea trees, often several meters high were kept among natural, open canopy forests (CHEN 1949). Today, tea leaves from these ancient trees are the most sought after and most expensive teas leaves in Banna and beyond. In the second half of the 19th century, opium cultivation expanded throughout the highlands. Even though initialized as a cash crop, many peasants became addicted to opium. According to temporary witnesses, many families in Menghai lost their land because they had to finance a family member's addiction. Not since *Papaver Somniferum* prefers highland conditions, it was mainly the upland groups who were involved. This probably did not add to their good reputation, but rather added to worsening their image, particularly when opium addiction and abuse became a serious problem throughout China and adjacent areas.

2.1.3 Sipsong Banna: politically peripheral, but a node in an international trade network

Despite difficult topographic conditions Banna was part of different trade networks which reached far beyond local exchange systems between highland and lowland communities. The Mekong was not suitable as a route of transport beyond local distances, which was probably one reason why Sipsong Banna remained undisturbed by European powers. Thus, goods, both south- and northbound, were transported on horseback and mules. According to Giersch, Sipsong Banna was an integral part of the "Crescent", the Sino-Southeast Asian Borderlands which he analyses thoroughly from historical perspective (GIERSCH 2006). There is no data on the quantity of trade throughout the centuries. Figure 4 shows export volumes from Xishuangbanna in 1939, which gives an idea

about the goods and amounts traded. Tea has been the main export for many centuries. The famous *Pu Er* Tea, named after a historical centre for tea exchange in Southern Yunnan originated from the mountains of Sipsong Banna. From the place which is today's county capital Menghai, tea was transported through the town of *Pu Er* up to Tibet and as far as India, along the "Ancient Tea and Horse Road" (HILL 1998). Tea was an integral part of Tibetan diet, but needed to be imported. As an exchange good, sturdy and robust horses were exported from Tibet, and mainly sold to the Army of the Chinese Emperor (YANG 2004). The former capital, nowadays Jinghong, was also located along the Southern Silk Road, which was a main transport route of orient trade: silk, incense, cotton, salt, gems and lacquer and other rare luxury goods originated from or passed through Banna. This also included a flourishing trade with the adjacent Buddhist kingdoms, particularly in salt (HILL 1998, WALKER 1999).

	Total Production (t)	Export (t)	Export (%)
Glutinous Rice	11110.3	60.4	0.5
Soft Rice	6460.9	36.2	0.6
Corn	24.2	0.0	0.0
Soy bean	38.0	6.0	15.9
Cotton	60.4	30.2	50.0
Tea	193.2	120.8	62.5
Tobacco	60.4	0.0	0.0
Camphor	1.9	7	87.5

Figure 4: Xishuangbanna's production and export of agricultural goods in 1939 (CHEN 1939)

Sipsong Banna, though not a major centre of trade and commerce in Southeast Asia, was well connected and has always been supplier of natural resources. Amounts of goods delivered and exchanged were at a low level and did not lead to dependencies or mono-structured economies. A new era with wide implications dawned when, through the intervention of imperial powers, the Chinese demand for opium skyrocketed in the second half of the 19th century and consequently, Yunnan became a leading producer

(BAUMLER 2007). With suitable environmental conditions, the mountain communities started producing poppies, mainly for the Chinese, but also for the Burmese market. The trade was run by Tai and Han Chinese. Highland people were, more than ever before, integrated into a cash/silver based trade network and cash economy through tea trade (STURGEON 2005) (see Figure 12).

2.1.4 Sipsong Banna: independent kingdom or vassal state?

Economically integrated into supra-local networks, Sipsong Banna was also politically linked to various neighbouring entities. Links and relations with the neighbouring states have always existed, albeit with alternating intensities. The independence of the small kingdom in historic times has been subject of a polarized debate. Many Chinese socialist scholars have interpreted history and historical sources in order to prove that those areas inhabited by ethnic groups, particularly those in Western China, had always belonged to Chinese territory and had always been under the suzerainty of the Chinese Emperor. Bearing in mind unity and territorial integrity, the history of Sipsong Banna has been interpreted to justify Chinese hegemonial policies of the 20th century. According to Cheng (1981), Banna has always been directly or indirectly subordinate to the Chinese Court. Other scholars, for example HSIEH (2003) argue that Sipsong Banna was, at least up to the 15th century, an independent kingdom which maintained a stable and peaceful relationship with the powerful neighbour.

Banna was wedged between two powerful neighbours of China and Burma and maintained relations to the adjacent smaller kingdoms. The external relations of Banna, with

alternating allegiances and tribute payments show similarities to Wolter's concept of "mandala states" (WOLTERS 1999) (see also Figure 12). Within the mandala pattern of non-exclusive allegiances, Banna paid tributes to both overlords: Burma and China. As Leach points out, the *Tai Lue* of Banna were culturally and politically more inclined towards the *Tai Yai* of the Burmese Empire than to the Confucian culture of the Chinese (LEACH 1960). Sipsong Banna's relations to the neighbours in the South, namely Chiang Mai, Kentung and Luang Prabang seem to have been more intense than those with the Chinese Empire. Relations between the four small Buddhist kingdoms, based on shared cultural heritage and similar political and social structures, were unstable, alliances shifted and changed over the centuries. However, relationships were maintained for example through intermarriage of royal descendants (HSIEH 2003). In 1626 AD, Sipsong Banna was invaded by the Burmese Army and the *Chao Phaendin* was taken captive. The kingdom was forced to deliver tributes to the Burmese Court for at least three decades (CHEN 1949). Giersch states that Banna remained a tributary to Burma until the British occupation of Burma in 1885 (GIERSCH 2006:28 ff).

Located at the periphery of the Chinese empire with more than one year of travelling time from former capitals like Beijing and Nanjing, influence of the court was surely alternating in its intensity, control increasing throughout the centuries. From the perspective of the Chinese Centre, Sipsong Banna belonged to the Cheli Administrative Unit, which was initially set up in 1293. According to HSIEH (1989: 87), this administrative unit had to be re-established several times throughout the centuries and dynasties. Thus Chinese military presence in Banna was sporadic and non-permanent. The troops were garrisoned in Meng Kham, 30 km southeast of the capital Meng Chen Hung (BORCHERT 2008). During the Qing dynasty, influence clearly intensified and the *Tu-Si*-system, an institution to exert influence through indirect rule was introduced by the Chinese.^{10, 11} Local leaders and chiefs were appointed to govern the localities. Moreover, regular taxes in form of agricultural products or silver replaced the previously sporadically imposed tributes. In 1726, a year which rang in a period of turmoil, insurgence and violence, a Chinese Magistrate system was established to exert direct rule over the Ban Na east of the Mekong (CHEN 1949). The remnants of Sipsong Banna remained under direct control of the *Chao Phaendin*, who was already instrumentalized through the *Tu-Si*-system. In the late 19th century, Sipsong Banna, through the French-Anglo Treaty between Britain and France, lost whatever international reputation as an independent state it previously possessed. The territory was assigned to the Chinese territory, when the Upper Mekong region was divided between China, Siam, France and Britain (BORCHERT 2008:117). In the Republican period, the Chinese influence was intensified, and by 1932 the Magistrate system was expanded to all administrative units of Sipsong Banna. The sovereignty of the traditional ruler was further weakened, for example by loss of the tax monopoly and introduction of secular educational institutions (HANSEN 1999). The Chinese Magistrate levied taxes for financing education, leprosy prevention and other institutions imposed by the Chinese, which made up a large part of the total tax (see Figure 5). As CHEN (1949) points out, the heavy tax burden particularly aggravated inequalities within the society, since the royal class was exempted from taxation and therefore the commoners had to shoulder the tax burden exclusively. In an attempt to secure control

¹⁰ The Qing Dynasty, also known as the Manchu Dynasty lasted from 1644 until 1912 and was followed by the Republic of China.

¹¹ See Hill 1998

over territory, trade and natural resources, the Chinese Magistrate wielded increasing influence over Banna's social, political and economic affairs. Being so closely linked to the Republic of China, the peripheral area was not spared by the Japanese occupation and the Civil War.

2.2 Sipsong Banna becomes Xishuangbanna: Transformation of the social, political and economic structure after 'liberation'

With the incorporation of Sipsong Banna, soon renamed into Xishuangbanna Dai Autonomous Region, the turmoil of almost two decades of war came to an end. Law and order was re-established, but under completely different conditions. The idea of including the border area in the new nation and state was pursued by the new government with great vehemence. Local authorities were replaced and a new administrative system was introduced. Institutions governing and concerning all spheres of everyday life were altered. The former Dai kingdom became a prefecture of the People's Republic and relations with its Southeast Asian, neighbours, being political, cultural and economic in nature, were severed (see Figure 12). Politically, Banna became more closely linked to the centre in Beijing than before, becoming the recipient of communist ideologies, modernization projects and hundreds of thousands of Han Chinese, who helped to implement the new order. On a material level, Banna, as one of the few areas suitable for the cultivation of rubber in China, was steadily turned into a rubber plantation. These processes tremendously changed the social and natural landscape.

Main Household Tributes	Chinese \$	% to total
House Tax	4200	28.9
Leprosy prevention	87	0.6
Education tax	1750	12.1
Tax for sub-district office	700	4.8
Militia fee	700	4.8
Household extra tribute		
Liang-long	2917.3	20.1
Lian-nui (Chinese schools)	3317.3	22.9
Her-baan for magistrate's service	145.43	0.9
Her-gin for Zao-pilin's service	705.66	4.9
Total	14522.69	100

Figure 5: Taxation of Cheli villages in 1939 (CHEN 1949:47)
(Cheli was the official Chinese name for Sipsong Banna)

2.2.1 Chinese approaches to a "terra incognita": Liberation and the new order in the minority border areas

The installation of the new order in the remote and multi ethnic border regions was a difficult task, particularly in the sensitive frontier zones like Banna, where remnants of Guo Ming Dan troops and bandits roamed the countryside and minority groups still had strong affiliations with groups across the borders. Thus, the representatives of the new central government and the Chinese Communist Party (CCP) tried a cooperative approach to minority leaders:

"Basically the party branch sent out working teams to negotiate with the upper classes of ethnic groups, to ally with them, and to reach out for the masses through them. In essence, the CCP attempted to win the cooperation and support of the ethnic elites." (YANG 2009:253F.)

This strategy proved successful and Banna was 'liberated' rather peacefully. Local elites were, at least partially, left in power and the diversity of ethnic cultures and practices were tolerated. When the People's Liberation Army entered Jinghong City, the former place of court and current capital, the king of Sipsong Banna officially renounced the throne in favour of the new communist order. The Xishuangbanna Dai Autonomous

Prefecture was proclaimed on January 24th, 1953 (HARRELL 1995:315). The political elite of the Dai hierarchy were removed from power. The lower level leaders however were not yet expelled, but endowed with positions in the new government and administrative system, merely by changing their official title according to communist nomenclature. For example, the first governor of the Dai Autonomous Prefecture of Xishuangbanna was a member of the royal family, a relative to the former *Chao Phaendin*. The cooperation with the local ruler was "assuaging the fears of the Chinese Communist Party (CCP) of a possible independence movement on China's Southwest border." (BORCHERT 2008:114). Furthermore, many local leaders had already played the role of intermediaries between the local people and the Han Magistrate. Within the *Tu-Si*-system, local leaders had received legitimacy and knowledge about Chinese bureaucracy from the previous Han Chinese Magistrate.

The Ethnic Identification project

Despite long-term relations with the people of Banna, the new Han rulers had little knowledge about their new subjects and their cultural diversity. Unlike the Nationalist and GMT Government before, the Communists accepted the heterogeneity at least in the beginning and aimed at constructing a "unified, multinational state" (CHENG 1981: 24). In 1950, the Ethnic Identification Project was launched on a national level. All over China, but particularly in the western part of the new national state, the CCP started to pigeonhole the hundreds of ethnic groups, branches and subgroups within their territory.

Teams of anthropologists and representatives were sent to minority areas in order to collect information and to establish relationships with local elites. In a second stage, ethnic groups were invited to apply for recognition as *minzu*, a call which 400 different groups had followed by 1954.¹² In the early 1960s, 53 groups gained official status, 13 of which can be found in Banna. The last group which achieved *minzu* status were the Jinuo in 1979. Since then, the project had been basically completed, the classification system, selection and implementation however, has been reason for discussion and concerns ever since (YANG 2009). The categorization into different *minzu* is a rather artificial construct. For example the Tai Lue, the largest group in Xishuangbanna was included into the group of Dai, together with other Tai groups dwelling in Yunnan, such as the Tai Nua, Tai Beng and Tai Duan. Not all of these Tai groups share a mutually intelligible language, and they vary in their social and cultural structures (HANSEN 1999). The Dai *Minzu* are a good example to illustrate that the classification is shading the true extent of China's ethnic diversity, is worlds apart from an emic perspective and also diffuses the identity of the individual ethnic groups. The classification project provided a basis for several civilization and modernization projects. The ethnic groups were scaled and classified along an evolutionary model of Marxist and Stalinist tradition, including materialistic and social status of development, and their need for support in order to reach the civilization level of Han society. As Oakes points out: "Thus, more than anything, *minzu* groups

Ethnic Group	% of Population (1990)	% of Population (2000)
Dai	34	30
Han	25	29
Hani/Akha	19	19
Lahu	6	5
Yi	5	6
Bulang	4	4
Others	7	7

Figure 6: Ethnic composition of Banna's population (SCHRÖDER 2010:16)

¹² *Minzu* is composed of the characters *min* 民 (people or community/tribe) and *zu* 族 (human community/group). It literally translates into nationality, but has the connotation of ethnic minority or ethnic group in a broader sense

were defined according to cultural distance from the Han." (OAKES 1998:105). For example Lahu were classified as extremely backwards and still carry this stigma today. In contrast, the Dai with their written language, sophisticated architecture and political and social order were considered as a group with a higher civilization status in less need for improvement and assistance to develop. In 1951, teams of scholars and researchers were sent to the villages of Banna to investigate which "evolutionary stage" or stage of civilization the different groups fit into. Also, work teams to aid and assist the villagers were sent out in order to gain information and improve the reputation of Han people and the CCP. Villagers had developed a negative idea of Han people, particularly during the occupation by the KMT. Furthermore, the CCP recruited young men, mainly from the Dai minority, to train them in cadre school. These recruits, "under the supervision of the team members, later became leaders of villagers ready to struggle against aristocrats and headmen." (HSIEH 1989:200). Today, Banna counts 13 officially acknowledged *minzu*. Most of those groups do not only populate Chinese territory, but dwell in other parts of mountainous mainland Southeast Asia, like the Akha, Dai, Lahu and Hmong.

2.2.2 From feudalism to collectivism: Institutional changes in many spheres

Not all institution of the feudal structure, for example ownership regimes were abruptly abandoned after liberation. Rather, they were increasingly disregarded and infiltrated by poor farmers who felt empowered by socialist ideas and encroached on former feudal lords' land resources, weakening the old institutions. The land use and production system remained formally unaltered until the new "Law of Land". This law was already promulgated and put into practice in other parts of China earlier, and was implemented in Xishuangbanna Dai Autonomous Minority Region and other minority areas (HSIEH 1989) as late as 1956. Hsieh interprets the implementation as a successful attempt to finally remove the remaining local Dai and other minority leaders from power, which were so far still highly involved in the political and economic activities at the local, particularly on the village level. Only with the completion of land reform and collectivization in 1957 and 1958 were the feudal structures completely relinquished. According to the "Agrarian Reform Law of the People's Republic of China", households were assigned to a new class status in the 1950s. In 1956, working groups were sent to the villages of Banna to classify the villagers according to their economic and social situation. They were categorized as landlords, rich, middle, poor peasants or landless people (own research). Potter & Potter emphasise that: "[a]these categories are an attempt to measure the relationship between property, work, and social relationships, rather than an attempt to measure property without reference to the social relationship it implies." (POTTER & POTTER 1990:43)

Those classified as landlords and rich farmers had to render parts of their land to poor and landless farmers. The loss of means of production was not the only deprivation the former elite had to suffer. During the 1956 rectification campaign, villagers were summoned into "speak bitterness" meetings. In small groups peasants were encouraged to remember and report the grievances and maltreatment they suffered from landlords, village elites and members of the ruling class. Unlike in other parts of China, where individuals were openly disgraced by pillory, landlords and other 'bourgeois' elements could keep their face in public. Nevertheless, former elites lost social and political influence, in many cases their dignity and in some cases even their life (HSIEH 1989, POTTER & POTTER 1990). For the time being, landlords could at least keep their access rights or ownership rights to land apart from the paddy fields. Forests and tea plantations for example re-

mained in their possession, as did houses, farming tools and livestock. This first transformation, expropriation and redistribution of land and tax reform in favour of poor farmers extenuated the most extreme forms of inequalities and disparities among the rural population and was appreciated by the impoverished parts of the populace (HOWARD 1988). The total transformation to communist order was instigated in 1957, when households were encouraged to take part in Agricultural Producers Cooperations. 18,934 cooperatives were transformed into 833 communes all over Yunnan (MUEGGLER 2001:172) and Xishuangbanna was sectioned into nineteen People's Communes (HSIEH 1989:221). Social and economic relations were completely altered. Private property and private access rights were abolished within the collective system and the remaining feudal structures were finally overthrown and replaced by the communist social and economic system. Also, more egalitarian and flexible structures, like the fluid land use amongst some Akha (as described by STURGEON (2005)) had to render to the strict borders of the communes. The individual households as production units ceased to exist; labour, land and machinery were pooled in the collectives and working groups. The subsistence economy with elements of barter and cash crop trade was displaced by a command economy with central supply and procurement mechanisms (HOWARD 1988). Semi-nomadic groups were forced to settle and decrease their hunting and gathering activities in favour of sedentary agriculture (XU 2006). Many remote hamlets and villages were resettled and concentrated on a more or less consensual basis. Modernization, i.e. better access to infrastructure for the villagers, was the idea propagated, but improvement of control over the new subjects and resources was just as important.

The first reforms of the Communists, already invading the cultural integrity of the people of Banna, brought more equality and the liberation from possibly exploitative social structures. However, room for certain traditional cultural practices and institutions remained. The increasing influence of the Communist state and its ideologies slowly encroached the cultural sphere. Tolerance towards expressions of ethnic identity and culture dropped to zero during the Cultural Revolution. The status of an Autonomous Prefecture was annulled and with it any concessions towards cultural independence. Religious practices, land use practices and other integral parts of local ethnic cultures were stigmatized as superstitious. The celebration of festivals and ceremonies, closely linked to the agricultural cycle of the different ethnic groups were prohibited. Sacral buildings, religious scripts and objects were destroyed or desecrated (DAVIS 2003). Over 500 Buddhist temples and more than 80 pagodas, once integral part of Banna's landscape disappeared or were put to profane use (HASEGAWA 2000). Spiritual leaders had to abandon their functions and activities and "religious practitioners were considered to belong to one of the "nine categories of bad people" and classified as "monsters and demons" and "forces of evil."" (XU ET AL. 2005:7). This led, for example, to an exodus of Buddhist monks. Drawing back on old relations with the former Buddhist allies, many monks fled across the border to Laos, Thailand and Burma.

The collectivization also changed work organization. The family households lost their status as economic and social focal points. Ten to twelve households were assigned to one working group. The previously informal institution of mutual labour exchange between friends and extended family became obligatory. Heavy, often unrealistic grain quotas caused farmers to work long hours. Mao's idea to catch up with Western development standards dominated even the most remote villages. Instead of returning to the families' homes, commune members gathered for collective food and political

indoctrination at nightly sessions. The farmers were trained in communist ideology, which peaked during the Cultural Revolution (HSIEH 1989). In terms of production, there were a few, but fundamental changes: Firstly, opium production was made a punishable offence and soon ceased. Other cash crops like tea were neglected. In order to realize food autonomy, the policy of "Take Grain as the Key Link" was introduced. Peasants in their working groups and collectives were ordered to increase grain production to reach or maintain subsistence levels and produce surplus, which actually led to a dependency on state grain support (HEBERER 1984:174).

The picture painted in this chapter about Han influence on livelihoods seems rather negative. However, considering current paradigms of development, especially human development, the Communist regime made efforts to improve their new subjects' livelihoods. In the 1950s working teams, especially medical teams, were sent to the villages to cure common diseases and also to fight against malaria which was rampant in the area. Malaria incidence decreased from 11.6% in 1954 to 0.9% in 1962 (ZHENG 1981:28). At the same time, the system of barefoot doctors was introduced. Local people received a basic training in western medicine and roamed the countryside, providing basic medical care even in remote villages. The local population naturally grew from 231,000 people to 621,000 people between 1935 and 1990 (HASEGAWA 2003:293).³³ According to the model of demographic transition, death rates declined and led to rapid population growth, primarily through the improvement of nutritional, health and hygienic standards (HAGGETT 1991). Furthermore, basic education and primary schools were introduced, now reaching remoter areas of Xishuangbanna. Before, alphabetization was a privilege and most ethnic groups did not have a written language and a writing system. Knowledge was transferred mainly orally. An exemption was the Dai, who had a script and a tradition of scholarship. All boys were expected to join a temple for a period of time and gain at least basic education. This tradition was interrupted when temples were closed throughout Banna.

2.2.3 Colonizing landscapes and minds of Xishuangbanna

The annexation of Xishuangbanna, a region whose people's livelihoods were closely intertwined with and dependent on its natural environment, brought severe changes to land use and socio-ecological systems. The relationship between the natural environment and the local people was thoroughly altered. Especially during the Great Leap Forward and the Cultural Revolution, man-and-environment relations changed significantly, when the people of the border areas were drawn into "Mao's War on Nature", causing havoc on Xishuangbanna's landscape and environment (SHAPIRO 2001). Formerly, interactions with the physical landscapes were regulated through local institutions, which were at least ostensibly based on sacral or spiritual explanations. The traditional concept towards the environment and nature was a dichotomous one: humans were perceived as part of nature and the environment, and livelihoods and spirituality were inseparable from the human sphere. Reverence for the environment - forests and in case of the Dai particularly water, was intrinsic to every ethnic group.

The Dai, for example, fostered holy hills and paid tribute to a pantheon of spirits (GAO 2006). Water, the source of life for the Dai's paddy rice culture was a sacred medium and subject of reverence and worship. The Akha world beyond the village gate, be it

³³ These numbers refer only to natural population growth of the local ethnic groups, excluding Han Chinese. The group of Han Chinese has also grown tremendously, but mainly through migration.

field or forest, was home to a plethora of invisible forces of good and evil nature (BOUCHERY 1996). Linked to the concept of unity was a deep understanding for environmental processes. The traditional environmental knowledge had been the basis for survival and rather sustainable use of land, and other natural resources. Socio-cultural systems, neatly adapted to particular environmental niches, had evolved over centuries. Land use and land use practices were regulated by local institutions, which achieved legitimacy and compliance often by spiritual explanations. The traditional, spiritual human-to-nature relationship was suppressed, and in the long term broken by ideological indoctrination and also by technical means of modernization and centrally planned land use. Communist ideology turned the natural environment into a production factor and natural resources into a commodity. Shapiro grasps the *zeitgeist*:

“In the struggle for development, the will and energy of masses would compensate for China’s lack of sophisticated technology and equipment; ideas would unleash raw labor to conquer and remold nature “Man must conquer nature”, Mao declared, sounding the phrase that many Chinese mention as the core of Mao’s attitude toward the natural world.”¹⁴ (SHAPIRO 2001:67)

The landscape was to be subdued and exploited. Forests or, in the worst frenzy even orchards were declared as unproductive and should be used for planting grain. According to the policy of “Take Grain as the Key Link” and the “Grain First Campaign”, agricultural production was completely focused on grain production, regardless of local environmental conditions and technical knowledge (HEBERER 1984). Brainwashing, heavy work tasks and prohibition of traditional practices gradually changed attitudes of local people towards environment and nature. The underlying concept for this approach was the idea of modernization in form of agrarian mechanization, increase of agricultural output and efficiency, and last but not least the creation of “legible landscapes” as described by Scott (SCOTT 1998). To increase rice production, terraces were constructed and irrigation schemes were expanded into higher altitudes. The paddy line, previously demarcating the spheres of different cultures and different land use patterns also lost its importance.

Analyzing the history from the perspective of political ecology, three main factors of influence, instigated by Central Government strategies can be distinguished: migration policies, development policies and policies of agricultural modernization. These policies set into motion inseparable and still ongoing processes: the increase in population and the profound transformation of Xishuangbanna’s landscapes. The population rose to almost 650,000 in 1982 (with only 175,096 in 1925) (HASEGAWA 2003:293). The amount of native forests declined from over 70% in the 1970s to below 50% in the early 2000s (LI ET. AL 2006:157).

2.2.4 Imports from “China proper”: rubber and migrants

The development and the incorporation of Banna into the People’s Republic of China was strongly influenced by the in-migration of Han-Chinese to the border region. The geographical location along the Tropic of Cancer played an important role: Xishuangbanna was, apart from small stretches in southern China and the island of Hainan, the only area suitable for the production of *Hevea Brasiliensis*. This triggered large scale immigration campaigns of Han Chinese, mainly originating from the Eastern Provinces. The first wave of settlers consisted to a large extent of former soldiers. In a wave of demilitarisation after the wars, millions of army members became redundant and were

¹⁴ Italics and brackets adopted from the original source

settled in Xishuangbanna to build up state owned rubber farms (HANSEN 2005). Another wave of migrants arrived at the end of the 1960s during the “Youth to the Countryside” campaign. Between 200,000 and 300,000, highly motivated and ideologized educated youths from Kunming, Shanghai and other large cities arrived to engage in the establishment of state farms (XU ET AL. 2005:406).

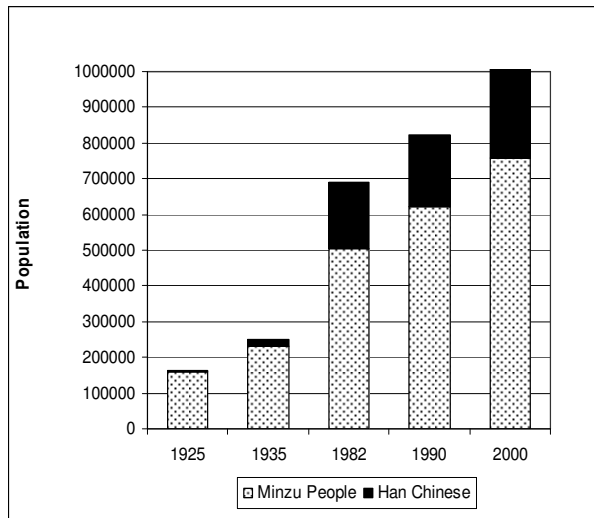


Figure 7: Population growth in Banna between 1925 and 2000 (HASEGAWA 2003:293)

During the 1950s and 1960s, the population of Xishuangbanna increased heavily. The indigenous population doubled owing to better living conditions. The share of Han Chinese grew manifold as a consequence of intended and guided migration. This large scale migration and rubber campaign of the central government in Xishuangbanna resembles a process of internal colonization (KLEINPENNING & ZOOMERS 1988, CHILD & WILLIAMS 1997). It followed more than one rationale. Appropriation, exploitation and modernization were all components of the Central Government's strategy for Xishuangbanna. Of course, economic and strategic reasons

were strong. With rubber being a rare good of limited production opportunities in China, Xishuangbanna was chosen as one of the main suppliers for the country. Considering the strong industrialization efforts and the extreme strive for resource autarky, especially in the sensitive phases of the Cold War, this aspect becomes particularly important (XU 2006). Apart from the geopolitical and economic motives, there were clear strategic reasons for the central government: the development of a primary industry based on rubber and an active settlement policy to increase the number of Han population was seen as an ideal way to integrate and to pacify the ethnic border areas through undermining local cultures by sheer outnumbering. This strategy ensured cultural hegemony and expansion of state control over space within the Chinese nation state. Closely linked, at least in terms of means, were ideological reasons: development would lift backward and uncivilized minority groups to a higher level of economic standards and civilization (HARRELL 1995).

The advent of those settlers had a huge impact on land use systems: forests, previously used by local communities for hunting and gathering were annexed and declared as state land. Native forests were replaced by large scale rubber monocultures by the newly founded state farms (SHAPIRO 2001). Eleven state farms were set up mainly in the lower and flatter areas of Xishuangbanna, hosting 150,000 employees and their families (SAINT-PIERRE 1991:161). These settlements were, socially and architecturally, like aliens within the native landscape. Built in simple typical socialist Han-Chinese style from materials like brick, cement, tiles and corrugated iron or asbestos tiles, they present a stark contrast to the more organic architecture of the local settlements which well moulded into the landscape. Socially, the state farms, which first were organized as military units and later as civil *danwei*¹⁵ organizations, were isolated from the neighbouring villages.

¹⁵ *Danwei* translates into work unit of a state enterprise. In its function, it went well beyond the sphere of work, influencing and controlling the private and social life of its members.

Endowed with their own social infrastructure and supply channels they were functionally and socially autarkic societies. Interactions between local people and the migrants hardly existed on a personal level. On a collective level, relationships were rather on the tense side, mainly caused by conflicts over land resources (HANSEN 2005). In 1975, the state rubber farms covered an area of 27,227 ha (JIANG 2003), mainly at the cost of local communities' resources and the native forests. Economically and politically, the State Farms were beyond the sphere of local influence. The administration, including the flux of revenue was under the directive of Yunnan Province Government. This changed only after General Secretary Hu Yaobang's visit to Xishuangbanna in 1980, during which he lent his ears to the sorrows and difficulties of local cadres. Putting pressure on Yunnan Provincial Government, the state farms were then obliged to contribute 6% of their annual income to the local coffers (ENG 1997).

2.2.5 Communist Banna as a more equal society?

The era between liberation and liberalization brought Xishuangbanna into turmoil and set into action still ongoing processes of transformation of landscapes and society. Concerning the natural environment, the outcomes intended by the communists were a de-spiritualization, subjection and valorisation of landscapes. Analyzing the transformation in a Yi community in another part of Yunnan province, MUEGLER (2001:172) describes that "state power replaces ancestral authority of the spirits as the generative origin of communal reproduction", a process which has also taken place in Xishuangbanna. From a societal perspective, the integration of Banna into the communist system of the PRC brought tremendous changes. One side of the coin shows the abdication of a feudal and unjust royal regime that became even more burdensome for the populace through pressure and demands from nationalist China (CHEN 1949). The other side of the coin however is the destruction of local institutions, which provided a base of existence and meaning to the local population, despite political, economic or other institutions which, from today's perspective may seem unjust and inhuman.

Looking at changes in the social structure of Banna it becomes obvious that despite the communists' objective to establish a classless society, the old classes or societal strata were rather substituted than abolished. During years of class struggle, which was fought even in some of the most remote mountain villages, the old order indeed was overthrown, and the feudal structures were abolished. At least in rural areas, this led to a society, which could be considered more equal in social and economic terms. However, with increasing national influence, Banna's society became again stratified, with local farmers, state farm workers and a new "gentry" in form of the communist cadres. These groups were far from equal in regards to income, power and social endowments. A privileged group were the immigrated state farm workers. They had access to a stable income, health care facilities, relatively good education facilities for their children and access to other social welfare benefits provided by the *danwei*. In contrast to the productive forces of the "primitive societies", the modern state farms were seen as "advanced productive forces" (XU 2006:258). Another group, which merely changed its nomenclature and probably also their members was what could be classified as the ruling class of cadres on different local levels. This group had, like the leaders under the royal and the *Tu-Si*-system before, access to political and economic capital. The majority of people however remained powerless and with little influence, depending on patron-client relationships. After collectivization and years of class struggle, the local peasants were deprived of their spirituality and control over local resources.

The feudal system was substituted by the collective system, which hardly granted more freedom. Particularly for those areas of Xishuangbanna, where communities had been only loosely integrated into the feudal structures of the Dai kingdom, improvements are doubtful. For example, STURGEON (2005) describes the pre-liberation land access regimes of some Akha/Hani areas in today's Jinghong County. These Akha groups had maintained an egalitarian society and apparently did not suffer from feudal structures. However, also considering Chen's (CHEN 1949) analysis, from an equality perspective, there was surely an improvement. The village population, i.e. the commune members shared more or less the same economic level; one could say that had become almost equally poor. The Gini-Index seems to corroborate this theory during the 1950s and 1960s. Except during the years of the Great Leap Forward, the Gini-Index values of China remained at a relatively low level and had started to increase after liberalisation in the 1980s (KANBUR & ZHANG 2004: 4 F).

The years after Mao Zedong's death in 1976 brought further changes to the PRC, reforms which shook the communist order to the core. Communist ideas and command economy were no longer the first choice to achieve a perfect harmonious socialist society. Instead, an increase in living

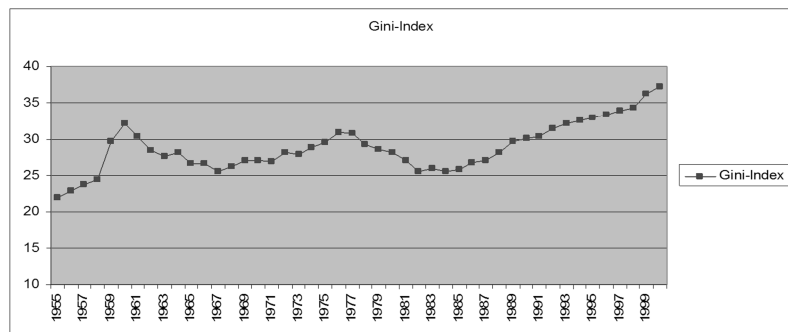


Figure 8: Emerging inequalities in China: development of the Gini-Index between 1955 and 1999 (KANBUR & ZHANG 2004)

standards and economic development along the parameters of productivity and efficiency were brought to the political agenda, setting into action a variety of social and economic reforms. Xishuangbanna as a remote prefecture at the borders of Yunnan, with Yunnan being one of the poorest Provinces itself, underwent rapid economic transformation. Though agriculture remained important, constituting 34% of Banna's GDP in 2005 (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006), the production and service sector rapidly gained ground. For this rapid and from an economic point of view quite successful transformation, geographical characteristics played a major role. Its location at the periphery of China, after the country opened up again, turned out as a major advantage. Xishuangbanna has become once more a transit region and a hub for trade and business with the Southeast Asian neighbours (see also Figure 12). The tropical and subtropical climate allowed for further expansion of rubber and other (sub)tropical cash crops and the development of Banna as a major tourist destination. New institutions have emerged, which seem little successful in providing guidelines for sustainable development. The economic boom had major influence on the landscapes of Banna, with precious agricultural land, remaining forests and thus (agricultural) biodiversity vanishing rapidly.

2.2.6 Institutional transformation in the agricultural sector

After 30 years of collective agriculture, first attempts at reforming the agricultural system began in the late 1970s. Riding on the wave of liberalization, single working groups in Anhui Province initiated trials replacing the collective system with a household based contracting system, commonly referred to as "Households Responsibility System" (HRS). This bottom-up reorganization conflicted with socialist principles at the time, but

never the less spread quickly throughout the country. Already from 1979 onwards, the "Special Management System" was introduced in many, especially remote and poor areas such as Xishuangbanna. Even though the working point system was upheld, the responsibility for a production task on certain plots of land was delegated to individual households. The illegal HRS and the special management system were successful to such a degree that the government did not prevent spreading. Although they caused erosion of one of the institutional pillars of the communist society and economy, the government embraced the reforms. Instigated by farmers and local cadres, the HRS was officially adopted as a new policy in early 1982 (HUANG 1998, YAO 1994).

According to local farmers, in Xishuangbanna the HRS was implemented in 1980 and 1981, before the official policy change. After a transition period during which farmers could gain experiences under the Special Management System, the institution of collective labour was abolished and the collective land distributed to individual households. Decision making on production and management was also devolved to the households. The communes were dissolved and responsibilities shifted. Put simply, the commune was substituted by the township administration, the administrative village substituted the brigade, and the administrative responsibilities of the working group were taken over by the natural village or village group administration. The tenure reform included a land classification campaign, through which land was classified into state land and collective land. State land in Banna includes most of the remaining forests and the state rubber farms. The collective land was distributed to individual households of the former brigades and working groups. In 1983, households received contracts for a 15-year lease of land. These contracts were extended in 1998 and the latest contract extension in 2008 enabled farmers in Xishuangbanna to lease land for a period of 30 years, forests even for a period of 50 years.

The decollectivisation strategy soon showed its downside. Services and investments formerly provided by the people's communes were abolished or downgraded, but not instantly replaced with new mechanisms and institutions to fill the gap. For example social services, such as education and health care, which were provided at least on a basic level through the commune, financed by collective funds, were phased out (POWELL 1992). In addition, investments in form of financial capital and labour in public and agricultural infrastructure declined (HUANG 1998). The strategy of "Breaking the iron rice bowl" also influenced attitudes towards reproduction. Heberer points out the connection between the HRS and the increase in birth rates in southwestern China. Farming households considered it economic to have more children contributing to the household labour (HEBERER 1984).

Economic development was the new paradigm and in Xishuangbanna, a poor and mountainous border region, development of the agricultural sector was high on the political agenda of both local and above-local decision makers. After the "Grain as a Main Chain Link" policy was abandoned, farmers were encouraged to increase cash crop production, such as rubber, tea and sugar cane. The reforms brought to Xishuangbanna, like to many other provinces in China a huge push in agricultural sector. It also improved the income situation of rural households at a rate of 15% per annum between 1978 and 1984, and the gap between rural and urban incomes declined from 136% to 76% for China (HUANG 1998: 42FF).¹⁶ However, even though the institutional change concerning management and property rights was favourable to growth in agricultural production,

¹⁶ Data for Banna or Yunnan is not available.

the transformation from the state controlled command system to market economy took time. Though farmers gained relative freedom concerning the management of their land, the quota system for agricultural produce was implemented till the mid-1980s. The government still set quotas for the farmers, thus dictating the type of crop that was to be produced. However, farmers could sell the surplus produce either to the state at a market price or to private markets, which concurrently emerged (HUANG 1998, POWELL 1992). This "third agricultural revolution" (HUANG 1998:97) offered incentives to increase production on the one hand and a level of security for the farmers on the other, since the state had obliged to purchase the quota at a fixed price, even in case of market prices dropping below the state fixed price. It took several years for the Chinese agricultural markets to (re)-establish and institutions are still unbalanced today. Huang discusses the strong market distortions, for example transparency and access to information. When it comes to the availability of information, deficiencies become evident: farmers in remote areas often lack the technical means and skills to access information on prices and products.

	Plantation area (10,000 ha)	Production area (10,000 ha)	Total value (million US\$)
State farm	10.09	11.03	119.39
Smallholder	6.88	4.41	59.76
Total	21.12	11.27	179.15

Figure 9: Rubber production in Xishuangbanna: Area, value and tenure systems (XU 2006:260)

Over the last decades, the demand in agricultural products steadily rose. On the one hand, an ever growing Chinese population in general and Xishuangbanna in particular had to be supplied with food. In recent years, behaviour of consumers has been changing: a growing urban population, particularly an emerging middle class with increasing disposable incomes drives the demand for meat and (tropical) fruits. On the other hand, the secondary sector demands more and more agricultural products as raw material for producing industrial goods. The increasing demand in natural resource products, driven by the demand of China's emerging industrial production was an excellent starting point for Banna's small-scale farmers to engage in rubber cultivation.

The HRS was a starting point for the increase of agricultural output and cash crop production over the years, which at least provided parts of Banna's rural population with decent incomes. The most successful was, at least in economic terms, the expansion of rubber production to small-scale farmers. The interest to expand rubber cultivation beyond the state farms was mutual. Both government of all levels and farmers welcomed the new opportunity, considering rubber cultivation as a way out of poverty. With technical assistance from the state farms and financial support from the local governments, rubber production expanded. At the costs of collective, private and state forests and agricultural land previously used for food production, the area under small-scale rubber plantations grew significantly. Providing technical assistance to local farmers, the point of departure for rubber was the state farms, from where the cultivation areas spread. Today, the area of rubber cultivated by small holders has overtaken the area of state rubber farms.

The expansion of rubber has physical limitations. At this latitude, it only grows up to an elevation of about 900 to 1,000 meters in altitude, thus parts of Xishuangbanna are not suitable for the cultivation of *Hevea Brasiliensis*. As will be discussed in further detail later on, this rubber boundary, or "rubber-line" divides the economy and people of

Banna. Highland farmers, particularly those in Menghai County do have fewer opportunities to generate cash income. One other important opportunity is the cultivation of tea. Growth in national and international demand stimulated expansion of small holder tea gardens and plantations. Apart from subsistence, tea was a neglected crop during the collective period. Other cash crops produced in Banna include sugarcane and other tropical fruits like bananas and pineapples and medical plants, such as *Ammomum Villosum* and others.¹⁷ Apart from rubber, local farmers increasingly produce fibrous plants, such as hemp and bamboo as a base for construction and manufacturing industries.

Farmers in Banna today are encouraged and supported by the government to generate cash income through cash crop production. The substitution of food crops with cash crops is ambiguous, particularly in those communities of Banna which are not self-sufficient in grain, like in higher altitude settlements. Agriculture becomes more and more intensive and mechanized, demanding more input of technology. Subsistence production has been superseded by highly cash crop oriented livelihoods. The modernization processes of Xishuangbanna's agricultural sector, like in many other developing

Production	2000	2005
Rice (10,000 tons)	34.74	35.3
Rubber (10,000 tons)	13.76	19.07
Sugar cane (10,000 tons)	122	99.8
tea (in tons)	19,371	28,000

Figure 10: Agricultural production in XBN (Gov. OF XBN DAI AUTONOMOUS PREFECTURE 2006)

regions do have detrimental impacts on the environment, such as deforestation, soil degradation, loss of (agricultural) biodiversity and the negative consequences of monocultures in general (HARTEMINK 2003, LOREAU ET. AL. 2007).

2.2.7 Development of the secondary and tertiary sector in Banna

Until today, the agricultural sector remains a major pillar of Xishuangbanna's economy. In 2005, the primary sector still made up over one third of the GDP, compared to only 12% in the whole of China (WORLD BANK 2011). Since the 1980s, the relative share of the primary sector has been decreasing in an economy growing in absolute numbers. Both, the service sector and industrial production are gaining ground, as Figure 11 shows. The economic development of Banna did not follow common patterns of economic transformation. In many other Southeast Asian countries, the secondary sector gains more importance and only later on, the tertiary secondary catches up. Not so in this remote region, which has never been target of industrialization efforts, neither before nor after liberalisation. Banna's border location and the climate and landscape offer unique conditions. Thus the focus of development efforts has shifted towards the tertiary sector, particularly on tourism and trade (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006).

In an analysis of Banna's economy, Eng describes the process in Banna as a "commercialization without concurrent process of extensive industrialization." (ENG 1997:2). Analyzing the nature of the secondary sector, it becomes obvious that most of the industries located in Banna are either related to natural resource processing or to construction activities. The case of rubber highlights Banna's dilemma. Even though the Prefecture is one of China's main supplier of natural rubber, at this stage, all the latex is exported to the economic and industrial centres of the coastal areas for further processing. The only factory which used rubber as a raw material for latex products had closed down years

¹⁷ *Ammomum Villosum*, also known as *Sha Ren*, is a plant of the ginger family, used in traditional Chinese medicine (TCM) and is cultivated under shady conditions in the forests of Banna

ago. Sinochem, a Beijing based enterprise, has started to construct China's largest rubber processing factory in Jinghong. However, the refined rubber will be further processed in the tyre industry elsewhere (SINOCEM 2008). In the past years, the local governments have undertaken serious efforts to attract investment, through provision of construction land and fiscal advantages for investors. The idea of bridging development gaps between rural and urban areas through the establishment of Township and Village Enterprises (TVE) did not prove as successful as in the coastal areas (PARK 2001). Particularly in the remote villages, there are no enterprises and factories to speak of, due to lack of investment, skills and infrastructural disadvantages.

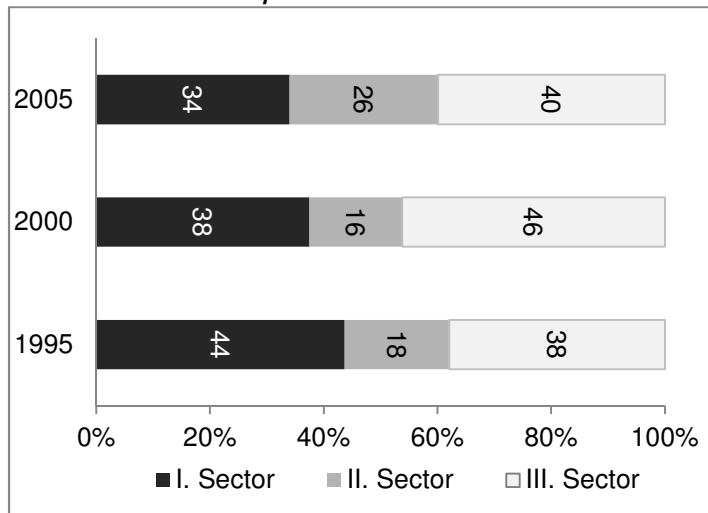


Figure 11: Development of the economic sectors in Banna
(GOV OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006)

Nevertheless, many of the processing industries are actually based on Xishuangbanna's natural resources, for example tea, hemp and bamboo. The first tea processing factory opened in Menghai in 1940 as a state enterprise and has been joined by many other state and privately owned factories from the 1990s on. Teashops are a characteristic component of Banna's urban areas where retail and wholesale tea traders cater for national and international customers. Recently, hemp and bamboo

processing factories have started operating, increasing regional added value and creating jobs outside of the agricultural sector. A small but growing branch is the manufacturing of traditional medicine, particularly Dai medicine, which along with Xishuangbanna's growing popularity, also has growing success on the national market. However, a major share of the secondary sector is held by construction, not production. Construction projects, like the infrastructure improvement projects and the massive expansion of urban areas contribute heavily to the growing secondary sector (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006).

With the expansion of rubber production to small-holding farmers, as well as the increase in other cash crop production, Xishuangbanna's export to other provinces soared. Despite its peripheral location, it has become a provider of natural resources to the ever growing production industry, and of luxury foods like tea and tropical fruits to a growing middle and upper class. Destinations of most products are located in the urban centres of China proper. Yet Banna's economy also greatly benefited from international integration of markets. After almost 30 years of at least officially closed borders between Laos, Burma and the rest of Southeast Asia, exchange with the southern neighbours is intensifying quickly. Since border trade was officially resumed in 1984, surplus production, growing demand and increasingly permeable borders instigate trade

When the idea of the Greater Mekong Subregion (GMS) initiative emerged under the aegis of the Asian Development Bank (ADB), China's interest was strong. The GMS initiative, launched in 1992, is one of the largest development programmes in Southeast Asia. Its objectives are the development of the whole region through improvement of infrastructure, and the facilitation of trade and transport between countries with differ-

ent political and economic systems (ADB 2002, OEHLERS 2006). China's interest is directed to the markets of the Southeast Asian neighbours as well as access to further sea ports. Landlocked Yunnan and other southwestern and western Chinese provinces are supposed to benefit from improved connectivity. Banna was declared as a hub or gate to Southeast Asia in the North-South Corridor and as part of the Golden Quadrangle. Named in reminiscence of the border region's infamous history, it is considered as one of the potential growth areas in the Mekong region (DIOKNO 2006, THEERAVIT 2003).

Major road improvement projects were initiated, such as the completion of the highway from Kunming to Bangkok, with two different routes through Laos and Burma. Apart from improvement of road infrastructure, the Mekong was discovered as a transport route. Port facilities were extended and by rock blastings in the Mekong riverbed, the navigability was increased. Since this activity met strong resistance in Thailand by environmental groups, rock blasting was mainly undertaken in China. Between 1990 and 1994 alone, international transport on the Mekong rose from 500 tons to 43,000 tons (ENG 1997:24). According to a Chinese official: „(...) by the end of 2007, export and import cargo volume on the river reached 396 thousand tons with total value of 109 million USD, an increase of 15.1% compared with that of 2006.“ (ADB 2008). Also, border controls were simplified and trade tariffs have been more and more reduced, facilitating people as well as goods to cross the borders. (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006). The latest project in planning is a railway-line through Xishuangbanna, closing the gap in the Pan-Asian Railway system before 2020.

China's strategy to open another gate to Southeast Asia seems successful- with Banna's capital of Jinghong as trade city greatly benefitting. The success of Banna as a trading point Banna also seems to have its roots in the past. According to Eng 1997, many of the Chinese business men who are involved in the trade are Han Chinese who had spent some time in Banna during the Urban Youth campaign until the 1970s. When economic opportunities emerged during the 1980s, they returned to Banna, connecting the geographically remote place with the further developed urban centres in the East. Other transboundary networks, which enhance trade and business, are "ethnic networks". These include, for example, Akha traders who can draw on a network of filial and linguistic connections between Laos, Thailand and China (TOYOTA 2000).

Banna is turning into, or rather, resumes its position as an alluring hub in the trade network between Southeast Asia and China. Most of the exported goods, apart from fruits and vegetables are not produced in Xishuangbanna. Being in the position of a middleman, Xishuangbanna's trade sector is volatile, depending on the supply and demand of China's east coast and the markets beyond the Chinese border. Mainly cheap consumer goods 'Made in China' are sought after on the Burmese and Laotian market, while imported goods are mainly raw materials such as timber, precious stones, rubber and agricultural products. Between January and April 2008 alone, goods worth 85.7 Mio. US dollars were exported from Banna. In the same time, goods valued 33.5 Mio US dollars were imported, which shows a tremendous export surplus (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2008). Apart from trade, tourism has become most influential mainly on urban economies, and also on the social and physical landscapes of Banna. A non-existent factor in the Chinese economy until the early 1980s, tourism in various forms emerged and became one of the most important activities within the tertiary sector throughout the 1990s. Today the tourism industry, including provision of accommodation, guided tours, theme parks and shows, restaurants and

shopping areas is a motor of growth for the region, attracting capital and investment from beyond provincial and even national borders. Statistics on employment in the tourism industry are not easily found, estimations range from 20,000 (ENG 1997:13) to a more conservative guess of 15,000 by the Banna government, which does not include the jobs indirectly linked to tourism (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006).

Xishuangbanna was predestined as a tourist destination in the Mao-era. Already in the 1960s and 1970s, the land was mystified by several propaganda movies disseminated throughout China, for example when Zhou Enlai visited Banna to participate in the settlement of border and demarcation issues with Burma in 1961. Later, during the first years of reform, Banna was propagated as a model for the PRCs well-treatment of its ethnic groups and its positive minority policy. When Beijing International Airport was reopened in 1979, a huge mural had welcomed travellers, showing Xishuangbanna's exotic and peaceful landscapes and its people (ENG 1997). This of course did not serve the ends of political propaganda only. Tourism soon had become a designated development path for the remote and exotic borderland. Pristine landscapes with the exotic flora and fauna, the tropical climate and the cultural diversity were unique selling points.

Despite the huge numbers of tourists flying into Banna each year, tourism is concentrated in a few locations such as Jinghong with its huge accommodation and entertainment facilities and rather isolated tourist spots throughout Banna, such as the Elephant Valley, the Xishuangbanna Tropical Botanical Garden and Dai Yuan ethnic village. These have been developed by state enterprises, private or joint-venture investors. The nature parks not only aim at entertainment, but also try to raise interest for culture, the environment and nature. Even though these concepts might not be attractive for European visitors- especially places like the XTBG and the Elephant Valley might direct attention to and fulfil an educational role for national tourists from urban centres, concerning the loss of natural landscapes and biodiversity. The improvement of transportation infrastructure, including roads and the airport has also been beneficial to the trade sector and the local population. Particularly the commodification of ethnic culture has added to the huge success of the tourism sector in Banna, like in other exotic places in Yunnan like Dali and Lijiang (OAKES 1998). Discussing the issue of ethnicity, culture and tourism, Hyde claims an eroticization of ethnic culture (HYDE 2007), a thesis which is corroborated by the suggestive display of Dai culture in marketing campaigns and the thriving sex business in Jinghong. Several authors have pointed out the negative and ambivalent aspects of mass tourism on local livelihoods in sensitive destinations (OAKES & SCHEIN 2005, WEN & TISDELL 2001). However, it seems that in Banna, the largest impacts of tourism mainly affect only certain tourist sites and cities, particularly Jinghong. The influence of tourism in remote areas beyond the main tourist routes appears to be indirect.

Even though tourism creates thousands of jobs, it is not the local ethnic groups who benefit most. Rather, tourism has a huge impact on employment and also on social and income stratification. In the low paid and low skilled service sector, local people are hired to fill these jobs. The poorer villages around the major centres serve as pools for cheap and low-skilled labour. Private entrepreneurs who actually run the businesses are often Han immigrants with higher education, entrepreneurial skills and some financial capital. There are few exemptions of successful local entrepreneurship, for example restaurants serving local minority cuisine. Projects demanding large investments, such as the numerous hotel complexes, built over the last decades, rely on external capital.

Within this structure, a large part of the money tourists spend during their stay in Banna does not remain within the area but is transferred to the east coast. One example is the “Golden Peacock Tour Group” from Zhejiang Province- one of the largest tourism companies in Banna, which runs different attractions, hotels and travel agencies (YANG & WALL 2008).

Year	1985	1989	1995	2005	2007	2008
Foreign tourists	1,536	3,969	2,360		106,700	65,900
Domestic tourists (Mio.)			1.51	2.8	4.92	5.97
Revenues (Mio. Yuan)					396	345

Figure 13: Domestic tourism: Visitors and revenues
(GOV. OF XBN DAI AUTONOMOUS PREFECTURE 2008, HASEGAWA 2003:297)

The scenery, particularly the tropical forest landscape is one of the region’s major assets. In the last decades, it has suffered especially through the expansion of rubber

plantations, and the expansion of arable land for food production. For western tourists, who are attracted by the biological and cultural diversity, Xishuangbanna has lost a lot of its attraction and reputation. Several tourist operators specialized in trekking and culture tours for western customers blame this on the destruction of the primary forests and “disneyfication” (EVANS 2000) of Banna’s culture (talk with local tour-operators and guides). Looking at brochures of Banna’s tourism boards and agencies, now even the rubber plantations are marketed as “ever-green” forests and native landscapes. Even though eco-tourism might be a future model to help protecting remaining native forests and traditional cultural landscapes, it does not really cater for the taste of the Chinese mainstream tourist. Unlike the western tourist, who is seeking the original and genuine, the Chinese tourist has limited interest in the original, but enjoys an entertaining, maybe exaggerated replica, which creates an idea of authenticity (OAKES & SCHEIN 2005).

2.3 Transformations in Xishuangbanna’s landscapes

Both, urban and rural landscapes of Banna have been intensively transformed and have also been internally divided. Glitzy, urban Jinghong with a growing middle class and a strong service based economy is fuelled by tourism and globalization, i.e. international trade with the neighbouring countries and millions of well-off Chinese tourists. But Jinghong also has a marginalized class of people in the low-wage sector, who cannot participate in this new, modern lifestyle on which their livelihoods nevertheless depend. The countryside has changed tremendously as well, and the city border is not necessarily the dividing line. While the paddy line can be considered as a separation border within historical Sipsong Banna’s societies, the rubber-line has taken over this function. Apart from Jinghong as an unrivalled centre, many townships and administrative centres in the rubber cultivating areas have become modernized in terms of infrastructure endowment, functionality, lifestyle and opportunities for their inhabitants. Other places above the rubber line remain genuinely rural in terms of lifestyle, mobility and accessibility.

2.3.1 Urbanization and the rural-urban divide

All over China, the rate of urbanization is increasing- a development which is welcomed, if not encouraged by the government. Likewise in Xishuangbanna, the portion of people living in urban areas grew faster than the average population. The reason for the unproportional growth is the incessant stream of migrants, particularly of Han-Chinese. The county capitals Jinghong, Mengla and Menglun have grown into small cities (by Chinese standards), with Jinghong as the most thriving one. Growth rates are spectacu-

lar. While Jinghong was a rather sleepy country town of 30,000 people with a single asphalt road in the 1980s, in 1996 it already housed 130,000 people (EVANS 2000). Today's population is an estimated 200,000, with the morphology, functions and atmosphere of the city completely altered. Jinghong has become a Chinese city in both the social and material terms. Jinghong has been appropriated by Chinese migrants and tourists, in terms of lifestyle, function and appearance.

The rapid expansion of urban areas and urban activities is triggered by external impulses like trade and tourism. Jinghong has lost much of its former appearance and has been transformed into a modern and functional Chinese city. Migrants played a major role in this process, but so did governmental development aspirations. The city itself has gained much in terms of centrality. Being upgraded from county to city status in 1996, it also holds the prefecture government institutions, research institutions, hospitals and colleges. The inadequate supply of educational institutions is exemplary for the desolate situation of the education system in poorer areas of China. Jinghong, a city of 200,000 and the urban catchment for almost one million people does not provide a University - only a few colleges offer tertiary education. The next university or offering professional education is based in Kunming. Apart from being an administrative centre, Jinghong has also turned into a huge amusement park: ample shopping streets and even more restaurant streets have emerged or even been developed over the last years. Between 2007 and 2009, the banks of the Mekong have been subject to urban development projects. The riparian areas were artificially raised and stabilized. For the local population, this means a loss of inner-urban agricultural land. The huge water level discrepancies of the Mekong left large parts of its river bed un-inundated during the dry season. These fertile areas were previously used for horticultural activities by local people. By enclosing the Mekong, the northern part of the bank was turned into the "Riverside Promenade" with bars and restaurants at European price levels. The new bank south of the new bridge was turned into a tropical park and a huge public place. The major function of the new place is to host the official celebration for the "Water Splashing Festival", which takes place in the middle of April and attracts hundreds of thousands of tourists every year.¹⁸ Right next to the "Water Splashing Square" a massive urban development project, the Vientiane City Project including housing, office and leisure space had been almost completed in October 2010. A golf course and leisure park is also under construction, replacing more floodplain areas and paddy fields. Apart from hotels to accommodate tourists, the thousands of migrants needed to be accommodated. The city has constantly grown and expanded – swallowing former villages and arable land- mainly rice fields in the fertile Mekong plain. The first multi-storey buildings were the typical Chinese apartment blocks- white tiled and surrounded by a wall- without any relation to the neighbourhoods. Especially over the last decade, apartment blocks in form of exclusive and excluding "gated communities" have grown like mushrooms at the urban fringe. These middle to upper class housing space projects are mainly run by external developers and with external capital. Interestingly enough, many of them display Dai-style elements in their façade, which actually does lend Jinghong a particular appearance and makes it unique amongst Chinese cities. The expansion of Jinghong has not only swallowed paddy fields but also the surrounding Dai villages on both banks of the River. The communities have lost most of their traditional architecture and are now dominated by multi-

¹⁸ Traditionally the date of the Festival was calculated according to the lunar calendar and took place some time in April for a period of three days. For diverse reasons, the date has been fixed to the 14th of April by the Chinese Government.

storey, one-room apartment blocks in the low price range. This transformation started, when thousands of migrants successively arrived in Jinghong seeking jobs in the low-wage sector and cheap accommodation. Basements of Dai houses were first transformed into compartments, which were rented out and then in many cases replaced by modern buildings. The Dai people formerly planting rice, have now swapped from a productive to a rent seeking economy. Most of these communities have also sold their collective land, including their paddy fields to urban developers. Those communities

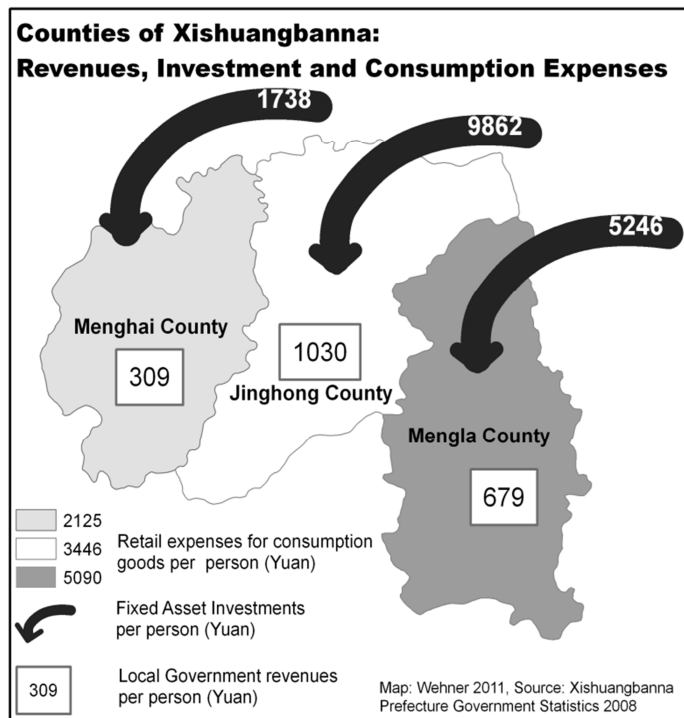


Figure 14: Revenues, investment and consumption expenses in counties of Xishuangbanna (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2008)

depend on the rent as well as on participation in the tourism and service sector. Man Ting for example was a village near Jinghong with 800 inhabitants. After the impetus of labourers resulting in the transformation of housing in the 1990s, the number of inhabitants rose to 5,000 (EVANS 2000). Today, Man Ting is in the centre of Jinghong, an urban area with hotels, apartment houses, restaurants and shops. The last traditional Dai house along the main street had been demolished in 2008, replaced by yet another multi storey hotel. The emergence of social tensions arising from the disturbance of the social structure, the massive presence of migrants with a different cultural back-

ground and the shift in the economic structure are not surprising.

Even though the income of Jinghong urban population is much higher than the rural income, it is still below the Chinese average. While urban residents of Banna had an annual disposable income of 7,814 Yuan in 2005, the Chinese average reached 9,422 Yuan in 2004 (ZHAO 2005). However the contrast of lifestyles within the city are stark- with many labourers in poorly paid jobs facing the costly urbanised lifestyle of shopping, dining and Karaoke (KTV), which is especially exemplified by the many tourists. For example, waitresses in a restaurant – running 12 hour shifts seven days per week gain an income as low as 600 Yuan, plus accommodation in a dormitory and food. This is little more than the price for one crate of beer in the new bars along the Mekong. In terms of culture the urbanisation of Jinghong area has surely contributed to the loss of traditional Dai culture, especially within the communities swallowed by the city. However, the strong external pressure on those communities might have also added to a stronger identification and delineation process, which has been described by some authors for Xishuangbanna (DAVIS 2005, HSIEH 2003). Actually, the former capital Jing Hung was a small town, thus it is undue to define traditional urban Jinghong culture. Of course, what was there has been turned into a commodity, including cultural shows, the Water Splashing Festival and religious sites. The latest tourist attraction is the new temple and monastery, *Wat Luang Muang Lue*. The huge complex at the foothills at the eastern

fringe of the City has become a landmark dominating the surrounding landscape. Beside its physical dominance, it also shows the ambiguities of urban and tourism development. The huge temple complex was erected with the investment of a private real estate company from Liaoning Province. It should serve a double function as a Buddhist temple for local Dai people and as a tourist attraction with a hefty entrance fee. Even though it hosts the Buddhist Institute and school, many *Dai Lue* consider the huge area neither as a "Dai place" nor a space of Buddhist worship. (CASAS 2007). The building is thus not representative of Banna Dai culture, but rather a simulacrum in the Baudrillardian sense and a cash cow for the tourism industry, which irritates and offends the local population. Former spaces of political representation, such as the place now called "Nationality Culture Square" in the heart of Jinghong have also functionally been transformed into leisure spaces. The square itself offers space for "ethnic performances" at night-time, in the basement, a supermarket and shopping mall inaugurated in 2008. Consumerism, an aspect of urbanism all over China and exotism as a special Xishuangbanna characteristic seem to be the new urban leitmotifs. Even though China formally still clings to the socialist ideas of class struggle, newly emerging societal classes or strata become manifest in the quickly expanding city: posh gated communities, shopping malls and leisure areas for the tourists and urban middle and upper class contrast impoverished and run down living quarters for rather poorly paid government employees and the former Dai villages, functionally and morphologically completely overhauled since the advent of migrants. The growing city is also an attraction for young people from the surrounding villages. Without proper education, most of them are engaged in low-skilled, low-paid and unstable jobs. Filling the gaps in the precarious sector of the urban economy, those local migrants are scarcely able to assuage their aspirations of a modern, luxurious city life, they remain spectators.

2.3.2 The "rubber line" as a rural-rural divide

The contrast between modern, urban and a backward, rural worlds and lifestyles are immense in Banna. Even though Jinghong is still lagging behind the economic standards of other Chinese cities, it is well ahead of the surrounding countryside. While the urban mean income was 7,932 Yuan, rural incomes did not exceed 2,172 Yuan in 2005 (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006). Accordingly, social development in rural areas, in terms of educational, social and medical infrastructure is lagging behind the urban areas. Yet there is not a simple rural urban divide in Xishuangbanna - the picture is more complicated. The disparities in social and economic development rather follow the "rubber line", roughly along an east western divide. Due to its topography and elevation, some townships, mainly Menghai County could not profit from the rubber boom. These areas are disadvantaged in the provision of infrastructure, jobs outside agriculture and fiscal revenues, which worsens the situation and deepens discrepancies. In order to mitigate the structural disparities, several communities in Menghai County are eligible for the national poverty alleviation programs.

The economic progress and the consequently following increase in standard of living of course has not enclosed all areas likewise. Especially rural areas in the south-western and western provinces of the PRC are lagging behind in economic and social development, despite economic growth rates of around 10% annually. This becomes evident from the stark differences in spatial income distribution; another indicator is the Gini-Index, which proves a growing gap of equality between rural, urban as well as between inland and coastal regions (BENJAMIN ET. AL. 2009).

In the first years after liberalization, poverty reduction was mainly focusing on the encouragement of economic growth. Poverty reduction made huge progress shortly after the introduction of the Household Responsibility System (HRS), reducing the people living in poverty from 53% to below 8% of the population between 1981 and 2001. Even though the national poverty line is way below the World Bank's 1 US \$ per day threshold, progress was made, especially in the first half of the 1980s (RAVALLION & CHEN 2007:3). Unlike in other parts of the country, where the growth of the primary sector stagnated or grew insignificantly, small scale rubber and tea farming helped to maintain agricultural growth rates. Thus Xishuangbanna, in comparison to other prefectures in Western China, did relatively well in terms of economic development. In 2004, out of Yunnan's 16 prefectures Banna was the third in terms of GDP, after Kunming and Yuxi (which is thriving on its tobacco industries) (YOUNG & YANG 2005). With its relative economic success, only one of Banna's counties met the standards when 592 poor counties for the national poverty reduction program were selected. Only Menghai County in the western and more mountainous part of Banna is eligible for funds of the "7-8 National Poverty Program" (World Bank 2001). This leaves the remote, high altitudes areas and villages of Mengla and Jinghong County in a disadvantageous position. In the highlands, pockets of poverty occur and poverty – in terms of income, infrastructural weaknesses and lack of opportunities is rampant. However, those villages statistically dissolve in the mass of relatively better-off communities in lower altitudes on the national level. According to the 11th 5-year plan of Xishuangbanna Prefecture, the application for 400 further villages as poor villages on provincial level is on its way, to help exactly those villages which are not eligible for the national funds (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006).

2.3.3 Biodiversity, protection and appropriation of space

The protection of natural resources and forests is not an unknown concept, neither in Chinese nor in the culture of ethnic groups along the fringes of the empire. First "protected areas" were introduced during the Qing dynasty (221-207 BC) in forms of forests reserved as royal hunting grounds similar to those in Europe during medieval times (MENZIES 1992). The Dai and Hani- as already pointed out have set aside large areas- in form of Holy Hills or Rattan Forests with strict use regulations (PEI 1993). After the havoc caused on ecosystems throughout China during the Mao-era, the Chinese government started to pay concern to environmental issues, like deforestation, soil degradation and biodiversity loss. Trying to fill institutional voids, the government started to gain control over land resources in order to protect those.

In post revolution China, the idea of protection emanated the introduction of a logging ban in certain natural forests - the first was introduced in Guangdong Province as early as 1956. The Xishuangbanna Tropical Botanical Garden in Mengla (XTBG) as a research and conservation institution was founded in 1951 (XU & MELICK 2007). During the Great Leap Forward and the following two decades, natural resources were considered as free goods and their protection suffered major draw backs. In the wake of the reforms in the 1980s, protection of natural forests appeared back on the political agenda, at least nominally in the Constitution of 1982. Accordingly, the number of China's protected areas increased rapidly during the 1980s and 1990s. Today, the share of area under protection is currently at 15% - preceding the global average of 11.6% (INTERNATIONAL UNION ON CONSERVATION OF NATURE (IUCN) 2009, UNITED NATIONS ENVIRONMENTAL PROGRAMME & WORLD CONSERVATION MONITORING CENTRE 2011). While during the 1980s,

the protection of natural resources was anchored in different national laws, for example the Forestry Law promulgated in 1984 and the Grassland Law in the following year, China opened itself to international approaches during the 1990s. The participation in a number of global programs and conventions, such as the Convention on Biodiversity (CBD), Ramsar Convention on Wetlands, Convention on International Trade in Endangered Species (CITES) and Man and Biosphere (MAB) lead to a higher accountability and probably to more transparency towards an international audience. Furthermore, China opened up to international environmental NGOs like World Wildlife Fund (WWF) and the IUCN, which are allowed to operate in China, unlike other international organizations that focus on social or political agendas. IUCN as a global leading actor in conservation issues has assisted in designing China's first law on protected areas in 2007.

Despite the declared political will and the insight that environmental protection is crucial, implementation of laws and regulations remain deficient, due to a number of reasons such as financial and institutional shortcomings, non-compliance, and unclear responsibilities, which will be further discussed in the case study on the Naban River Watershed National Nature Reserve (NRWNNR). Banna, with its rich and unique natural and environmental endowments became of course a focus of protection in 1958. Due to political atmosphere of the following decades, the first reserve (Xishuangbanna National Nature Reserve) was revived only in 1980. The NRWNNR was established in 1990 as a provincial level reserve and upgraded to national level in 2000. Both reserves are at least nominally managed according to international (UNESCO) standards and concepts and are members of the Man and Biosphere Network. Xishuangbanna's reserves have been recently integrated into a transnational regime, the GMS Biodiversity Corridor Programme, aiming at establishing spatial and institutional connectivity between protected areas in the Mekong Region.^{19, 20}

Spatially limited areas such as the XTBG and the Elephant Valley do not have a major impact on local people, except some side income from tourism. This is in contrast to the larger reserve areas, which are mentioned above. In those reserves, the state expands influence over land, and new institutions are introduced, mainly by a top down approach. They are often perceived as burdens by the local population, who feel curtailed in their decision making. Local influence over land resources is diminished, and even in resource protection national and international actors become more and more influential. Control over resources on the local level is declining. Rather, processes of isomorphic institutional development become evident, instead of development of locally adapted strategies for sustainable resource use. Financial resources to compensate people for emerging disadvantages are limited. Thus, imposed regulations and restrictions are not as effective, and many native forests are cut down even in reserve areas. The reserve administrations try to establish new institutions to fill the void.

¹⁹ MAB is an approach to harmonize human activities with environmental protection, in contrast to more excluding approaches of conservation, which require resettlement of local people.

²⁰ The Biodiversity Programme is one of the most important components of the Core Environment Programme of the GMS Initiative, but is still only a fraction of the whole GMS Initiative volume, which mainly aims at infrastructure and trade connectivity.

2.4 Conclusion

While Banna was a tributary to China like many other Southeast Asian political entities, it had been an independent kingdom for centuries. Particularly in the 19th century, intensification of relations with supra-local spaces has increased and political, cultural and economic actors have gained influence. When Sipsong Banna became Xishuangbanna, it was integrated into the national state through bureaucratic structures of the Communist Regime. At the expense of local, historically developed institutions, new institutions according to Communist ideologies and bureaucracy were installed. While these new institutions played an important role in “modernizing” the area to bring forth technological progress, they were not adapted to local conditions and environments. Moreover, local people and communities lost power in decision making in all spheres of life. The lasting effect of these modernization processes which influenced landscapes, livelihoods and mind-sets of local people can be considered as alienation. Since capitalist reforms have commenced in the late 1970s, institutions and actors have diversified, which is in Giddens’s sense, another sign of modernity (GIDDENS 1990). It seems that more areas of life are influenced by the state, for example emerging social welfare systems, natural resource use and environmental management. Banna is still strongly integrated and linked to the national level, but less through bureaucracy and political ideologies of the state, and more through economic exchange, which again expands across borders. These economic processes, for example the demand for rubber driven by world markets are beyond local peoples’ control, but in return wield great influence over Xishuangbanna’s social and geographical space. Detrimental effects on biodiversity and environment on the one hand and growing disparities, possibly the emergence of a new periphery in Xishuangbanna on the other hand are the downsides of economic growth and liberalization.

3 Naban River Watershed National Nature Reserve: A human landscape in (uneven) development

Enclosing the whole Prefecture of Xishuangbanna into empirical research would be beyond the scope of a mid-term research project. Thus a research area was selected, which in many respects embodies Banna within a smaller spatial unit. The geographical entity of Naban River Watershed, incorporated into the Naban River Watershed National Nature Reserve (NRWNNR)²¹ on an administrative level has been the focus of this research. The Reserve displays the diversity of social, geographical and economic facets of Banna and furthermore offers, as a nature reserve with an increased level of institutional regulation, a good opportunity to analyse relationships between state, people and landscape. The NRWNNR stretches over two counties: the relatively affluent Jinghong and the poorer Menghai County. It covers altitudes between 580 and 2,400 meters, and is home to at least six ethnic groups. An analysis of the area's social structure shows that patterns of development and transformations of the social landscape follow different paces and directions, with the rubber line as an important element of division.

3.1 Naban River Watershed National Nature Reserve (NRWNNR): Landscape and its people

3.1.1 The physical landscape of NRWNNR

NRWNNR is one of the three reserves in Banna which is managed according to the Man and Biosphere Network (MAB). The MAB approach towards protection is a non-exclusive one, aiming to facilitate the co-existence of humans and the environment. When the Nature Reserve was established, the boundaries were demarcated along the natural boundaries of the Naban River catchment, a direct tributary to the Mekong. Administrative boundaries were not taken into consideration. It covers an area of 266 km² of mainly rugged, mountainous terrain at the western bank of the Mekong. Figure 15 illustrates the morphological characteristics: steep slopes and limited flat valley bottoms, with the highest peaks in the western part, mountain ranges running north-south and decreasing altitudes towards the Mekong in the east and south. About 80% of the area is steeper than 25 degrees. Flat areas with inclinations below eight degrees make up less than 2%. Altitudes range from about 580 meters in the west and in the southeast to over 2,400 meters in the western area of the Reserve. These high vertical discrepancies, in combination with exposition lead to highly diverse meso-climatic conditions. In Bengan Xin Zhai, at an altitude of 1,800 meters, the annual mean temperature is 16 degrees and mean precipitation about 1,500 mm. In Mandian at 660 meters, mean temperature is 21 degrees and rainfall mounts up to 1,200 mm per year (PARTY COMMITTEE OF YUNNAN & GOVERNMENT OF YUNNAN PROVINCE 2008).

The zonal soils vary according to altitude, precipitation and human influence. Below 800 meters, brick-red soils are dominant, followed by scarlet soils (below 1500m), and red and yellow soils in altitudes above 1,500 meters. Many of the soils are strongly influenced by human activities (WU & YANG 2003). Several streams and rivers used for irrigation and hydropower generation drain the catchment eastwards to the Mekong.

²¹ For NRWNNR, several terms will be used for linguistic diversity, such as the Reserve, NNR, Reserve area

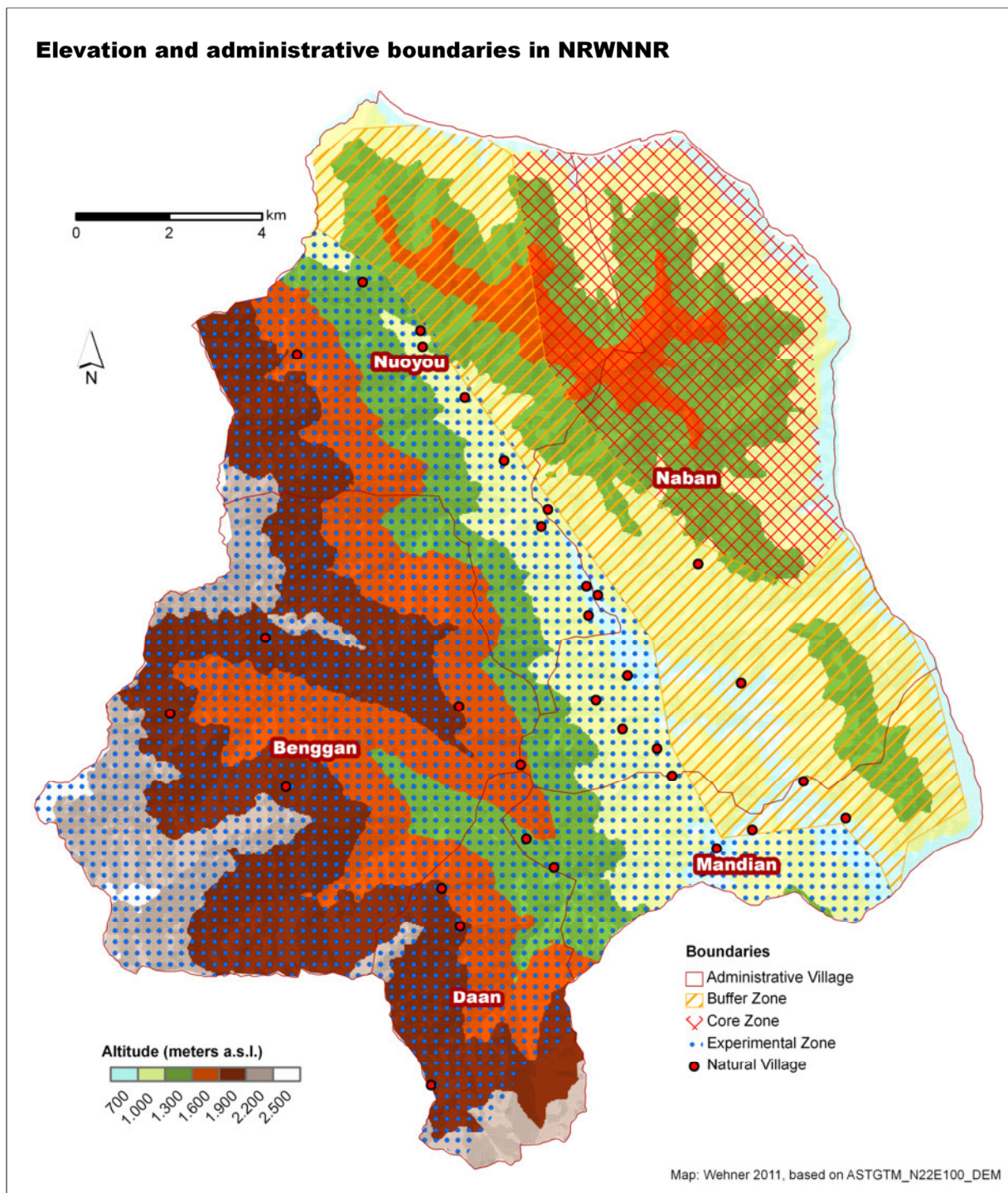


Figure 15: The NRWNR: Elevation, administrative village boundaries, location of settlements and reserve zones (adapted from WEHNER 2010)

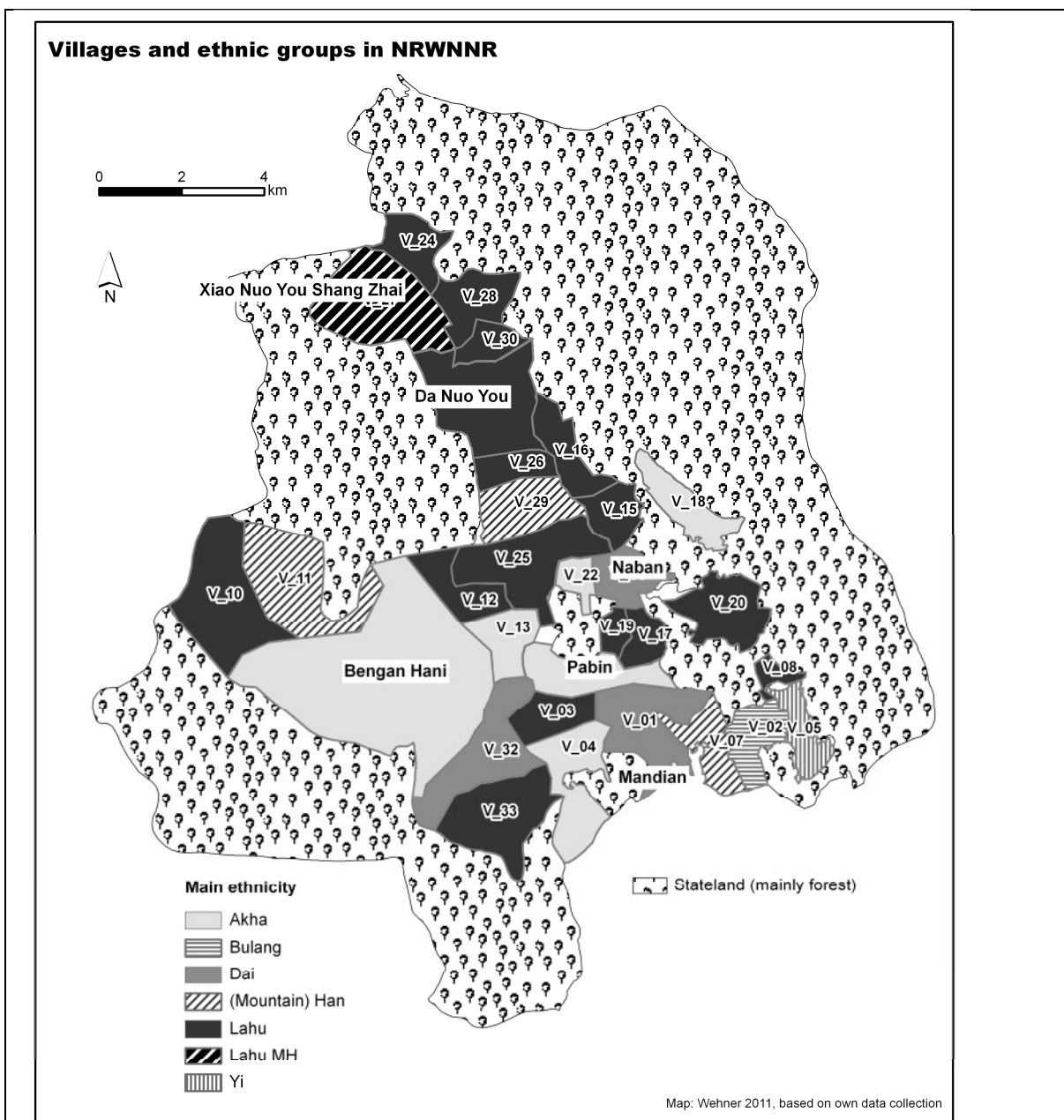
The natural vegetation can be considered as representative of Xishuangbanna and includes, according to climate and topography, 2,000 higher plant species and eight vegetation types: tropical rainforest, tropical monsoon forest, evergreen broad-leaved forest, deciduous broad-leaved forest, warm-temperate coniferous forest, bamboo forest, savannah and shrub. The reserve covers some of the last and best remnants of certain forests types typical for the region. Beside the floral diversity, the NRWNR is the habitat of a diverse range of animals. So far 437 species of higher animals, including 269 bird species have been counted. The Gaur (*Bos Gaurus*), wild boar and leopard (*Panthera Leopardus*) are just a few of the well-known species, which still find refuge in the reserve area (WU & YANG 2003). The Reserve is thus a representative of Xishuangbanna's natural

flora and fauna, of which little is left elsewhere. Even though the area is nominally under a scheme of protection, in the years since rubber cultivation begun, many of the habitats in the Reserve have been destroyed or heavily degraded by fragmentation or over-use. In particular, little native forest is left in the lower, more densely populated areas of the buffer and experimental zone.²² The largest and most diverse and undisturbed forests are found in the core zone, which covers the higher altitudes of the north eastern Reserve. Besides the administrative boundaries, there is an invisible border running through the area. The rubber-line approximately divides the area at an elevation of 1,000 meters, which is the ecological boundary for the cultivation of rubber. However, it is not a mere ecological boundary. Rather it can be described as a fluid frontier, determined also by socio-political, cultural and technical conditions - aspects which will be discussed in depth in later chapters. A connection between lack of stewardship towards forest and feasibility of rubber cultivation manifests itself in the physical landscape.

3.1.2 Population and settlement patterns

Despite its function as a nature reserve, the area is home to about 5,500 people from six different ethnic groups, with Lahu and Akha as the largest ones. The Reserve belongs to two different counties: Menghai County and Jinghong City and two townships; Gaza for the Jinghong area and Mengsong (being the upper level administrative unit for the Menghai area). Five administrative villages and 32 natural villages are directly located within the reserve. The majority of villages and people are Lahu who dwell mainly above 1,000 meters. A close traditional bondage existed between the ethnic groups, their natural environment and certain land use types, with the Dai as rice farmers, the Lahu as shifting cultivators and hunters and gatherers and the Akha and other groups as practitioners of both, shifting cultivation and paddy rice cultivation. One interesting group are the people called Mountain-Han: These people have been dwelling in the area since Republican times, i.e. before 1949. Their ancestors fled from persecution in other parts of China. For example, people from Bengan Xin Zhai, arrived in the late 1930s. They settled in the area and adopted land use practices from the neighbouring villages without losing other traditional Han cultural traits. While inhabited by humans for many centuries, only few of the 32 villages in the NNNR can be considered to be "old settlements". Most of the villages have a migratory history which dates back less than 50 years, showing both the strong influence of the Communist State and an inherent flexibility of communities within space and landscape. The oldest village in the Naban Watershed is Bengan Hani (BGH), also called Bengan Lao Zhai. Bengan "old village" was founded over 350 years ago by settlers arriving from Mojiang in the Red River area. Their history is deeply incised into the villagers' memory- they can trace back their lineage over 11 generations, still bearing in mind the names of the village founders. When the elders talk about their migration history, they use the "we" form. Other sedentary villages are the Dai villages- Naban (NB) and Mandian (MD) which have existed for more than 100 years in the fertile Naban Valley. Unlike people in Bengan Hani, they cannot exactly remember how many generations ago their villages were established. Back then, the villages only consisted of a few households. Mandian for example counted little more than 10 households in the 1940s, and the area was generally sparsely populated

²² Like all MAB Reserves, the NRWNR is divided into three zones: experimental, buffer and core zone. Each zone has certain rules, regulating land use options, particularly for the local population.



Village_ID	Village Name	Popul.	House-holds	Village_ID	Village Name	Popul.	House-holds
V_01	Mandian	283	64	V_18	Hui Ma He	155	31
V_02	Cha He	91	20	V_19	Liu Jia	33	12
V_03	Hui Lao Xiao Zhai	110	22	V_20	Mang Fei	326	78
V_04	Hui Lao Xin Zhai	154	38	V_21	Pa Bin	149	38
V_05	Naban He Shang Zhai	204	53	V_22	Bang Long	43	9
V_07	Nong Chang Shi Si Dui	80	22	V_23	Da Nuo You	414	90
V_08	Zhou Yi Gang Zhi Dui	80	22	V_24	Ban Qian Di	414	90
V_09	Ben Gan Hani	836	172	V_25	Hui Lao	162	40
V_10	Ben Gan Lahu	261	57	V_26	Mang Song	25	8
V_11	Ben Gan Xin Zhai	251	51	V_27	Xiao Nuo You Shang Zhai	154	33
V_12	Gei Yang Gong Di	95	21	V_28	Xiao Nuo You Xia Zhai	102	22
V_13	Shi Jia Zhai	59	13	V_29	Zhang Zhi Zhang	77	189
V_14	Na Ban	185	42	V_30	Jui Zi Di	414	90
V_15	An Ma Lao Zhai	218	53	V_32	Mang Xin Long Dai	138	31
V_16	An Ma Xin Zhai	296	72	V_33	Mang Xin Long La	167	39

Figure 16: Natural villages, ethnic distribution and case study villages (data source: WU & YANG (2003))

Only over the last 60 years, through migration and population growth, humans have appropriated and formed the landscape more intensely. Also, the settlement structure as it exists today, with most villages along the valley in the Eastern part and other villages scattered through the watershed has developed. Apart from the older villages, many settlements have been founded or have been relocated into the Naban Watershed within the last decades. Different motives for and directions of resettlement can be distinguished. Several villages were encouraged to relocate by external forces, into more accessible and/or more fertile areas, a process which can be defined as state induced relocation. In contrast, there are also dynamics of community induced relocation of villages which have relocated on their own account, according to traditional settlement dynamics. Looking at community induced resettlement and migration, Bengan Lao Zhai or Bengan Hani (BGH), an Akha village located in the Western part of NNNR serves as a good example. With the population of BGH increasing, several households decided to leave the village and found new settlements in the area. The villages of Shi Jia Zhai (SJZ), Pabin (PB) and Hui Lao Zhai have been established over the years. Some of the villages share agricultural land with BGH, but Pabin for example was founded within the secondary forest and all land for settlement and agricultural activities had to be reclaimed. This kind of resettlement follows a rather typical pattern. As examples from literature show, Akha move the location of their habitation frequently, in a sequence of one to two generations, mostly due to population growth in the "mother village", or degradation of agricultural land. In accordance with the community, several households will move out and found a new village in another location. The decision to move is taken by the male household head (TOOKER 1996). Reasons for the segregation from BGH were the scarcity of arable land due to a constantly growing population, and also social tension between certain households within the village community.

A number of settlements were relocated or founded as a result of external influences. There are cases of "state induced" relocations as a consequence of the new government expanding power over the geographical space. How far these processes were based on mere "suggestions" by the government or were implemented forcefully is unclear. The idea of resettlement of ethnic mountain dwellers was based on different rationalities: one is certainly the idea of being able to exert better political and economic control through infrastructure access and compact and sedentary villages. Another one is surely linked to the Communists' "*mission civilisatrice*", which includes the idea of taking care of the "new citizens" and raising the standards of civilization. According to the Communist approach, the state should provide a higher, more advanced and modern living standard, including better farmland, infrastructure and supply of social services. In Xiao Nuo You Shan and Xia Zhai, the Lahu people were urged to relocate from hamlets into two core villages in 1958, when working teams as sub-units of the communes were established. The former village head of An Ma Xin Zhai remembers: "(...) they got offered this land, which they considered as better, because it was lower in altitude, more flat and they could have access to land suitable for irrigation. If they had not liked the new place, they could have returned." (Mr. Cai, born in 1947). In the 1960s and later, Lahu people from these villages again moved out of the remote places of Xiao Nuo You Shan Zhai (XNYSZ) and founded new settlements like Da Nuo You (DNY) and An Ma Village along the river valley. The foundation of new villages within a certain radius of the old ones lead to the establishment of strong social and familial ties between the new and old villages, decreasing the social distance between the settlements and increasing

the sense of belonging; not only within the village but to the wider area. The feeling of belonging also remained unblemished, as many villages just moved closer to the fields that they had already used previously.

Another type of settlements are those formed by people who lost their livelihood in other villages of the region and had to find a new space to live in order to survive. These people, which can be characterized as ecological migrants came from Western Menghai, beyond the borders of the Catchment in the late 1960s to escape food shortages. They reclaimed forest and founded the villages of Hui Ma He and Ban Qian Di under hardship conditions. The extent to which the relocations were forced by the state cannot be established here. The villages which were founded relatively late seem to have disadvantages in the endowment of land. They had less access to land, in particular, to paddy fields. For example, in Naban each inhabitant has 1.9 mu of paddy field, and in An Ma Xin Zhai only 0.9 mu (PARTY COMMITTEE OF YUNNAN & GOVERNMENT OF YUNNAN PROVINCE 2008). The latest relocation took place in 2009. Due to the backwaters of the new Meikong Hydro-Power Dam near Jinghong, people from Naban He Shang Zhai had to abandon their village. A new settlement was constructed in the paddy fields near Mandian. The old village and most of their arable land is now being swallowed by the new anthropogenic lake. If and to what extent farmers have received compensation for lost homes and land resources is not clear. The question whether Mandian farmers were compensated for the loss of their paddy fields also remains unanswered.

From the beginning, the Communist State granted local people the right to exist and the right to their locality and resource base. This differs from minority policies in Thailand, where land was annexed and local people are affected or threatened by expulsion. Still today, many "hill tribe" people in Northern Thailand, particularly those in the mountain areas declared as reserve forests and protected areas, do not hold land tenure rights and are alienated from their resource base (VANDERGEEST 1996). In Banna, these legal conflicts on land tenure did not occur when the Nature Reserve was established in the 1990s. The Commission demarcating the Reserve fully accepted the existence of the villages. All settlements remained in place and no arable land was annexed. Generally speaking, the Naban Area has been a cultural landscape for hundreds of years. Over the last decades, the area's settlement structure has witnessed strong dynamics, mainly due to natural population growth and environmental migration. Furthermore the settlement structure was also influenced by the state aiming to expand control and development over the remote areas.

3.2 Snapshots of a rural society

3.2.1 Communities in the NRWNNR: ethnically homogenous and little stratified

During almost 30 years of suppression, starting with the collectivization and only extending with liberalization, much damage was afflicted to the cultural independence and integrity of ethnic groups. Technical and economic transformations have also taken their toll, so that many markers that once distinguished the ethnic groups no longer play a role. However, ethnicity extends beyond Geertz's primordial model that focuses on cultural traits, common descent and kinship (GEERTZ 1963). Social interaction and cultural encounter, which create and transform ethnic identities through a process of "othering" (BARTH 1969) is a useful concept when looking at ethnic identity in the research area. Ethnographic research was not a focus of this study, thus it is not possible to offer concise descriptions of different ethnic groups, their relations and transformations.

The most distinguishing and vivid marker of ethnic difference is language. Akha, Lahu and Dai language have remained the means of verbal communication within the families and communities. Other characteristic pointers of ethnicity loose importance. Ethnically distinct attire is mainly worn during holidays and festivals, except among the Dai ladies, who cultivate wearing a sarong. Celebrations and festivals had been banned from 1957 till 1983, for more than a generation. During this time, only Han Chinese festivals were held. Since the



Figure 17: Distribution of meat during the Swing festival in Bengan Hani

1980s and particularly within the last decade, a re-emergence of ethnic identity has become visible. This manifests itself for example in the resurrection of certain celebrations, the re-uptake of typical architectural elements and patterns in new buildings and the reconquest of public space for forms of expressions of ethnic identity.



Figure 18: New and old Dai houses in Mandian

The Buddhist temple in Mandian was destroyed during the Cultural Revolution and shortly after liberalization, a new one was built in 1982. In Bengan Hani for example, several swings are constructed at different locations along the fringe of the village, which are used during the Swing festival in July. Using the swing as an entertainment is not the only common activity. In preparation for the festival, a buffalo is bought from the village groups' collective funds, slaughtered, meticulously carved and distributed between all households (see Figure 17). A good example for recalling ethnicity can be found in Pabin, one of the wealthier Akha communities in the eastern part of the reserve. After the construction of the new village road in 2007, a typical feature of Akha villages, a gate, was erected at the entrance of the settlement. Traditionally from timber, the new gate in Pabin is a concrete construction, adorned with ideological slogans such as "healthy environment and happy people" apparently a concession to "Communist culture". Apart from the village gate, a community house, also a traditional element of an Akha village, will be built as a meeting place for community members. According to the village head, a small house enclosing a spring in the village area will be built in order to stimulate the resurgence of the Spring Festival, one of the traditional

Akha holidays. Collecting fresh water from the spring to clean the house after the winter season is an important ritual which is still celebrated in other Akha communities such as Bengan Hani, but so far has been neglected in Pabin.

In recent years, many timber houses have been replaced with concrete buildings. In most villages, modern housing has followed a Chinese style, like in Lahu villages, where single story brick buildings with corrugated iron roofing replace the former usage of organic material. Modern architecture in Dai villages is distinct. Functionally and structurally, the new houses follow the composition of the old ones: based on stilts, or at least endowed with large open spaces on the ground floor, the new buildings allow room for agricultural or other activities. Living quarters are located on the first floor. The arrangement of rooms follows traditional patterns, adjusted to the cardinal points. Formally, even though made out of concrete, elements and symbols associated with Dai culture are integrated into the new building, such as the roof form and ornaments.

In Dai and Akha villages, ethnic identity seems to be highly valued and is a source of pride, particularly when it comes to distinguishing one group from another, offering intrinsic satisfaction, as BROWN (1994) puts it. In those communities, forms of expression of ethnicity are visible, and festivals and celebrations play a role in reviving and confirming ethnic identity and culture. In the Lahu villages visited, the maintenance of traditions does not seem to play an important role. In some Lahu villages, the traditional language is becoming increasingly replaced by Chinese. In other villages on the other hand, very few people speak Chinese. Festivals and celebrations have been abandoned and have not been revived so far. In XNYSZ for example, only a few old people can remember traditional Lahu festivals. Very little information could be gained on the spiritual world view of Lahu people. The question whether little is left from the animist belief system or whether people are secretive about their spiritual values and activities remains unsolved.

Barth's concept of ethnic production through comparison and contrasting with others can be clearly felt when communicating with people in the research area. Ethnicity, i.e. being Akha or Dai or Lahu is an important feature of self-perception and identity, despite the increasing homogenization of livelihoods. Furthermore, there seems to be a relationship between ethnic revival and the importance of ethnicity and the level of social cohesion. It is not quite clear whether common ethnicity is a source of social cohesion, or vice versa. However, the research indicates that a high degree of social cohesion supports the re-emergence of ethnicity. For example in Pabin and Mandian, where the community seems to be intact and the level of cohesion is high, ethnic identity is an important factor. In Mangfei, a Lahu community, which is according to different informants, a village with little social interaction, there are no signs of ethnic revival. Ethnicity is also important for distinguishing and describing not only one's self, but also others. For example, Lahu people are regarded by other groups as backward and sometimes even lazy. Officials complained that Lahu people have little interest in taking on responsibility even for themselves. At the time of the last visit, the position of vice village head was vacant in Bengan Lahu, because no one was willing to take on the position. The Dai are mostly seen as modern and wealthy, but they are also considered as cunning. Even though the crossing of ethnic boundaries, for example through intermarriage has become more widespread, certain reservations against the other groups seem to remain. According to King, "social class difference can be expressed as ethnic difference (...)" (KING 2008:130). As discussed in Chapter 3, historically the Dai were the politically and

economically leading group, the upper social class and the ethnic majority. While the Dai are struggling for their status as majority in Xishuangbanna, they are able to hold and keep important positions in the governance of the Dai Autonomous Prefecture. Mainly populating the lowlands, the Dai have also been an economically successful group through rubber cultivation. The Dai, as an ethnic group retain, or regain their position as an upper social strata in Banna. The connection between social and economic status and ethnicity is also realised by ethnic groups living in the highlands. One informant clearly discusses the differences between ethnic groups:

"I think the Dai people are better off, since they live in the flat areas. It is easier for them to do anything and to get new information than for people living in the mountains. Dai people always have the first change to do anything. They have lots of paddy fields and planted rubber trees, so that their life is always advantaged to that of other ethnic groups. In comparison to all minorities, the Lahu have a less good life, it seems that they don't know how to organize themselves and how to spend their money." (Mrs. Li from XNY, born in 1936)

Belonging to a higher social class was often related to being located at or connected to urban or central places. In fact, a new social strata seems to be emerge in Banna. This new class, which could be defined as the class of "rubber farmers", does not follow the prerequisite of centrality. Farmers of this "rubber strata" have gained a certain level of wealth, have attained a certain lifestyle (which will be discussed later), and prefer to remain within their localities, instead of relocating to more central and urban areas. However, looking at their position from a global perspective, one could say that the producers of rubber take on an important position in the global market, despite its spatial peripherality. They have taken on the identity of rubber farmers who belong to their respective village and are satisfied with their livelihood. This class is mainly composed of Dai people, but also consists of Akha and Lahu people of the NRWNR and Xishuangbanna's lowlands. However in the NRWNR, the Dai, in particular, are perceived as most successful and wealthy.

So far, social stratification is still limited, but emerging. Within the villages, differences are not so distinct, even though there are a limited numbers of households which are considered as poor by fellow villagers. Existence or origin of poverty is explained by laziness of the poverty-stricken household members, i.e. considered as individual failure and not as a structural problem. In the larger villages, a non-agricultural class is emerging, consisting of teachers, cadres and other civil servants who engage in agriculture as a side-line or even employ wage labour.

3.2.2 Family and households structures

Structures of households as the basic unit of the community still follow traditional patterns, housing several generations under one roof. Household sizes differ only slightly between the villages. On average 4.3 people live under one roof. In Bengan area villages, household sizes are slightly above average. Otherwise, there are no significant differences between the villages. All ethnic groups follow the system of patrilocal exogamy, thus daughters leave their family to move into the husband's household. Often, one son and his spouse remain behind to take care of the parents and their own offspring, so that there are at least three generations in one household. Only few households were deserted by the young generation. These households are most threatened or even affected by poverty due to lack of labour and care. Beyond the nucleus family, the extended family, i.e. kinship, is an important factor in the social structure. In many villages, there are only a very limited number of family names, indicating a relationship between

the households. In Bengan, for example, there are five village groups with 20 to 30 households each and only three different family names. To maintain and strengthen kinship relations, marriage has been an important means, usually following strict ethnic boundaries. This pattern has weakened over the last decades. Most young people still marry within their ethnic group, but exceptions occur more frequently. Marrying a partner from another ethnic background is more tolerated and even welcomed if it brings social or economic advancement. However, even though people proclaim a liberal view, reservations against certain groups remain, although not voiced too openly. It is possible that these reservations are mainly of an economic nature, as one informant explains:

"I am in love with a Dai guy from Damenlong, but my mother is against it. She told me if I will marry him they won't distribute rubber to me. (...) My parents want me to choose a husband from this area so they can make sure that I am happy. My mother prefers me to marry one from Anmalao Zhai and say they will distribute more than thousands rubbers if I chose the boy living in Anmalao Zhai. My parents told me not to follow my sister's way to marry to a poorer village. In their mind places which can't plant rubber is poorer than the place where they can grow rubber trees." (Mrs. Kangga, young Akha lady from Huimahe)

HENIN (1996) discovered the following pattern of inter-ethnic marriage in Xishuangbanna, whereby at least females can improve their social standing. Lahu girls from upland villages marry into Akha households in the middle land and Akha girls move to the lowland to marry into Dai households. This situation is also found in NNNR, with some modifications. For example, some Lahu girls have left the area and got married externally, mainly to Han Chinese. Furthermore, marriages of mostly men into Dai villages do occur. The households of Dai and Akha rubber farmers are, unlike farming households in other parts of China, an attractive livelihood base for Han Chinese from less prosperous areas of rural China.

According to the Marriage Law of the People's Republic of China, the minimum age for marriage is 20 years for females and 22 years for males. Shortening the formal fertility period and increasing the generation length, i.e. the time span between the mother's and the daughter's first offspring is part of the Chinese family planning policy. Marriage age has thus risen, however, being unmarried at the age of 20 plus is still regarded as problematic. Unmarried couples cohabiting or even having children is socially not accepted in rural China, neither amongst Han, nor amongst Dai or Akha people. However, in some Lahu villages, it seems that the institution of formal marriage is not taken too seriously. For example in Guo Men Shan, a very young couple has been living together and have become parents at the age of 16 and 18 years. This was tolerated both by parents and local cadres. Only when they had reached the minimum age for marriage, did they register their liaison and were recognised as officially married.

After the implementation of a new law in 2003, divorce has become less problematic in China and particularly in urban areas, more socially accepted. Today, almost every fifth marriage is being divorced, with much higher rates in the urban centres (THE INDEPENDENT 2010). In this respect, the patterns in the research area remain rural and traditional. Divorces do occur, but are not widespread and are generally not socially accepted. The few divorces which were mentioned by the informants were spoken about with a certain degree of disapproval and contempt. Unlike in urban areas, where spouses are more independent in economic terms, in the rural areas, marriage still functions as an economic base for both males and females. Spouses are mutually dependant and splitting up would mean major economic hardship for at least one party.

The natural population growth has constantly declined, from 10.7% in 1991 to 5.3% per annum in 2001. This rate is still above the Chinese average which dropped from 1% to 0.7% during the same period (WORLD BANK 2011). While the Chinese family planning policies had been adopted rather strictly in urban areas, family planning policies, for example the "One-Child policy" had not been applied in poor rural areas. Moreover, ethnic groups are subject to positive discrimination. Families belonging to an ethnic minority have not been subject to the "One-Child policy". Rules and implementation in the (south-) western Provinces were more permissive (ATTANÉ 2002). Yet even the limit of two children is against the traditional attitude of most ethnic people. For example among the Akha, having many children is considered as a merit and it is the responsibility of women to bring fertility to the fields and the family. Preference of boys is a reason for having more than two children: "I gave birth to three children and three of them are daughters, I gave birth to so many children because I wanted a son. You know as customs we prefer a son." (Mrs. Yang from BGH, born in 1970)

Research results indicate that compliance with the family planning policy is not ubiquitous, and is not related to ethnicity. This becomes obvious when comparing the birth rate of the four villages Pabin, Bengan Hani, both Akha villages and Da Nuo You, Xiao Nuo You Shan Zhai (Lahu, Lahu-Han). Both, in Pabin and DNY more than 75% of parents have two children only.²³ Parents from Bengan and Xiao Nuo You are

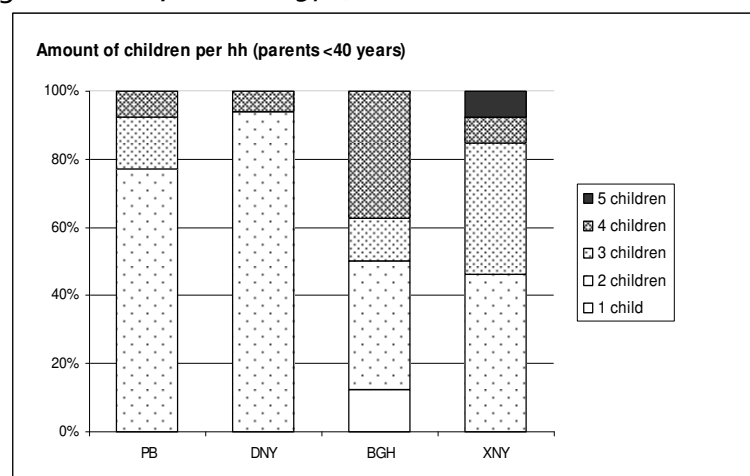


Figure 19: Differences between villages in family size

less obedient, since more than 50% of the respondents have more than two children. Ethnicity does not seem to be a determining factor for birth rates or obedience to family policies. There are at least two reasons likely to influence the birth rate. One seems to be income: Pabin has a low birth rate and is one of the richest villages in the area. This is corroborated by trends from Naban and Mandian. Da Nuo You, which is also still rather poor in cash income shows a pattern for which another explanation is needed. DNY has a very strong leader, who tries to strengthen the community's economy and focuses on the implementation of policies which he considers expedient. It seems that village officials and local cadres do have a strong influence on the implementation or non-implementation of policies and regulations in their community.

According to state regulations, families who have more than two children need to pay a fine and can be excluded from social services, such as health care and free education. This leads to the phenomenon that a certain amount of children are not even registered which the administration, which can only work with the consensus of local cadres. In Da Nuo You administrative village, the official regulation was proclaimed during a village council in 2008:

- Fine for having more than two children: 6,000Yuan

²³ Only parents below the age of 40 are included in the analysis.

- Fine for an interval of less than 3 years between having children: 3,000 Yuan
- Fine if both of the above: 10,000 Yuan

Apparently so far no family has been seriously punished or deprived of social services. However, one township official makes clear: "One family in Bengan Xin Zhai has five children now, and if they get another one we will punish them". This tolerant behaviour shows on the one hand the ample room for decision making of local cadres in certain fields. On the other hand it is an indicator that local cadres do not always see the necessity to comply strictly with national policies.

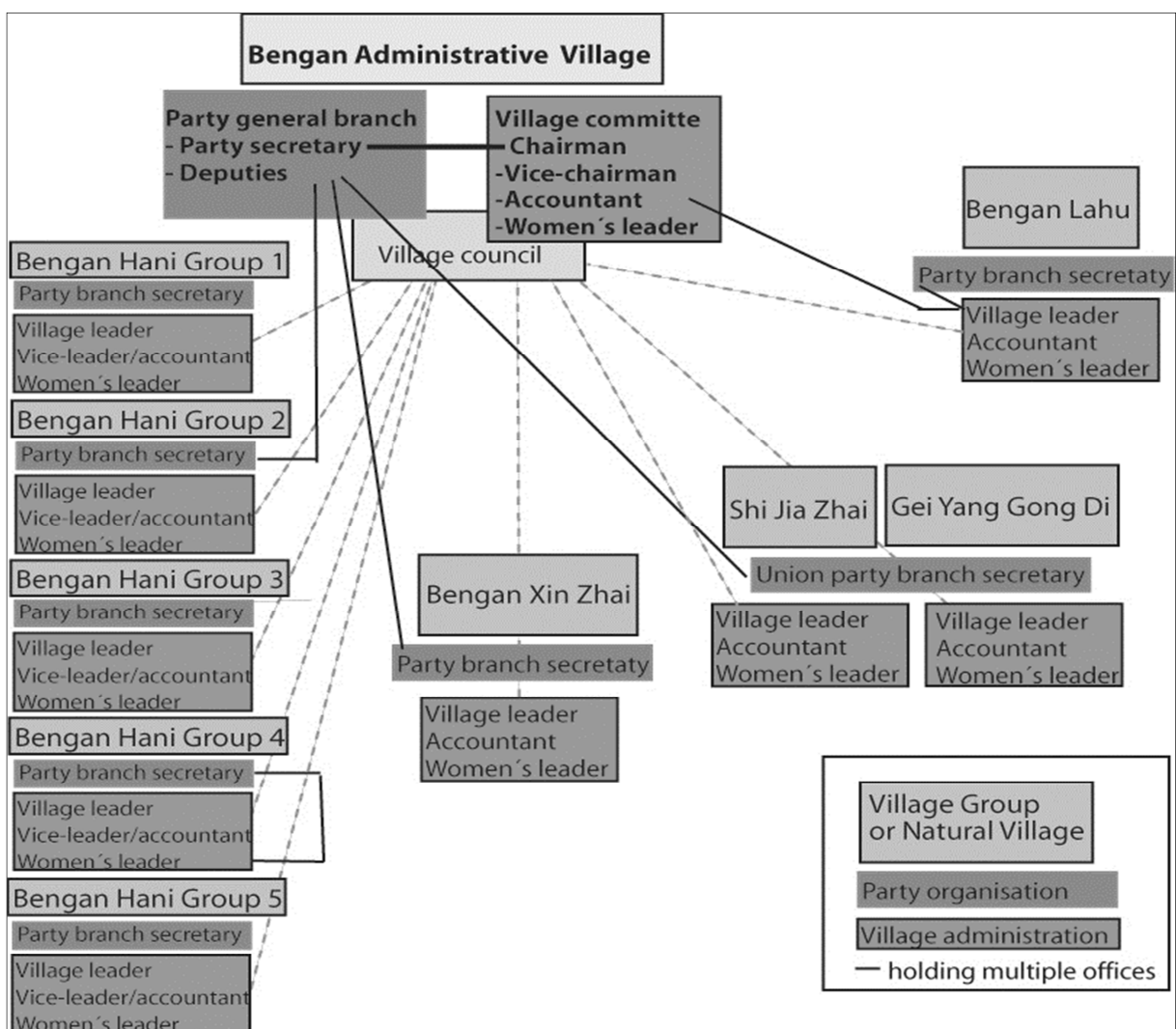
3.2.3 Organisations and actors composing the network of local power

Traditional power structures dominated by clan and feudal structures were overthrown during the 1950s and 1960s and replaced with the communist system. In the late 1980s, elections on the village and administrative village level were introduced to increase legitimacy and participation. Despite certain democratic elements, the state, in form of the communist party is still strongly involved in village governance, since the administration and the party are strongly intertwined. As individual actors, village officials play an important role in the rural communities, even though they have limited fiscal or legislative competences. Elected by the villagers, they are an interface between the state and the society, i.e. the people. Often village heads not only form the political, but also the economic elite of their village, many with a background of pre-communist landlord family origin. The term village translates into two different Chinese terms and institutions, which have different roots and encompass different spaces- namely the administrative village and the natural village (FEUCHTWANG 1998). The natural village defines a place of belonging- a geographical and social space which is an emic construct, created by the inhabitants of its inhabitants. The administrative village, the successor on the level of the brigade was introduced or rather strengthened in its importance by the Chinese government. Both the natural villages and the administrative villages are governed by a combination of two organisations or institutions, the party and the government/administration, which are strongly entwined. The institutions and actors of village governance are depicted in Figure 20, with the example of the Bengan administrative village. On the lowest level of the political landscape, in the natural village and village groups, village leaders, statistician as deputy village -leader and the women's leader as part of the administration are elected. Since the late 1980s, when elections on village levels were introduced, natural villages have gained some importance as political units. These elections, initially implemented in 1987 were an attempt of the Central Government to install democratic institutions on the local level (WANG 1998). Though instituted through a top-down approach and not through a local process of institutional self-regulation, the democratization on village level was supposed to create "checks and balances" against Chinese bureaucratic top down governance of cadres (TSAI 2007). Apart from the elected leaders, the Communist party is of course also present in the natural villages. However, within the NNR, party memberships are below the Chinese average, and most villages often have only a few party members. The head of the party branch is instituted by the upper level. The party secretary and the village leader cooperate very closely, in many villages, an administrative post like village leader and the position of the party secretary are held by the same person. On the level of the village, the leaders are important actors, functioning as an interface between the state and the villagers. Besides transmitting directives from the upper lev-

el, they must implement policies within the village, apply for funds and settle issues within the community. They receive compensation for their services to the community, although not a decent salary. Many village heads complained that the few hundred Yuan they receive annually are almost completely consumed by their expenses, such as travelling to meetings, communication fees and most of all, hosting upper level officials. Recently, the remuneration was increased from 200-250 Yuan per year to 100 Yuan per month. However, the financial aspect does not seem to be a driving to become a village leader. Being a village leader also has an important advantage in terms of access to knowledge and information. Most information is transmitted through village council meetings, where village heads are requested to attend. These meetings are not only an institution for gaining information, but also to make contact with upper level officials and decision makers. Most of the village leaders hold both a political position, and belong to the economic elite.

The lowest official level of the administration system is the administrative village, comprised of the village committee, villagers council the Party general branch and some mass organisations like Women's or Youth league. The administrative village occupies more a social and political space than a geographic one. As the administrative successor of the brigade, an administrative village has jurisdiction over six to eight natural villages

Figure 20: Structure and network of leadership in Bengan administrative village



or village groups. The village administration is, according to FEUCHTWANG (1998) the fundamental state organization in Chinese rural society. Since the Organic Law of China was passed in 1987, the members of the village committee are elected by the villagers (WANG 1998). It is mainly an implementing agency, transmitting the regulation and directives from the state to the citizens. The connection between party and committee is strong in many cases, and often the position of party secretary and the chairman is held by the same person, like in Bengan and also in Da Nuo You administrative village. The village council is an assembly of the village heads and vice-village heads from the different natural villages. Looking at the processes in Da Nuo You administrative village, it seems that the council meeting has a rather informative character. Directives and policies from the upper level are announced to the village heads. Strategies to deal with local problems are developed by the party secretary and some members of the committee. The council has little influence and the level of participation and discussion seems rather low. However involvement and participation certainly varies from place to place.

3.3 The social topography of NRWNNR: human development and modernization

3.3.1 Connectivity through roads and communication means

Topography makes the accessibility and the provision of road infrastructure a challenging task in the mountainous areas of South Western China. Mobility and accessibility has become an important aspect of modernization, and spatial integration of rural areas has many positive effects on economic and social development. Furthermore, roads are not only driven by a top-down approach like other modernization projects. Rather, they are mostly welcomed by the local population and bad road connectivity is perceived as an obstacle to development. Over the last few years, the situation has significantly improved in the Naban Catchment, even though an analysis of road infrastructure shows growing disparities in accessibility, particularly between upland and lowland communities. This phenomenon can be defined as the "tarmac bias", leading to increasing spatial inequalities within a region by further marginalizing off-road communities (RIGG & WIT-TAPAYAK 2009).

Spatial mobility of villagers in NNNR has been constantly increasing due to recent enhancement of road infrastructure and transportation facilities. However, the differences in accessibility of villages are already stark and increasing. Up till the 1970s only a jungle track connected the villages to Jinghong. In the early 1980s the Eastern Valley was connected to Jinghong through a dirt road along the valley bottom. Villagers were mobilized to contribute labour, while the government provided material. However, providing public goods to the remote villages through road improvement was not implemented merely for the needs of the villages. In many cases, there is a connection between an economic interest concerning resources in the Reserve Area and the provision of roads. According to local informants, the first road to the northern villages of the area was constructed in the wake of accessing and developing hydroelectric resources, namely the Nan Guo He power station just outside the northern fringe of the NNNR in 1984. The time of construction of the road in the western parts is unclear, however it was profoundly improved in 2008 through means of township and country administration to improve delivery from the villages to the industrial area in Mengsong and Menghai. The village of Xiou Nuo You Shan Zhai, for example, is in an extremely disadvantageous position, since there has been up till recently no direct road connection to

Mengsong township. The connection between hemp production and infrastructure improvement in this case has been stated very clearly by government officials: if the villagers are willing to plant hemp and manage the new crop successfully, a new road connection will be developed.

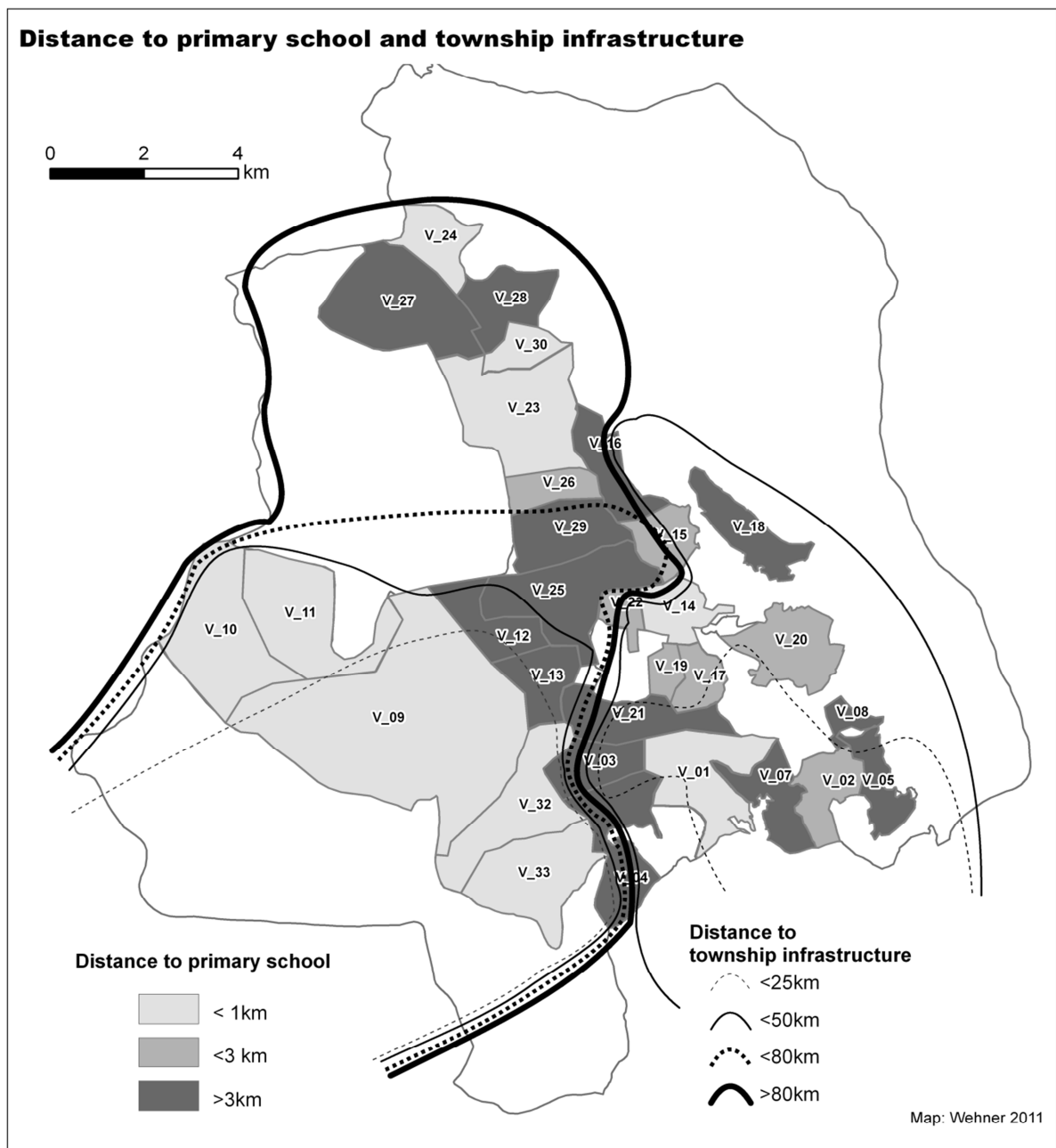


Figure 21: Villages, population and accessibility (adapted from WEHNER 2010)

Since 2010, the first paved road has been connecting the NRWNNR with Jinghong. The village of Mandian has now all-weather accessibility and the travelling time has been halved from almost one hour to about 30 minutes to Jinghong, and even less to the county seat in Gaza. This brings the community much closer to the urban centres than before. Of course all other villages along the Eastern Valley benefit through decrease of travelling time. The gap between centrality of eastern and western communities, i.e. the lowland and highland communities however is widening, since access to the western part remains difficult and dependant on weather conditions. Detailed information on the funding of this road project was not available. However, the budgetary situation of Jinghong County, which is far better than that of Menghai County and the interest of

the rubber factory, which has several production groups along the road probably plays a role in the implementation of road improvement into the Nature Reserve. The improved road infrastructure and availability of private and public means of transport has greatly increased mobility. The eastern villages along the main road have had a public bus connection for many years, with a bus connecting the villages at least along the main road to and from Gadong/Jinghong. Villages located off the main road are still disadvantaged, since they have to individually use the often steep and bad roads to access the main road. In 2009, mobility for the dwellers of western NNNR has improved, as a public bus connection has been established to connect the villages with Mengsong, the township seat and Menghai, the location of the county administration. From and to Mandian, the most central location in NNNR, a private transportation service has developed in form of mini busses, which are slightly more expensive. Private, individual mobility has increased significantly over the recent years. One of the first commodities purchased when a certain amount of income has been generated is a motorbike. In many of the lowland communities, each household owns at least one motorbike, in the upland communities, the rate is considerably lower (PARTY COMMITTEE OF YUNNAN & GOVERNMENT OF YUNNAN PROVINCE 2008). The availability of transportation facilities, particularly the individualized motorbikes have far reaching effects: motorbikes greatly increase the mobility of young people. Moreover, owning a motorbike provides a certain status. Young males in particular travel to neighbouring villages to socialize. Young males from the more developed villages closest to the urban centre travel frequently to enjoy urban lifestyle. In more remote villages, barbeque stalls are the new trend, where young people from different villages come together and spend their free time. However, motorbikes remain a male domain. Females are hardly seen riding motorbikes; if they travel, they do so on the back seat. Thus, the advent of motorbikes could also widen the gender gap in terms of social and spatial mobility. Young males expand their radius of activities and thus their social networks, while young females tend to stay at home or within the village for their leisure activities, since travelling is socially unaccepted (RIGG 1997).

Traffic and individual motorization remain largely unregulated by government bodies. Unlike in Jinghong, the police are absent on the roads of NNNR. Drivers do not hold a license and most of the vehicles are unregistered and not covered by accident insurance, which increases the negative consequences of accidents. While no official statistics are available, many villagers have reported lethal accidents or accidents leading to severe injuries. These accidents can plunge a whole household into severe hardship, since treatment costs are covered only to a certain extent or not at all. "Drink driving", along with the phenomenon of alcohol consumption in general has also increased over the last years.

Through road improvements, places of extraction and production have moved closer to local and supra-local markets. Individual farmers no longer depend on traders picking up the goods and dictating the prices or on village cooperations to coordinate marketing processes. The villages with improved access have also become more appealing for external investors and businesses interested in land or agricultural and natural resource products. Thus, the widening gap in terms of accessibility could lead to further economic marginalization of the more remote settlements. Apart from market access, the main use of motorbikes is transportation of labour to the fields. The availability of individual transport shortens the travelling time and allows more time for labour or recreation. It also increases the mobility for education in remote villages. Children which attend the

boarding schools in the respective administrative villages or the townships can be transported more easily, a fact which might have a positive effect on school attendance rates.

In China, a bicycle was regarded as a status laden commodity for many decades, owned by and affordable only by teachers and government officials. Later on, the bicycle as a status symbol has been replaced by the motorbike. These days, owning a motorbike seems to have lost its status, even in rural areas, as it has become a necessity. Apart from the mini buses used for commercial use, cars are still a rare occurrence. At the time of the last field visit, only one household, one of the most politically and economically successful in the area, was in possession of a car. Thus, cars, despite the high costs and the bad road conditions might be the next status symbol to strive for. However, cars and utility vehicles/ come at a high price and will only be affordable by rich rubber farmers. Apart from widening spatial inequalities, improved infrastructure might also increase inequalities within the villages. In an analysis of spatial integration and inequality in the GMS, according to Rigg & Wittayapak, certain groups of people will not necessarily benefit from increased connectivity. Particularly women, older people, poorer households, smaller households and less educated people are less likely to fully share the benefits. The advantages of spatial integration are likely to bypass those who are already vulnerable, lacking skills and capitals to benefit from the process (RIGG & WITTAYAPAK 2009). Regarding the spatial connectivity of the communities in the Naban Watershed it becomes clear that the western highland villages in particular are less connected. Environmental factors such as rugged topography and less income opportunities due to climatic unsuitability for rubber cultivation place these villages in a less advantageous, marginalized position.

Communication

The age of communication has also started to reach the villages of the Reserve, including mass media, telephone and internet. Means and intensity of modern communication technology and media have increased over the last years. Telephones, television-reception and DVD players have entered into almost every household. Despite the progress in modern communication technologies, the NNNR as a whole is far away from being part of an information or even a network society as discussed by CASTELLS (2000). In urban China, modern media, including mobile phones and the internet play an integral and paramount role in all spheres of social interactions and "social structures and activities are organized around electronically processed information networks". (CASTELLS 2001). Looking at the availability and functionality of modern means of communication and information, it becomes clear that the majority of people are not part of this network society and remain on the remote side of the digital divide. Here it seems important to distinguish between one and two way media, i.e. television (TV) and interactive means of communication like telephone and internet. Mass media such as TV and DVDs are widespread and put the villagers at the receiving end of media consumption. Means of interaction with external spaces, like phone and internet, which is less passive and allows a certain degree of participation and selection are still only partially available. A TV set and a DVD player can now be found in almost every living room and has become a component of everyday life in the households. Now, most villages can receive the nationwide mainstream TV broadcast, which impacts the communities in several ways. Despite their unidirectional character, TV programmes have an informative and educational component, linking the remote villages to the external world beyond the

village. For many villagers who do not travel outside their village, television is the only window to the rest of the world. This certainly impacts on formation of national identity and the sense of belonging to the wider nation. Furthermore, the messages of the Chinese media, which are strongly dominated by the government and Party are delivered directly into the households. While the direct influence of the party and government apparatus is weakening, it seems to have been at least partially replaced by the influence of modern media, since information (and/or propaganda) is broadcasted from different levels of administrative units through national, provincial and also prefectural TV stations.

Despite political censorship, TV certainly does have an informative and also educational character. A regional channel for example broadcasts information programmes for farmers, teaching new agricultural techniques, good farming practices and weather forecast. Apart from Chinese mainstream TV, "minority programmes" are broadcasted on a regular basis. For example, a programme in Dai language is broadcasted daily by the Dai minority TV station of Jinghong for about one hour. The main component of the programme however is a historic soap opera in a "traditional" Dai setting, dealing with the glamorous past of Dai culture. A minority programme for the Akha people also exists, broadcasted at less frequent intervals. Very popular amongst villagers are the music DVDs of minority pop stars. A family owning such a DVD is a magnet for others and watching DVDs has become a social event. Both minority TV programmes and DVDs produced by private sources and/or the government aim at supporting or forming cultural identity. The images, which are produced and shown do not reflect traditional cultural issues and traits, rather they create or "invent tradition" (HOBBSAWM 1983). From a critical perspective, they can be interpreted as an superficial attempt to appease minority groups in their demand for freedom of cultural identity and expression. From a more benevolent perspective, the use of modern media, albeit government controlled, is a first step towards further acknowledging minority issues and their strive for cultural identity by offering them a public stage.

Minority programmes are only a minor component of the daily TV supply. Besides news, documentaries or epics from ancient China, Chinese TV brings pictures of other, more affluent lifestyles into the relatively destitute living rooms of rural China. Most channels include daily soaps picturing the glamorous lifestyles of eastern Chinese urban life. Young people are especially sensitive to these pictures. Imagination is animated and aspirations and needs are invoked by the alleged freedom of urban life, social mobility and the availability of consumer and luxury goods. This becomes evident for example in the hairstyles of the younger generation of NNNR residents, which do not in many cases differ notably from youths in the urban centres. While by no means supporting TV as an educational means for children in general, it certainly helps children in acquiring Chinese language skills. Most children grow up in ethnic minority villages, where Akha, Dai or Lahu are languages of every day communication. As the official language in school is Chinese, children need to learn Mandarin to participate. According to teachers, children profit from TV since it gets them in touch with the complicated language they would otherwise have to learn from scratch. This is of course also the case for adults, of which at least a certain amount has only limited command over the Chinese language. As many villagers report, watching Chinese TV helps to enhance at least oral language skills, which is required when communicating with government officials and traders.

Another technology dispersing in NNNR is the mobile phone, which has become popular among the rural population. Conventional landlines are still not ubiquitous, and are found in the more affluent households, such as the households of village officials. This also differs from village to village. While the majority of households are not connected through a conventional landline, mobile phones have become popular. Considering the patchy network coverage, this seems surprising. In many villages, coverage is still bad, available only at certain locations, thus the usefulness of mobile phones is rather limited. Theoretically being part of the network community and being able to afford a mobile phone turns mobile phones into a kind of status symbol. The dispersion of mobile phones is highly uneven. In the villages of Mandian administrative village, 85% of households had a mobile phone or landline in 2007 compared to 25% in the villages of Nuo You administrative village (PARTY COMMITTEE OF YUNNAN & GOVERNMENT OF YUNNAN PROVINCE 2008). Moreover, though many households are now in possession of a phone, this does not necessarily mean equal access to communication. Rather, as it is the case with motorbikes, the use of a mobile phone is restricted mainly to male household members, namely the household head. This indicates a gender division in access to means of communication at the expense of the female population.

In terms of internet usage, the western and rural areas in China are clearly at a disadvantage. In eastern parts of the country, the percentage of population using the internet is much higher. For example, in Beijing, about 30% of the population use the internet²⁴, and 28% in Shanghai. In Yunnan it is only 6.2%, not even taking into account regional urban-rural gaps (CHINA INTERNET NETWORK INFORMATION CENTER 2007A:19). Even in Jinghong, it takes a private household only a few days to get a broadband connection. In the whole of NNNR, no evidence of internet access was found, which is owing to a lack of telephone lines and of course a lack of the necessary hardware in general. Only the NNNR administration and some of the village administrative offices are in possession of a limited numbers of desktop computers. Rarely equipped with analogue landlines and limited mobile coverage, the area is likely to remain offline. With no internet access in the villages, people have to resort to access points elsewhere. Again, it is the group of young males who travel to the city more frequently who have easiest access to the world wide web through the widespread and popular internet parlours in the urban centres, an observation corroborated by the CHINA INTERNET NETWORK INFORMATION CENTER (2007B). Looking at the distribution of modern media in NRWNNR, the communication structures have a unidirectional character. Only TV, which disseminates information only into one direction, has found widespread use. Two-way forms of communication like phones or interactive means in the form of internet are still of limited use, mainly due to bad or lacking connectivity. The NRWNNR seems to be bypassed by the network society, since most of the villagers do not have the opportunity to be connected to worldwide network of communication and information exchange. The modes of social exchange are still personal and communication technology still plays a minor role in everyday life. This form of digital divide is a disadvantage for the population of the Reserve area in comparison to other, more connected parts of China and an impediment to economic and social development and participation.

²⁴ An "internet user" is defined as a person above six years of age who accesses the internet for at least 1 hour per week.

3.3.2 Development of capabilities: education and social services

Human development, including basic education and healthcare has become an important aspect of development strategies beyond the economic development paradigm. According to Sen, economic development of the last decades in East and South-east Asia is based on innovative strategies, among them the expansion of basic education, putting “emphasis on basic education as a prime mover of change” (SEN 1999:6). First and foremost, human development, including basic education and health care adds to enhancement of human capabilities. It has a positive influence on the quality of life other than economic advantages, since human development goes far beyond the concept of human capital. As a second positive outcome „human development (...) also greatly facilitates economic and industrial expansion, and improves the efficiency and wide reach of the market economy. And these, in turn, can feed back on raising the quality of life.“ (SEN 1999:15).

An increasingly common way to measure development is using the human development index, composed of composed of four factors, including life expectancy at birth, adult literacy rate, gross enrolment and GDP. A variety of other factors have been included to grasp broader dimensions of development, such as gender or poverty aspects (UNDP 2010). Despite certain shortcomings of the HDI, such as the exclusion of environmental aspects (NEUMAYER 2001), the concept offers a framework to analyse the situation in the research area. Data available does not allow for a calculation of the human development index for the research area. Looking at the standard of education and the situation of health care as an indicator for life expectancy provides an impression of the circumstances and capabilities of people and the emerging discrepancies concerning development in the research area.

Education

In comparison to other developing countries like India, China had achieved, despite its lack of economic progress in the Mao-era, a rather high level of human development, including basic education and basic health care. This legacy and potential provided an advantage and could be cashed in during the economic liberalization. When the economic progress and growth demanded human capital, an educated labour force was prepared to shoulder growth and facilitate rapid economic development (SEN 1999). Of course quantity and quality of education has never been equally distributed throughout China. Urban areas, particularly in eastern China have always had an advantage, while rural and remote areas like Xishuangbanna have always lagged behind. In NRWNNR, inequalities in the provision of formal education seem to intensify with increasing economic disparities at a household and county level - yet another socio-economic manifestation of the rubber line.

Formal education has also been an integral part of the Kingdom of Sipsong Banna in the form of monastic education. Boys received religious instructions and literacy tuition at the temples and monasteries, with *Tai Lue* as the *lingua franca* and the only language with a culture of writing. People from other ethnic groups and women remained illiterate (HANSEN 1999).²⁵ After liberation, the attempts to increase literacy in the country-

²⁵ The monopoly over education allowed the Dai to maintain their supremacy, since administrative structures depended on literacy. The monasteries' monopoly over institutionalized education was first challenged by the nationalist forces in the first half of the 20th century: The Chinese government set up schools with Mandarin as the language of instruction throughout Xishuangbanna in order to increase general literacy. This project was mainly aimed at boys from ethnic groups other than Dai, in order to undermine the Dais' monopoly. To fund these schools, peasants were levied with an education tax. Thus, formal, government induced education was welcomed with little enthusiasm (CHEN 1949).

side increased and can be considered to have been successful. In Yunnan, the illiteracy rate dropped from 85% in 1949 to 11.2 % of the male and 25.8% of the female population in rural Yunnan. Civilizing remote minority areas and the proliferation of Mandarin as a lingua franca were the main objectives of educational strategies in the Mao-era. However, schools and other educational institutions were also a place for political indoctrination and class struggle (WANG 2003). Mandarin serves the purpose of ousting ethnic languages to speed up assimilation. To express it in a more positive or even euphemistic way, it helps nation building and to facilitate ethnic people's integration to economic structures (CASAS 2008). In the 1950s, *minban*-schools were opened up in the rural areas, serving basic education to the peasant population.²⁶ Teachers had no professional training, but passed on their knowledge for a small fee paid by the village or the commune. According to people from NRWNNR, these schools were not available in all villages. Most of the remoter places did not even provide the most basic education, and thus many now middle aged people are illiterate.

Since Deng Xiao Ping gained influence, education institutions changed their objectives. Providing political indoctrination became less important in schools, and education has turned into an end for development: "(...) the first priority in Deng's era was economic development rather than political struggle. Deng regarded educational institutions as key places to train experts." (WANG 2003:32). The education sector has benefited from economic liberalization: the growth of the government incomes allowed for more expenditure, and the provincial government's share of total expenditure in education rose from 13% to 20% between 1980 and 2000 (YOUNG & YANG 2005:51). However, the abolishment of communes, which were responsible for social services like schooling, and further fiscal decentralization, lead to deepening inequities concerning the funding of schools. In the late 1990s, the financial responsibility for primary education was devolved to the county and township levels, which brought especially revenue-poor counties into difficulties, leading to strong spatial differences in the proliferation and quality of teaching and education (UNITED NATIONS DEVELOPMENT PROGRAM 2008).

In 1986, the Compulsory School Education Law of the People's Republic of China was passed and nine year of compulsory schooling were gradually implemented. Remote rural areas like the NRWNNR however, lag behind. According to the township statistics, parents increasingly comply and enrol their children at the local primary school. In Xishuangbanna, enrolment rates in primary schools reached 96.6 % in 2005 (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006). School enrolment rates, however, say little about school attendance rates and even less about learning progression. According to NRWNNR teachers and officials, pupils drop out of class during the term quite frequently. During a field stay in Da Nuo You, a widower took his 12 year old daughter home to his hamlet. Even though the headmaster and the party secretary tried to convince him to leave her in school, he took her away. The officials are helpless or at least do not see any other way to enforce compulsory education except talking to and convincing parents. Despite compulsory education, school attendance meets bigger obstacles after grade six. Seven primary schools in the Reserve offer classes from grade one up to grade six. Most of these primary schools also offer boarding facilities for the pupils from the remote villages. Throughout the NNNR, there are no schooling facilities for grades seven to nine, which means that all students need to enter a boarding school, either in Jinghong or Mengsong. This has severe implications. For example, students

²⁶ *Minban*-schools can be translated as people-run schools

from Da Nuo You administrative village belong to the Menghai schooling district. Even though Jinghong education institutions are much closer, they need to attend schools in Menghai County. This requires a travelling time of about four hours one way, at a cost of approximately 70 Yuan for the return ticket on public transportation. Depending on the financial situation of the households, children are away from their home village for the major part of the year and get socialized in a completely different environment.

Beside the travelling costs, fees for books, boarding and tuition must be paid. For example, the costs for a student in senior high school add up to more than 3,000 Yuan per year. For a household with an average income of 10-15,000 Yuan per year, like in the upland communities, this is a heavy burden, considering the fact that many households have more than one child to educate. One teacher from Da Nuo You resumes that "the reason for parents to refuse to support their children still is the lack of economic capability." (Mr. Jiang, Headmaster of DNY Primary school). In addition to the extra costs for education, opportunity costs arise through a loss of labour force in the household. Children, when reaching a certain age are expected to work in agriculture, assume household chores, or take care of younger siblings. Middle school children lack as labour force on the family farm, which can be positive or negative, depending on land-availability and other factors.

Compared to urban China, the quality of education certainly lags behind in Yunnan, due to a number of factors, which are mainly owing to the financial situation of the local schools. Costs for primary and secondary education had also been decentralized, placing a heavy burden on county and township Governments of poorer areas (UNDP 2005). No detailed data is available for Xishuangbanna, but the following numbers surely give an impression of the disparities in education funding throughout the country. In 1999, Shanghai spent 2,621 Yuan per year per primary school student. Yunnanese local governments spent only 600 Yuan per primary school student on average (YOUNG & YANG 2005). This discrepancy can likewise be applicable to the lower levels of administration. The eastern part of NNNR belongs to the more affluent county of Jinghong, while the western and northern part is under the administration of the officially declared "poor" county of Menghai, which receives considerably less revenue (see Figure 14). It seems that despite remarkable efforts of different levels of government to improve education in rural areas, the inequities remain stark. With the remote and high altitude villages disadvantaged in several ways, the rubber line seems to manifest itself even in the opportunities to access education.

The facilities and equipment in the northern and western schools in NNNR are rather poor. Too few seats and tables, whiteboards with cracked surfaces and broken windows, which worsen the situation on cold winter days, are the standard situation in the highland schools. At least in BGH the situation has improved since a new school building was constructed with financial support from a philanthropic foundation in Eastern China. The school facilities in eastern NRWNNR are far better. In Naban village, the construction of a new school building was in progress in 2010. Also, the pupil-to-teacher ratio in the Mandian and Naban schools is more reasonable in comparison to the large classes of Bengan Hani and Da Nuo You.

Many children from remote villages who cannot travel to school every day use the boarding facilities at the primary school during the week. Just like the schools themselves, these boarding facilities are rather poor, especially in Menghai county villages. In DNY, for example, the roof of the bunkroom seems in danger of imminent collapse. The

children have to sleep on the bare wooden planks, with little protection against the cold winter nights when temperatures can drop below zero. Similarly, the dietary situation of boarders is meagre. The schools do not provide food for the children. Only a bowl of boiled rice, without side dishes, is supplied three times a day. The children must bring their own food supply from home, mainly pickled, conserved vegetables. Fresh fruit and vegetables, meat and fish are rarely on the menu. The food situation seems bleak, which, in the long term is detrimental for the child development process and in the short term, their learning progress. Schools in the lower lying areas, for example in Mandian have better cooking facilities, providing the children with a more nutritious diet.

Apart from low quality infrastructure, the instruction lags behind national standards. Teachers are paid small wages and often serve their duty in the remote villages on an involuntary basis, assigned by the government. At least the formal standard has increased over the last years, since every teacher employed now holds a teaching qualification. A few years ago, the last Minban teacher was laid off in Da Nuo You, and was replaced by trained staff. An indicator for the low quality of education in the highland schools is the English classes, which are a component of the curriculum of primary education. In DNY primary school, no teacher was available to teach language classes at all. In BGH school, the English teacher was not able to at least engage in a basic conversation beyond "How are you?" and "What is your name?" When children enter school, they have to learn not only written Chinese, but also learn a completely new language which has no familiarity with their own mother tongue. The children are brought up in households where a minority language is used, and Chinese they only know from watching TV. This time consuming task poses additional burdens on teachers and students likewise. As insinuated by some teachers, the children also do not receive a proper language education in Mandarin, which is a second language for most of them. One teacher describes the situation in an upland school: "The teachers' pronunciation of Mandarin is very clumsy and the students are also poor in studying" (Anonymous teacher in NRWNR, 2008). It demands time and energy which is then missing when following the standard curriculum. The consequences become apparent when children enter junior high school in the urban areas. There, they lag behind the curriculum and have difficulties in keeping up pace and level with students who have received their basic education in better schools or do not have a minority language background.

With the promulgation of the Act of Regional Autonomy for Minority Nationalities, autonomous areas gained freedom to adopt laws and regulations suitable for regional conditions. This included a broad range of self-determination in educational policies:

"Minority national autonomous regions have the authority to decide its own education programmes, (...), contents of curriculum and instruction, language of instruction, and enrolments within the broad and general frameworks of the state educational policies and laws." (WANG 2003:87)

Despite this rather large degree of autonomy, Mandarin remains the language of instruction. This owes partly to a lack of bilingual teachers. Informal attempts on bilingual teaching are complicated through mixed classes with children from Lahu and Han speaking villages. Beside informal attempts on the basic level, the government implemented trials for bilingual education, particularly among the Dai. However, as Hansen expresses in very clear words: "special minority education is only carried out half-heartedly, either because they are rejected by local cadres or because the government fails to provide sufficient economic support." (HANSEN 1999:XIII). This estimation is

corroborated by the Vice Chairman of Mengsong township government, who emphasizes that the current fiscal situation makes it more difficult to maintain basic primary education in the villages. Minority curricula would overstrain the available resources, thus minority languages should be taught in middle schools.



Figure 21a: Township Administration officers visiting Da Nuo You Primary School in 2008

The negation of using the mother language and emphasis on learning Mandarin of course aims at enabling children to participate in the wider Chinese society and economy by teaching them a lingua franca. On the other hand, the schooling system, starting with first grade students being taken away from home to attend boarding school estranges children from their cultural context. Not only do they lack the psychologically important care and shelter of a family home. They also lose the opportunity of an upbringing and environment which links them to their culture, and thus they are more or less dissociated from their cultural and social roots. Traditional ways of passing on knowledge, through oral transmission or practice are edged out by the absence of children from their villages. The Chinese education system "(...) leaves no room for transmission of cultural values that might contradict the state's interpretation of nationalism, atheism, and the common interests of multi-ethnic China." (HANSEN 1999:XIII). Formal education was unknown to the people of Banna, except the Dai, who have a long standing tradition of formal monastic education, which of course was available only for boys. In the 1990s during a religious upsurge, more than 5,300 novices were enrolled in Buddhist monasteries throughout Banna (HANSEN 1999:110). These days, religious education does not seem to be too popular amongst the Dai and Bulang in NNNR. In Mandian, there are two boys enrolled with the local temple, in Naban, the other Dai village, there are none.

While lifestyles and livelihoods of different minorities seem to have converged, the stance towards education amongst different minorities is divergent. Formal education and the acquiring of knowledge, according to Humboldt's educational ideal are not necessarily seen as values as such. Rather, education has been propagated by the government as a means of participation in the modern world and modern society. For many parents, education for their children is considered as a way out of poverty. Parents, many of them semi-literate or illiterate are aware that the only way to obtain a decent job outside agriculture is through the educational institutions. However, this vision is not shared by all groups and parents likewise. The headmaster of Mandian School describes his impressions: "I think that Hani are most diligent, and I think that Dai and Lahu minority are the minority who are less willing to study." (Headmaster of Mandian School, October 2008).

Amongst the Dai in NNNR, who have gained economic development with rubber cultivation, a certain resignation seems to have spread. In their opinion, a good education does not necessarily open doors to a livelihood which is considered as better or promises higher incomes than working on the family rubber farm. Looking at the job market, particularly for young graduates, this attitude is not completely anchorless. Particularly stable and well paid employment opportunities are rare, considering the many young people entering the job market. Also, staffing procedures, especially of government position does not necessarily follow neutral procedures, but requires connections. Mr. Yan, farmer and senior local staff of ANNNR makes his point clear:

"It is worthless to go to school since you can't find job even if you get high school education. I took my soon home from school to tap rubber, so he did not finish his junior education. The teachers came to my family and I told them that education is useless because he can't find job even if he got higher education. High education is not as useful as one word of a leader. I have met lots of people who could get a job by leader's one word."²⁷ (Farmer and ANNNR staff from Mandian, July 2008)

Similarly, for the Lahu, education does not play an important role. To find an explanation is difficult. The Lahu in general seem to be most reclusive group and least inclined to participate in modern society, despite their participation in economic transformation processes. A former teacher of a Lahu primary school describes the peculiarity of Lahu people: "When I was a teacher in Lahu village and asked the students to continue their education, the village head told me: don't force them, don't tell them many many times, otherwise they will commit suicide" (MR. XU, MENGSONG TOWNSHIP OFFICIAL, DECEMBER 2008). Values of achievement and strive for constant progress does not appear to be central in the "Lahu way of life". Some Lahu villages have shown passivity and reluctance towards governmental development attempts in the past, which were embraced by other ethnic groups. For example, an attempt to improve agricultural activities by handing over free fertilizer and new tools to improve the quality of tea completely failed in one village. Rather, the villagers cashed in the provided articles at a market in Jinghong. Villagers from the same hamlet have also taken their children out of primary school. Officials responsible for other communities emphasize that the Lahu communities are the most obedient when it comes to implementing new rules or regulations. There are huge differences amongst Lahu communities in NNNR, depending on their

²⁷ By "leader's one word" he refers to the system of *guangxi*, a social institution in China based on networks of mutual favours and obligations. Like invisible *mycelia*, it penetrates all spheres of social, political and business life. Only if connected to a leader, who is well connected himself, personal progress is deemed possible.

location, economic situation etc.. For example Mangfei, a Lahu village in the lowland is very successful in cultivating rubber and has an average number of primary and high school graduates. For many Akha, education is considered highly valuable and Akha parents seem to be most ambitious for their offspring. Many parents see their children's future as one outside agriculture, based on education:

"And the school system is also important, I could not get high education, but I hope more people and my children will be educated well. The education is very important today, without education, it is very hard to catch up the developing world." (Farmer from Pabin, born in 1970)

These of course are only trends, which cannot be generalized. The individual situation of a household, such as income, land and labour availability, personal abilities and number of children are also factors influencing decision making regarding education.

Leaving the countryside and the secluded village can be liberating and enriching for children and young people. It offers the chance to increase their educational opportunities and their social network. It is an opportunity to gain completely different experiences. However, not all children from rural communities can cope with the new situation. For children from the most remote villages, who have difficulties with Mandarin it is hard to merge easily with the urban environment:

W: "Do you think it is important or not important to sent kids to school?"

V: "Yes, but the children don't like to go to school. They said they don't like to stay in Mongsong." (Mr. Yang from DNY, born in 1975)

According to some parents, their children suffered or witnessed stigmatization from other students while in middle school, due to their ethnic background or rural origin. Lacking social acceptance - which invokes feelings of discomfort and inferiority - many students chose to return home to their village without completing middle or high school. One villager reports his experiences "He [son] went to middle school for one term and returned home, for he was send to the "slowly class" and the students in "slowly class" have no books to learn. My son was angry about that, so he came home." (Mr. Li from XNY, born in 1972)

The number of high school graduates in DNY administrative villages is much lower than others and so is the number of students who seek higher education. Most young adults return to the family farm, even after gaining a high school degree. A limited number attend one of the vocational schools or colleges in Xishuangbanna, and very few visit a university, of which the nearest is located in Kunming, 700km away. Many graduates of tertiary education institutions, who have found employment outside their village are from a household of which the household head holds an official function. Whether those parents have paid more attention towards education or whether they have better connections cannot be established here, but probably it is a bit of both. For example, in Pabin, the son of the village head is one of the few people who gained a degree from the Agricultural Vocational School who has returned. He is now the rubber cultivation technician for the community. The only university graduate our research team could discover is the daughter of an ANNNR staff member from Mandian, who has gained a position working in the Gaza township administration. Despite those two success stories, the prospects are bleak for many young people who do not want to leave their community, since there are hardly any jobs outside farming available. This supports the phenomena

of the “brain drain” with young, intelligent and better educated people leaving the villages.

From the data available, it was not possible to calculate the average literacy or education rate among the adult population. On average, there is at least one person in each household with basic education. More detailed analysis reveals that in six out of 30 villages, not every household has a member with basic education. This lack of literacy certainly has a negative influence on a household’s ability to interact with external actors, like traders and officials. Interestingly, Bengan Hani administrative village has the highest rate of people with at least primary education. This is probably owing to the fact that there are primary schools in three out of six natural villages, and it also corroborates the theory that Akha people have the strongest inclination towards education. As mentioned before, high school and college level education is rare. A statistically significant correlation between education level and ethnicity could, despite certain disparities not be proven. The relatively low level of high school education in DNY can be related to the large distance between village and high schools.

Even though enrolment rates reach almost 100%, education levels will only rise slowly, due to a high percentage of people from the older age cohorts. It is possible that the educational level between villages is likely to widen due to two factors: accessibility and affordability. On the one hand, the spatial disadvantage leads to poor accessibility of higher education institutions, particularly in the northern part. On the other hand, low and/or unreliable levels of income will remain an obstacle to northern and western villages, i.e. the communities beyond the rubber line. Even though subsidies for borders are part of the education policy, spatial disparities emerge (WORLD BANK 2009). The burden of financing these subsidies remains with the counties, without compensation payment transfers from upper levels of government. Many villages below the rubber line have developed the financial capabilities to afford education for their children, i.e. the Dai. It has become obvious that the low level of education and particularly the low level of young people seeking further education cannot be reduced to a single cause. There are several reasons, (infra-) structural, cultural and economic, that determine the situation and the future development in the area.

Health care and other factors influencing life expectancy

When measuring human development, life expectancy is an important indicator. However, none of these figures are directly available for the research area or Banna. Comparison of indicators on a national level, like child and maternal mortality, child malnutrition and others reveal that regional disparities within China are huge: “Most strikingly, infant and child mortality is almost 2.7 times higher in the western than eastern region, 2.4 times higher in rural than urban areas, and two to five times higher in the poorest rural counties than in large cities.” (UNITED NATIONS SYSTEM IN CHINA 2008:40). The discrepancies concerning life expectancy are equally drastic. People in Yunnan have a significantly lower life expectancy than people in the eastern urban areas, and even lower than on rural average (MA 2004).

Availability of health care and medical support is clearly not the only determining factor for life expectancy, but it certainly has a strong influence. Like the educational sector, the health and social service sector in rural areas still lags behind the national standard. Moreover, health care is not only connected to living expectancy, but is strongly connected to the economic situation of rural people. The Third National Health Services

Survey found that in 2003, illness had become the leading cause of rural poverty, with one third of rural poverty incidences linked to it (UNDP 2008:33).²⁸ In the wake of economic liberalization, institutional arrangements in the social service sector have been changed. Through marketization and privatisation, the preventive approach has turned towards a curative, cost intensive one. During the Collective Period, about 90% of the villages were covered through the health care system for rural communes, which offered at least some complementary basic care through the Rural Cooperative Medical System (RCMS) (LIU & YI 2004:159). Barefoot doctors, members of the local communities with basic medical training, supplied their communities with preventive measures and launched campaigns against diseases like malaria. In Banna, the malaria incidence dropped from 11.6% in 1954 to 0.9% in 1962 (CHENG 1981:28). The barefoot doctors also offered basic therapeutic treatment for small fees (LIU & YI 2004). By the end of the 1970s, Banna Prefecture counted 2700 of those barefoot doctors, of which 80% were from local ethnic groups (CHENG 1981:29). When the Communes were dismantled, the RCMS broke down and health care expenses were devolved to individuals. By 1984, only 4.8% of the rural population was covered by health insurance, increasing to 10% in 1993 (CARRIN ET. AL. 1999:48).

	China	Rural	Urban	Beijing	Shanghai	Yunnan	Tibet
Years	71	69	75	76	78	65	64

Figure 22: Average life expectancy in China (MA 2004:113)

Besides the lack of a security system, quality and quantity of medical services remain substandard, especially at the village level. So called "Doctors" still have limited medical education, limited equipment and do not receive a decent salary. Income is often generated by prescribing and selling medicine, which leads to incidences where wrong medication is taken and high, unnecessary costs for patients (WAGSTAFF ET. AL 2009:24). For example, the doctor in Mandian treats humans and animals likewise and had only three years of medical training. A "doctor" in Bengan Hani gained medical experience and basic medical education during his time in the army and has opened a private clinic in his village. Medical care, i.e. village clinics, are only available in the administrative villages; there are none in the natural villages. To get access to a hospital, distances between 30 and 80 kilometres need to be covered to the next county hospital. In case of emergency the situation is particularly desolate. During a field trip, the research team witnessed an accident in which a farmer was seriously injured in Da Nuo You. The ambulance from Jinghong refused to pick the injured man up due to the bad road conditions. The project car, which was coincidentally available took the injured farmer to the hospital. If not for the project car, the injured man would have had to be transported to the hospital on a three-wheel tractor or the motorbike.

Lack of insurance and high treatment costs can plunge a household into poverty, despite the newly introduced health insurance for rural areas. A survey covering seven villages in the Reserve has shown that many households face huge hospital bills.²⁹ In 2008, at least one household from almost every village was affected. The worst case discovered was a family from XNYSZ, who received a 20,000 Yuan hospital bill for the treatment of a household member after a traffic accident. Not included in these bills are the "opportunity costs" for nursing the injured teenage son who will remain impaired for

²⁸ The Third National Health Survey was conducted in 2003 by the Chinese government, for the first time also covering the western provinces.

²⁹ Survey conducted in 2008 in cooperation with subproject Econ B, covering 100 households.

life, and for the loss of his labour. Furthermore, the patient needs to be treated in the respective township or county hospital, instead of the nearest one. This meant a travelling time of four to five hours one way to Mangham, instead of the two to three hours way to Jinghong. This example again shows the spatial disadvantages of certain communities.

In 2003, the government launched a programme to provide health insurance for the rural population named the New Rural Cooperative Medical Scheme (NRCMS). In NRWNNR, most households participate in the scheme. The insurance fee ranges from 10 to 40 Yuan per person per year. However, this insurance only covers parts of the costs for hospital treatments - not for ambulatory treatment. In case of the family from XNYSZ, the insurance refunded only 5,600 Yuan out of the 20,000 Yuan they had to pay. Refund is only granted after written application to the Village committee and the Department of Civil Affairs in Menghai. Households with little educational background and little experience with bureaucratic processes will also be deterred from making use of medical treatment and the insurance, particularly if it is not an emergency, but a chronic problem that should be taken care of.

In natural villages without a clinic or a village nurse, most people are still treated by traditional healers. Healers enjoy a high reputation, particularly among the Akha people. People from Pabin regularly invite the traditional healer from Bengan Hani to their village, particularly if the patient is beyond the help of western medicine. In Northern NRWNNR, there are also some traditional healers who enjoy a good reputation beyond their village. In lowland villages and villages with village clinics, people prefer western medicine. Traditional knowledge on medicinal plants seems to lose importance within these communities. The connection between people and their environment is weakening and with it part of their culture disappears. Ironically, the Reserve itself has become a supplier of non-timber forest products (NTFP) used for the production of Chinese and Dai traditional medicine, which finds growing appreciation on a national market. Western medicine seems to be a sign of progress for villagers, despite the costs and dependencies involved. Traditional "ethnic" medicine is reliant on natural products from the native forests and other habitats around the villages. Since areas covered with forests and shifting cultivation fields are declining, the collection grounds for these natural traditional medicines also get scarce, making it difficult for the practitioners. This problem is aggravated by over-exploitation of NTFPs through marketization.

Apart from the medical service situation, there are other factors influencing life expectancy. Low sanitation standards and the indoor use of solid fuels are two examples showing the difficult situation in the research area. In many villages, the sanitation standards are very low. Of all villages, only Mandian has a drainage system for rainwater, a sewerage plant for the public toilet and a rubbish dump.³⁰ Less than a third of the villages have a public toilet at all, some with a flush and tap water, but most without. In the majority of villages, people have to resort to the bush surrounding the villages since toilets in private homes are rare. In almost every household there is at least running tap water. Another severe threat to health is the use of wood stoves and fireplaces in the homes. Fumes from the indoor fires have a detrimental effect on respiratory organs. This is particularly severe in the new concrete houses, which, although better insulated than the traditional timber houses, lack a chimney or other ventilation. The World

³⁰ Mandian could benefit by participating in a governmental pilot program. It became an "eco-village" in 2009 and received public funding for a concrete village road and drainage, the public toilet and the garbage dump.

Health Organisation estimates that 1.2 million people annually die as a consequence of indoor air pollution from solid fuel use in 11 countries, including China (WORLD HEALTH ORGANIZATION 2007). Only few households use electric stoves or bio-gas for cooking and wood-fires are the only source of heating. The taste of food cooked over the open fire is preferred, as several villagers explain.

From the data available it is not possible to draw a concise and quantitative picture of human development in NRWNNR. Still, it is obvious that the communities in the Reserve area have severe deficiencies, despite a slowly improving living standard. Most people remain limited in their capabilities to enjoy education and decent health care. Again, the high altitude and remote villages are disadvantaged in many aspects, being mainly lack of accessibility and affordability of medical treatment, inoculation and other public health campaigns and emergency care. Spatial remoteness on the one hand and structural conditions, like the lack of sufficient funding for public services on the other hand are the main obstacles for improving the situation. Inequities and inequalities concerning the access to these public services are unlikely to decrease.

3.3.3 Migration

A phenomenon that is challenging the social structure of many poor rural areas in China is migration, particularly non-permanent migration to urban centres. In 2010, China Daily reported the amount of migrants without official status at their area of destination; the so called "floating population" mounted up to 230 million people (CHI 2010). These migrants fulfil an economic double function. In the destination areas, mainly the thriving urban centres along the east coast, they build a pool of cheap and easy to manage labour. In the regions of origin, they take the pressure from an agricultural sector characterized by underemployment and add to the household incomes through remittances. FAN points out that "rural-urban migration, in particular, has been the main source of urban growth and is rapidly reshaping the economic, demographic and social landscapes of the Chinese city and countryside." (FAN 2008:1). Xishuangbanna has been a magnet for migrants over the last years. Particularly Jinghong is a growing urban centre with a developing economy and a dynamic labour market in close vicinity to the NRWNNR. However, migration flows from the NRWNNR villages to the city remain limited. Actually, migrants from within the prefecture contribute only a small share of total migration. The major part, about 60%, origins from other areas of Yunnan province, and almost 30% migrate from other provinces, mainly from Sichuan, Hunan and Guizhou (SCHRÖDER 2010:15). According to official statistics, there are limited cases of migration from the villages of the Nature Reserve. In Naban and Mandian administrative village, no temporary migrants are registered at all, in Da Nuo You, there are six cases and in Bengan administrative village only three villagers who have gained official permission to migrate temporarily (PARTY COMMITTEE OF YUNNAN & GOVERNMENT OF YUNNAN PROVINCE 2008).³¹ These statistics are corroborated by a survey on migration in NNNR in Nov/Dec 2008. During this survey, almost all households of selected villages were interviewed which have a member presently migrated for other than educational reasons.

One of the most important categories of migration is related to the temporal aspect of migration, i.e. whether the migration is temporal/seasonal or permanent. Both categories can be found in NRWNNR. The largest group of temporary migrants are students of

³¹ The *hukou* system has been reorganized and has become less restrictive. Villagers willing to migrate can receive temporary permission at the place of destination, but they also have to register with the local administration in the place of their origin.

grade six and higher, a group which has been discussed in an earlier chapter. Most of those students do not gain higher education and return to their village before or after finishing middle-school. Those few are the largest group of permanent migrants, all in all probably less than 20 persons. They attained higher education, visited a vocational school and have not returned to the village. Since they cannot find employment according to their educational level, they try to find employment outside. They are employed permanently, for example as nurses, teachers or electricians and create a new livelihood, however most of them stay in Xishuangbanna. There are only single cases, mainly women who left Banna, or even Yunnan province. Those women got married to Han Chinese and have migrated permanently to another province, i.e. Shanghai. Generally, migration can be discussed with reference to push- and pull factors (LEE 1966). Analysis of data showed that in case of NNNR, two general motives, an economic and a personal-individual can explain the majority of migration cases. Borrowing from the push and pull theory, both dimensions can be explained through a model consisting of two poles. The economic dimension consists of a lack of income generation possibilities in the village, which is the pole pushing people from the village and income generation possibilities in the city as the opposite pole attracting people. The other dimension, touching individual development and well-being, is the feeling of boredom and redundancy which pushes people away, and on the other side the vision of self-realization and an exciting city life-style alluring certain groups.

The group of temporary work migrants again can be divided into two groups, which have different motives and seem to have a gender aspect. Even though the underlying reason for both groups to seek temporary employment outside is mainly an economic one, they differ widely. They have in common the feature that migration occurs mainly in the low season and that migrants do not lose the contact to their families, i.e. they do not set up an independent life at their place of destination. Moreover it is mainly young people who still live in their parents' households and do not have dependants. The most important similarity is the education level- which does not exceed middle school (junior high school level till grade nine). The first group is a group of mainly young males who seek temporary employment outside to support their household at home. For example, each year a group of 10 men from Bengan Hani are employed by a business man from Sichuan. They migrate to nearby Laos for several weeks in October and November to pick and process bamboo shoots. For this activity, they earn 50 Yuan per day plus food and accommodation in a jungle camp. Given the limited expenses needed, this wage can sum up to a profound part of the annual household cash income in a relatively cash poor village like Bengan Hani. Apart from this, there are limited cases of other males who seek temporary employment in the low-wage job sector in Jinghong. Considering the dynamic job market in nearby Jinghong, the low flow of male migrants supporting their households seems surprising. There are a few factors, which may provide explanation. One is certainly the low wages to be expected in the sector for non-skilled workers. Opportunity costs for lost labour on the farm might exceed the extra income or extra benefits. Certainly a lack of information about the job market and limited or lacking social networks which seems very important to find employment is another factor, which detains people from leaving the village. In how far a psychological component, i.e. the fear from the urban environment or the expected discrimination due to low education and ethnic, rural origin is another impediment remains unclear. The other, larger group of temporary migrants are young unmarried females. These are considered as less valu-

able and necessary on the family farm as young males, especially when a family has more than two children. Some girls, particularly when absent for long periods to attend school have never learnt farming practices and are not used to the heavy labour. Particularly in villages depending on rubber farming, the demand for labour has changed. The amount of agricultural labour for female household members seems to have decreased, particularly during low season, i.e. after rice harvest is completed. The labour force of boys is needed on the farm just as before. This group, particularly when coming from rubber villages does not seek employment out of dire economic necessity. Rather, migration can be seen as a self-determined act to gain independence. Pushed away from the village because they are bored of village life and feel unneeded, with only some household duties as a daily task, they chose to "go their own way" in the urban centres to gain personal freedom, new experiences and at least some personal income. Apart from working in the tourism driven food and entertainment sector, girls can find jobs as shop assistants, selling goods they personally aspire to purchase, like DVDs or fashion. Despite the limited capabilities to arrange extra-work activities, "the city itself can be a classroom that imparts new knowledge and teaches about modern life." (GAETANO 2004:68).

Unlike in other socio-economic structures, for example like in rural areas of Northern Thailand (RIGG 1997), remittances of this group do not play a major role. Only a quarter of the respondents financially support their family with the income generated, on average with 2-3,000 Yuan per year.³² More than half of the respondents support their families in the village in kind, for example with clothing, household necessities or even farm chemicals or seeds. About one quarter of the migrants do not support their families in the villages at all. This is not surprising, considering the low wages generated. A job in gastronomy earns about 500-600 Yuan a month plus food and accommodation. Working as a sales assistant in a small shop provides an equal cash-income, but employees have to pay for their own food and accommodation expenses. The few migrants, who can gain stable jobs, mainly in state enterprises, have slightly higher incomes between 1,000 and 2,000 Yuan per month. There is a certain amount of young girls who have found employment in Jinghong's thriving "massage parlours", of which most are brothels. Working in the sex-industry is considered as disreputable and not openly discussed, thus it was hardly possible to gain information (SCHRÖDER 2010).

Despite the small wages, parents encourage their children to leave the village for economic and personal reasons. Firstly, it is a release for a household to have one less mouth to feed, particularly if this person does not actively add to the household income. The young girls achieve a certain degree of personal financial independence, at least for a short time. Most return frequently during the agricultural high season to smoothen labour peaks and most of them also return to get married. Secondly, many parents with adult children are still rather young themselves, sometimes only in their late 30s or early 40s. For many of them even basic education was not achievable, neither was a life beyond the village gate. Those mothers can understand their daughters' aspirations and ideas, wishes they might foster for themselves, like more freedom from social and economic restrictions of village life. Thus they support their daughters to gain more personal freedom, independence and at least a taste of another lifestyle.

As mentioned earlier, most of those people return home to their village at some stage or the other. Some return because they are needed during the agricultural high

³² Qualitative survey undertaken by Schröder, Isabel in 2008 for a Masters Thesis under the author's supervision.

season, for example during rice transplanting or harvest, when all labour is absorbed by agricultural tasks. Others return because they want to or need to get married and most of them chose a partner from the own community or a village nearby. This has personal reasons as well as external ones: "their rural background renders them least desirable in the urban marriage market." (FAN 2008:86). A third motive to return certainly are the unattractive working-conditions. For example, waitresses work 10-12 hour shifts for six days a week and share a dormitory. Especially for girls from households who earn a decent income from rubber, these jobs are not a permanent solution.

One reason why locals are left with the unstable, low-wage jobs might be the competition with the constant influx of Han Chinese to Jinghong. Most of them are better educated and have some work experience, speak better Mandarin and are thus more attractive to employers. Some of the Han migrants even come to Jinghong with some capital to start a small business, like a small shop or a taxi (HYDE 2007). This provides a big advantage in comparison to locals who can only sell their labour, but have little other capital like sought after skills and/or money to offer. This phenomenon can be found in a more extreme form also in other minority areas, like the Autonomous Province of Tibet, where the job market is saturated with Han migrants, leaving many of the young Tibetans unemployed (YEH 2007).

Considering the limited sample, it is difficult to define exactly whether ethnicity determines migration behaviour. However, the largest number of out-migrants was found amongst Akha-people, who seem to be the most open, flexible and mobile group. Among the Dai, it is less popular to seek employment outside the NNNR, which might be owing to the relatively advantageous economic situation of the two Dai villages. The group of Lahu seems rather heterogeneous. Some Lahu state that Lahu people prefer to stay in their own villages, but there are some cases of out-migration. Considering the dire economic situation of many Lahu communities, it appears that migration is stimulated by existential economic motivations. The personal component, as discovered amongst the Akha seems to play a less important role.

The impacts of migration processes on village communities and households are rather small. Remittances are not a major part of the local economy and apparently the decreased labour does not impair the agricultural sector. The temporary absence of selected household members rather alleviates the financial burden of the household, since household income needs to cover the expenses for less persons. However, depending on the farm and family structure, particularly the younger female household members' absence might be burdensome for remaining females. Their duties, i.e. household chores, looking after younger siblings and taking care of senior members of the household, are left with the mother and sisters who stay behind. Some of the permanent migrants, mainly young people still own rubber plantations in the area, which are inherited from their parents. During their absence, the plantations are managed by the parents or cultivated by hired labour. These cases are however limited, the development of an absentee-landlord structure, which can be found in Thailand is unlikely. Migration of girls can, on the one hand be considered as an individual, modern strategy, which reflects a certain degree of emancipation, as Fan notes:

„Migrant work offers opportunity to challenge the above traditions and can be an empowering for peasant women. Recent studies have, likewise, stressed the importance of migrant work in increasing young, rural women's sense of independence and their economic value to parents." (FAN 2008: 129)

Most families thus support migration, not only because many wish for a better life outside agriculture for their offspring, but also because the capability to broaden the base of income. From this perspective, it can be considered as a rather traditional pattern, because according to SCOTT (1976) migration has been a long established part of rural subsistence strategies. The flows of migrants into the villages of the NNNR are very limited. The largest group are the Han-workers and families of the 14th brigade of the Jing-hong rubber farm, of which the first arrived in the early 1980s. Apart from the children attending Mandian primary school, connections between the local population and the members of the rubber farm are limited. Social interaction is rare and the two settlements in direct vicinity remain separated. Other Han-migrants who came to the area permanently run small shops in the villages or are employed as teachers in the local schools. Other Han-migrants come to the area on a more temporary basis, for example for construction work. They live in basic camps and are not integrated at all into the local communities.

3.4 Conclusion

Since the introduction of the HRS and different modernizing projects, like education, expansion of health care and improved infrastructure, living standards have significantly improved. This is perceivable through quantitatively measurable variables like educational standards, nutrition and life expectancy. But also local perceptions speak a clear language: "There are huge changes in the village such as the road to outside, tools for farming. It did not get worse at all, it just got better in my opinion." (Mrs Li from BGH, born in 1955). As the informant indicates, most of the changes were triggered through external influences and did not emerge from within the communities. Despite improved income situations in general, the base of livelihood remains agricultural and, with relatively equal distribution of land, stratification within the villages remains limited. Social cohesion and power structures have been transformed through collectivization and democratization, but still follow traditional patterns. What becomes evident after looking at social indicators are the emerging discrepancies between the communities. The rubber line, which follows roughly the 1,000 meter contour line has led to a social and probably also a socio-economic gap within the Reserve. Below the rubber line, there is more evidence of individualization and even the emergence of a rubber farmer class. In villages roughly above 1,000 meters, or more so in villages which do not have access to land below 1,000 meters, everyday life, daily practices and social structures are less exposed to modernization and have transformed less.

4 Institutions and land use

Over the last decades, many aspects within the social landscape of the NRWNNR have undergone transformation and modernization. Different actors, mainly in form of different state organizations have gained influence over the livelihood of villagers. Modernization has also triggered a transformation of institutions governing land use and use of natural resources. Over the last decades, an emergence of new actors and the multiplication of interests concerning land use has become visible. The diversification of actors and institutions in the social space has direct impact on the material, geographical space of the remote mountain landscape. These repercussions manifest themselves particularly in the loss of forests and biological diversity and the expansion of arable land on the one hand, and the expansion of protected areas on the other hand. While the remote mountain areas and their localities were mainly governed on a local level, drivers and actors of change have not only diversified but are also positioned beyond the local level and thus mainly out of the reach of local actors. In order to identify land use change and the underlying processes and causes in the research area, institutions, particularly those connected with land use are analysed. The IAD-framework (Institutional Analysis and Development-framework), developed by Ostrom and others offers an analytical framework to grasp different dimension of institutions which connect physical and socio-political landscapes.

4.1 Definitions and methodological approach to institutions in the research area

4.1.1 Theoretical considerations

Institutionalism as a social theory or methodology is found in different fields of humanities, namely political science, economics and sociology. The first concepts of institutionalism were developed by Thorstein Veblen, John Commons, Karl Marx, Emile Durkheim, Max Weber and others in the 19th and early 20th century. In the 1960s and 1970s different branches of "New Institutionalism" emerged, following up and further developing the old institutionalists' concepts (HALL & TAYLOR 1996). The "New Institutional Economics" have gained much attraction lately. This work is mainly based on the approaches of Ostrom, North and Williamson, especially in the provision of a hands-on framework for institutional analysis, which is used to analyse current institutions governing land use in the NRWNNR (OSTROM 1990, 2005, 2008, NORTH 1995, WILLIAMSON 2000). The general assumption of this analysis is a social constructivist, dialectical one, assuming that society is a construct of man and man is, vice versa a construct of society (VATN 2005:25). In regards to the focus of this study on human-environmental relations, it is deemed necessary to introduce a third sphere, the geographical space, which embeds both the individual agent and the social structure into the natural, physical environment, following the idea that the social sphere and the physical environment are mutually dependant and influential.

Literature on institutionalism offers a wide range of definitions of what institutions are, how they develop and change and which agents form and transform institutions. Although institutions are commonly considered as the driver for individual or groups' behaviour within a society, no generally accepted definition has yet evolved. In Figure 23, the most important definitions are listed, showing the multiple aspects of institutions.

BROMLEY 1989:22	(Institutions are the) "(...) rules and conventions of society that facilitate the coordination among people regarding their behaviour."
NORTH 1990:3	"Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction."
OSTROM 2005:3	"Institutions are the prescriptions that humans use to organize all forms of repetitive and structured interactions including those within families, neighbourhoods, markets, firms, sports leagues, churches, private associations, and governments at all scales."
SCOTT 2006:48	"Institutions consist of cognitive, normative, and regulative structures and activities that provide stability and meaning to social behaviour. Institutions are transported by various carriers-cultures, structures, and routines - and they operate at multiple level of jurisdiction."
Figure 23: Selection of important definitions of institutions	

Comparing the different definitions, the greatest common divisor is the aspect that institutions are basic regulatory mechanisms within a society. North emphasises the restricting and constraining nature of institutions. Others, like Bromley, acknowledge the facilitating and enabling qualities of institutions. Both Scott and Ostrom highlight the multiple dimensions of institutions and the role of agents which are involved in their development and maintenance, indicating the complexity of institutions. Vatn, who analyses human environmental relations and institutions offers a rather comprehensive definition:

"Institutions are the conventions, norms and formally sanctioned rules of a society. They provide expectations, stability and meaning essential to human existence and coordination. Institutions regularize life, support values and produce and protect interests." (VATN 2005:60)

This definition covers both the informal, formal and sanctioning character of institutions which permeate and regulate all levels and facets of a society. As an example, we can look at communities and their forest management regulations. While a logging ban in a Nature Reserve does indeed restrict groups from harvesting and selling the timber, it enables the same or other groups to collect NTFPs from the same area or to enjoy other ecosystem functions which would otherwise have been destroyed. Vatn also includes the dialectic nature of institutions, which both form and are reformed or transformed by society, and their ability to create and support the stability necessary for human well-being. Sticking with the example of forest use, the economic and social systems of the group which depends on the collecting the NTFPs are supported and stabilized by the institutions of the logging ban. On the other hand, the society has the capability to influence and change the institution itself when transforming to a less subsistence oriented socio-economic system.

4.1.2 Development of institutions

Over the centuries, most societies have gained complexity through development from autonomous communities to politically, economically and/or socially stratified systems. Along with the increase of internal and external societal diversity, the diversity of institutions has also increased. North exemplifies this for the case of trade: "The complexity of the environment increased as human beings became increasingly interdependent, and more complex institutional structures were necessary to capture the potential gains from trade." (NORTH 1995:20). However trade is not the only end for which institutions have emerged and North's observation is also valid for other spheres of society. For ex-

ample, through increasing interrelation of ethnic communities with the Chinese state, a common background of knowledge was considered as necessary. Thus, education which was limited to monastic education or oral transmission of knowledge before was instituted in a formal and homogenized way, through the introduction of village schools. In these schools, children are supposed to gain basic knowledge of Mandarin, writing and mathematical knowledge in order to participate in a society beyond their village.

Under scrutiny, institutions and their transformation in Xishuangbanna corroborate North's argument of complexity and diversity. Before the advent of the Chinese, especially the Communists, local actors were in power, governing over the remote mountainous areas according to local institutions, which varied from ethnic group to ethnic group and were linked to regional governance to fluctuating degrees. During the communist period, these local or regional regimes were completely removed and substituted by national and even internationally influenced structures. Not only the mode of government changed from local feudal to communist ideas, but also the institutional framework increased in its complexity. The governing regimes and their institutions, once embedded within the local cultures constituting the social space had never been exposed to a transformation as rapid and profound. This embeddedness was annihilated by revolutionary forces like the Great Leap Forward and the Cultural Revolution. The social spaces, multiple spaces with limited overlapping of Banna's culturally and ethnically diverse groups were profoundly changed and partially merged into a larger more homogenous one, with repercussions on the geographical space.

Another important question is how institutions actually do emerge and evolve. From literature, two rather contradictory directions can be distinguished. Nascence and development of institutions are outlined by either rather passive, naturalistic explanations on the one hand, and on the other more active, agent-based explanations are discussed. The naturalistic approach on the one hand explains the development by socially unconsciously undertaken "(...) activities (which) are habitualized and reciprocally reinterpreted (...)" (SCOTT 2008: 94 after BERGER & LUCKMANN 1967). Institutions emerge undirected, following an evolutionary process of randomness. The agent-based accounts of institutional creation emphasise the role of agents who intentionally create institutions in order to pursue their interests and employ or increase their power accordingly (DIMAGGIO 1988). Looking at the thinly documented history of Xishuangbanna it is difficult to corroborate the one or the other. It seems likely that with increasing diversity of institutions and interests, the mode of institutional emergence has changed. It is hypothesized that formation of institutions in former, egalitarian, less complex, societies like those of the Akha and Lahu followed a naturalistic, passive pattern. However, over the last centuries, when external agents more and more encroached the highlands and expanded their influence over the territory of local groups, the creation of institutions has become more deliberate and thus agent-based. This is probably the case for the Chinese interventions of the last century, when local institutions were abolished and replaced by a bottom-down approach, often through revolutionary and violent activities. These transformations, which involved different agents actively planning and introducing new institutions, can certainly be considered as agent-based and purposive.

The transition from passive to active institution formation is also corroborated by North's argument that societies or tribes develop different "mental models" to explain their surrounding environment. These mental models, providing common explanations defined and formed the institutional framework for the groups. As "customs, taboos and

myths" (NORTH 1995:20), they were transmitted from generation to generation providing continuity of culture. Through the disruption and provision of other mental models, like communist ideology and environmental ideas, the traditional institutional frameworks of groups were weakened. Mental models were changed or profoundly altered by force. Spiritual explanations of natural phenomena and legitimation of social structures were replaced by technical explanations and communist ideology and bureaucracy. Even after political and social indoctrination and restriction had decreased, for example through gaining more freedom of cultural expression, indigenous mental models in many cases were already so weak that they could or cannot be recovered. New, top-down institutions have been adapted and change quite frequently, while old institutions re-emerge only sporadically.

4.2 Institutions and institutional change in the NRWNR

Before looking at institutions in the research area, the multi-dimensionality of analysis needs to be addressed. Institutions operate at different levels particularly regarding geographical space. Influence of an institution ranges from a plot of land accessed by one household to a whole prefecture or even a whole country. Furthermore, when analysing the situation and particularly its transformation, different temporal sections need to be looked at. In accordance with major political and economic changes, the institutions and their transformation are analysed within temporal units, including the pre-communist era, the post-liberation/Mao-era and the time after liberalization in the beginning of the 1980s. Apart from the temporal level, different geographical levels need to be distinguished and also different levels of socio-political spheres. This discrimination is necessary to determine on which level of social aggregation, for example level of the village or the Central government, an institution is rooted, transformed, effectual.

4.2.1 Institutions governing land use: a historical perspective

Societies and communities in pre-communist Xishuangbanna possessed limited stratification and a limited degree of internal and external organization. Institutions were embedded within the agriculturally based and subsistence oriented societies. Institutions governing natural resources, i.e. access to land and land use practices were part of people's livelihood. Land use related activities followed climatic and ecological conditions and the agricultural calendar determined everyday life. Need for diversification and rapid transformation was limited. Village heads and spiritual leaders observed that rules and regulations were adhered to and implemented, imposing sanctions if necessary. Limited information on the history of the research area is available. A brief analysis of two villages Naban and Bengan, mainly based on oral histories, exemplify traditional institutions determining land use in the research area.

Communities and ethnic groups were characterized by differences of cultural, social and political institutions. Except for the Dai and their monastic and feudal structures, ethnic groups had little formal internal organizations. Interactions were face-to-face and leadership was strongly based on the charisma of leaders. Even though they did not necessarily gain the position through hereditary principles, the existence of successful and powerful clan-structures facilitated their influence and helped to perpetuate the elites' influence and power. Spiritual leaders, like *bimuo* and *nipa* in Akha villages or Buddhist monks in Dai and Bulang communities also influenced the social and spiritual life of the community. The positions of those leaders were legitimized through the acceptance and appreciation of the villagers and in the case of the Dai, by the inclusion

into the Dai-feudal structure centred in Jinghong. No matter whether the social system was based on feudal or egalitarian principles, local village leaders had the power to control local resources, to monitor and enforce cultural, economic and social practices and institutions and to influence the transformation of local institutions. As STURGEON (2005) points out, landscapes of Banna were fluid. Access to land, at least in certain areas was regulated through local processes of negotiation. Land was in many areas not the common-pool resource of one village, but rather of several villages, and access could be negotiated between the village leaders. For example, when Han people arrived in the first half of the 20th century in the Bengan area, they needed land to settle. After negotiations with the local leaders from Bengan Hani, they were granted a forest area north of Bengan Hani which they were allowed to reclaim and cultivate.

In Naban, the village headman, the group of elders and some spiritual leaders formed the political elite. Rules and norms were enforced by the local elite, structuring collective and individual activities and behaviour. The village leaders coordinated the set-up and maintenance of the irrigation system and organized the access to paddy land. Spiritual leaders were in charge of organizing and implementing rituals associated with rice cultivation, for example the "Water Splashing Festival" at the beginning of the rainy season and the "Open-Door Festival" at the end of the harvesting season. The use of forests was also regulated through traditional institutions. In general, forest was a rather unlimited and abundant resource. While much of the forests could be considered as a common-pool resource, parts of the forests were taboo areas. Holy hills, temple forests and water conservancy forests for example were spaces which were exempted from common use. They were only used for example as burial grounds or protected for their function of maintaining specific ecological services. These traditional natural resource management institutions stemmed from a deep, maybe intuitive understanding of ecological processes and were monitored and also sanctioned by the leaders.

Bengan Hani is one of the oldest settlements in Naban area. The society of Akha was at least traditionally an egalitarian one, with barely any stratification within the community, no organization beyond the village community except exchange along clan and family bonds. Many of Xishuangbanna's Akha villages were egalitarian societies, as described by STURGEON (2005). However, Akha communities of Mengsong in today's Menghai county, including Bengan Hani had already developed a feudal system by the early 20th century. This strongly influenced access to land as basis for wealth and thus the whole social structure. Contemporary witnesses describe that land was privatized and village society was stratified into landlords, normal farmers and landless peasants. Landless households had to sell their labour for food and a minute cash income to the landowners to sustain a living. "L: (...) not so many people had land, what they did was they helped the rich households, labour in exchange with food or daily commodities. I had been help-labourer for twenty years." (Mr. Li from Bengan Hani, born in 1927).

The transformation of institutions from an egalitarian to a feudal society might be connected to external influences. It is hypothesized that the increasing integration into supra-local processes in the form of intensified tea and opium production has triggered institutional transformation. In the late 19th century Opium production and abuse expanded in Banna. The production of opium did not only bring cash income to farmers, but also addiction and loss of labour capacity. This often lead to loss of land, particularly paddy fields and subsequently poverty. Opium was not traded by individual households. Similar to the tea monopsony (HILL 1998:79), villagers delivered their harvest to the vil-

lage head who sold it to external traders as a middle-man. This constellation may have contributed to the development of asymmetric economic conditions and stratification in the villages. The village head could profit from the opium trade. Households with addicted members financially suffered from the cultivation and particularly the results of opium abuse.

Beside the political/economic elite, there were spiritual leaders, for example (male) *bimuo* and (female) *nipa*. They conducted rituals and ceremonies concerning land use and the environment. The landscape surrounding the villages, including fields and forests were a realm of negative forces and spirits, therefore regulations were strict and rituals and ceremonies necessary to appease evil spirits. Even though they had no direct political authority, they influenced spiritual and social matters of the village community (BOUCHERY 1996, TOOKER 1996).

4.2.2 Institutional transformation during the Mao-era

North describes organizations as the players of the game, while institutions are considered as the rules by which they play. Ostrom defines the setting or focus area for institutional analysis as a "stage". For the stage of the NRWNNR, serious change of both rules and players occurred after liberalization. With limited institutional and organizational involvement above village level, organizations were introduced to govern land-access and land use. HARDING (1981) describes the early 1950s as an era of organizational building in China. Organizations can be classified into different types according to their functionality, including political, economic, educational and social bodies. From a structuralist point of view, an organisation is a group, clearly delineated from its environment which has common goals and objectives and work together or cooperate. Organizations and their relation to institutions are defined as

"(...) composites of participants following rules governing activities and transactions to realize particular outputs. These activities occur within specific facilities. The rules, which are components of all organizations, are the institutional arrangements." (KISER & OSTROM 2000: 66)

Organizations as new actors embedded in the bureaucracy of the Chinese state replaced local actors and local institutions. The introduction of organizations can be explained by the Chinese Government's aim to secure and control resources of their newly gained territories in the minority areas. North explains the change of institutions with a competition in times of scarcity (NORTH 1995). For the consolidating PRC, particularly land and natural resources turned into a scarce resource in the 1950s. Land was traditionally used as a means of producing primary goods, a function it has kept. Moreover, it had started to serve territorial demands. Governing more space meant power over more resources and more people. The new ambitious government's objective was to gain control over the territory in order to pacify and to civilize the wilderness and its people and to secure the borderlands.

After the incorporation of the Naban watershed area into the Chinese nation state, the village as a social space, constituted through a certain degree of political, economic and cultural independence lost almost all power and control over the social as well as the geographical space it previously encompassed. Through the establishment of a new administrative order the villages were incorporated into a new, larger social space. What was formerly a village was turned into one or several working teams³³, as the lowest unit

³³ Depending on the size of the village. One working group encompassed about 10-12 households

of the commune. Through the establishment of the people's commune the state penetrated all levels of daily life. In a generalized way figure 24 shows the organizational structure which was introduced to regulate resources and people after the establishment of the administrative system of the PRC according to North's framework of organizations (NORTH 1990).

Institutional space	North (1990)	During collectivization	After decollectivisation
Political	Political parties, senate, city council, regulatory agency	Communist Party, commune	Communist Party, government
Economic	Firms, trade unions, family farms, cooperatives	Commune, purchase and supply agency	Purchase and supply agency, private traders, markets
Social	Churches, clubs, athletic associations	Communist Party, commune	Communist Party, Women's & Youth Union, religious associations, development agencies
Educational	Schools, colleges, vocational training centres	Communist Party, schools, nationality colleges/universities	Schools, colleges, vocational training centres

Figure 24: Organizations regulating resources and society in the PRC

During the first decades of communist rule, almost all spheres of life were governed through the collectives and other institutions of the centralised, authoritarian communist regime. This influence has been weakened through organizational diversification since the 1980s, through the emergence of private actors and diversification of interests within the government, i.e. between different government bodies. Within this chapter, particularly those organizations which are directly involved in governing land resources will be under scrutiny.

The CP took rather careful first steps when increasing its influence and consolidating new power structures. On the village level, initially old leaders retained their position. However they subsequently lost much of their decision-making power and the power over economic and land-tenure institutions. This became obvious when land was redistributed from the formerly influential and wealthy families and households to the poorer ones. For this intervention, the communists gained much appreciation and strengthened their base of legitimacy, opening the door for intervention on a much larger scale, the collectivisation in 1958. Spiritual institutions and practices attached were banned, particularly during the Great Leap forward and the Cultural Revolution. Spiritual leaders also lost their influence. "In 1958, the Great Leap started and the Communist Party stopped us to hold the ceremonies, I did not feel sad about it, but some people felt very sad for stopping to hold ceremonies." (Mr. Yang from BGH, born in 1926). Spiritual needs of the people were either neglected, practiced covertly and privately or substituted by communist ideas and ideologies. By then old leaders and elites not only lost their political capital and influence, they were even punished, socially disgraced and banned from further offices within the Communist bureaucracy. One villager from Hui Ma He remembers that "people elected the leader according to the class composition - the poor would be leader not the capable one." (Mr. Qie, village head of Huimahe village, born in the 1970s)

The new leaders were members at the lowest hierarchical level of a huge organization. Thus, the new form of governance no longer permitted the leaders to rule accord-

ing to local traditions and institutions. Rather, leaders had to enforce the radical abolishment of those local institutions, the implementation of external, foreign rules and institutions and the sanctioning of non-compliance. At the bottom level of a huge bureaucratic administration apparatus, the new village leaders lost the major part of their power to craft and influence institutions. They became representative of a government whose new ideas and rules were soon perceived as suppressing. The control over resources was taken away from the local village level.

Collectivization did not only weaken the old political and socially influential actors. It also weakened the core institution of the communities, the family and household. Becoming part of a collective, the family lost their status of an economic organization to that of the newly installed working teams, brigades and communes they were assigned to. Instead of the household and the community at village level, the commune could be considered as the new, omnipotent ubiquitous organ governing people's every-day and metaphysical life. In the beginning, young people and those who were in a disadvantageous position in the old society welcomed the new ideas and the new system. The state through its administrative system decided upon all matters of the collective. This included land use, property and access-rights, production and production quotas, and the trade and supply of products, farming input and goods through their provision and procurement network. Some of the households that had, voluntarily or involuntarily, supplied capital in the form of farm machinery or animals to the collective, were even financially remunerated: "(...) household X gave their buffalo to the commune. They were poor farmers so they got compensation. But Y.'s buffalo was confiscated because his household was classified as landlord." (Mrs. Ming from BGH, born in 1930).

Land was collectively cultivated by the working team. After taxes and levies to the Communist state were paid, yield was distributed to the households according to a point-system, which was soon considered as unfair. When the first enthusiasm had ceased, the common members played along with little or no capacity to openly resist. Dissatisfaction could only be expressed through passive resistance or by using "weapons of the weak" as Scott describes it for Southeast Asian rural societies (SCOTT 1985), including laziness in fulfilling work tasks or disobedience in matters and tasks which are difficult to control.

Leaders functioned as transmitters of spatially remote state orders and policies, which were in stark contrast to traditional rules, regulations and practices. The new paradigm of Han Chinese modernity, to conquer and subdue nature was formulated into policies which, implemented in Naban area, had a detrimental effect on the environment. During the "Grain First campaign" in the early 1960s for example, grain quotas were increased in the mountainous areas. In order to raise outputs, collectives expanded arable land and shifting cultivation areas by logging native forests. For example, during this period vast areas of land in Bengan Hani area were logged. Since then, these areas have not undergone natural forest succession. They have been extensively used for shifting cultivation and since recently leased to external actors. It remains unclear to which extent external branches of the government, like the forestry bureau or others were directly active in the Naban Watershed. As surmised before, most policies and influences on the communities and their environment were implemented directly through the commune administration and their cadres. It is likely that living standards have improved for the villagers during the collective period, for example through an improved medical and nutritional situation. Population growth during the period is an indicator.

Looking at institutional change from a perspective of environmental sustainability, the impact was detrimental. Institutions previously regulating sustainable use and ecosystem health were abolished, leaving an institutional void.

4.2.3 Institutional and Development Analysis: a framework to analyse diversification of institutions, organizations and interests after liberation

In the late 1970s, tendencies of economic liberalization lead to the substitution of the commune as the central organ by several organizations in combination with political and economic decentralization. The change towards market orientation led to fundamental transformations within the social space by diversification of institutions and organizations. The household was re-installed as the basic economic unit and external government agencies gained interest and influence over environmental resources in the NNNR. A shift in ideology concerning nature and environment characterizes the transformation. The modern paradigm to conquer and tame nature was expanded into the ideology to tame and valorise the environment, turning it into a commodity. Actors, individuals and organizations, both state and private, influencing land use have multiplied and are driven by various, often colliding interests. The commune as the main organization through which all directives were channelled and implemented ceased to exist and was partly succeeded by other institutions and organizations. During the processes of decentralization and de-concentration of state activities (ALPERMANN 2001), private actors, like entrepreneurs and traders started diversifying the social space and also influencing land use.

In order to understand processes and structures driving land use and land use change in the research area, these actors or agents and their interactions in the social space need to be identified. Ostrom's IAD-approach offers a framework to analyse the multi-dimensional aspects of institutions within the social and geographical space of the research area (GIBSON 2000, OSTROM 2005, OSTROM 2008, OSTROM ET AL. 2008). The IAD approach allows us to analyse actors, interactions and the outcomes in a variety of settings and different temporal and spatial scales, particularly in the context of human-ecological interactions:

"(...) more useful definitions for institutions, for the diverse forms of 'the environment', and as well as for the linked levels of interaction are being developed (...), particularly those interested in how institutions enhance or adversely affect multiple objects and processes related to ecological systems." (OSTROM 2008:24)

Within this framework, actors and institutions governing land use can be analyzed, particularly their formation and transformation, and the interaction between the multiple levels of social space and the geographical space of the NRWNNR. The IAD framework has two main components: the exogenous factors and the action arena, which structure the analytical steps undertaken in this study (see Figure 25). Exogenous variables encompass a wide range of factors, including rules, the community and the physical world, which influence the action arena: "Rules, the biophysical and material world, and the nature of the community all jointly affect the types of actions that individuals can take, the benefits and costs of these actions and potential outcomes, and the likely outcomes achieved." (OSTROM 2005:16). Rules are socially constructed and adapted. In general, rules "(...) are the result of implicit or explicit efforts to achieve order and predictability amongst humans." (OSTROM 2005:18). On the one level, "they are sets of instructions for creating an action situation in a particular environment." (OSTROM 2005:18). On another, more individual level, rules can be considered as participants' strategies developed and

applied within a certain situation. Comparing the definition of rule in Ostrom's sense and different definitions of institution (see also Figure 24), strong similarities become obvious, since both, rules and institutions are defined as constructs to regulate social interactions.

Particularly in the context of this research, the influence of the physical world on the action arena is important. Within the geographical space, the physical and material world determines ecological conditions, their vulnerability and transformation. This includes climatic conditions, soils, topography, growth rates and other ecological factors. But it also comprises of anthropogenic factors including the built environment like

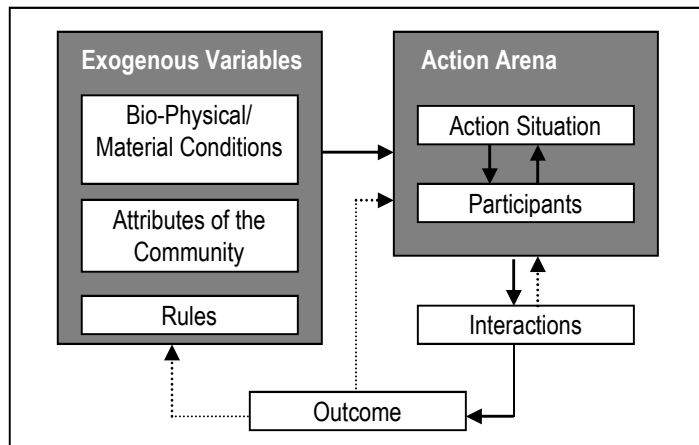


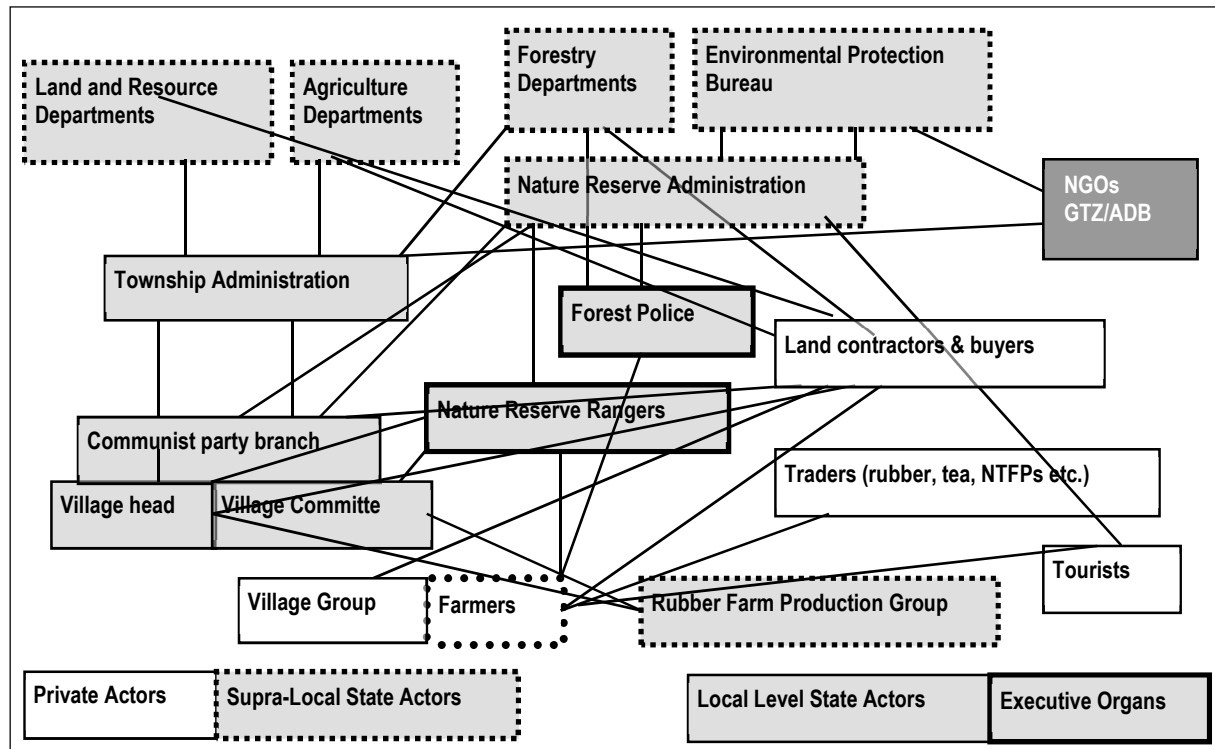
Figure 25: Framework for institutional analysis

(adapted from OSTROM 2005:15, OSTROM ET.AL 1994)

houses, roads and other infrastructure (OSTROM 1990). As another exogenous factor, the community, or the wider social space in which an action arena is located, needs to be taken into account. Community does in this context not only include the village community in the research area, but also communities on different levels, for example of government. Communities share and determine "generally accepted norms of behaviour, the level of common understanding about action arenas, the extent to which preferences are homogeneous, and distribution of resources among members" (OSTROM 1990: 45). The other major component of the analytical framework is the "action arena". The action arena is the stage of negotiation and decision-making, where actors or participants interact in a certain action situation. Participants can be individuals, organizations, enterprises or other groups with different objectives and interests. The action arena is defined as "a social space where participants (...) interact, exchange goods and services, solve problems, dominate one another, or fight." (OSTROM 2005:14)". The outcomes of those negotiations and activities within the action arena impact and transform both the action arena and possibly the exogenous variables. OSTROM suggests that the influence on the exogenous variables should rather be neglected in an analysis. Since this research focuses on land use, environmental change and activities and capabilities of communities, i.e. the interdependence between the action arena and the exogenous variables, some of these will also be taken into consideration. Owing to its holistic nature, the IAD framework is multi-dimensional, considering three levels of action: a constitutional, a collective choice and an operational level. The levels are hierarchical, with the constitutional level influencing the latter two levels. Depending on the specific action arenas, there is feedback into the other direction. At the constitutional levels, constitutional choices are made. These decisions are "(...) choices about rules governing future collective decisions to authorize actions. (...) in other words, decisions about decision rules." (KISER & OSTROM 2000:77). On this level, institutions and arrangements for enforcement on the collective choice level are negotiated and decided. On the collective choice level, decisions are made within a formal bureaucracy or community to "determine, enforce, continue or alter actions" (KISER & OSTROM 2000:76), but within the institutional framework which is determined at the constitutional level. The level where ac-

tivities directly translate into the physical world is the operational level. Decisions regarding strategies or actions are taken and the authorized within institutional arrangements from the upper levels, for example property laws, access rights etc.

Figure 26: Participants/actors influencing land use in NNNR



Corresponding to the research focus, land use and land use change in the NRWNNR is defined as the action arena. In a first analytical step, the different participants, or actors which have interests in land and resources are identified. Here, the multi-dimensionality already becomes obvious, with participants on the local, regional and national level (for example different levels of government). These different participants, though many of them are part of, the Chinese state, pursue completely different and often contradictory objectives. For example, the Land and Water Ministry, in the name of national interest, appropriates land for the construction of hydro-electric infrastructure against the interest of the local governments who want to protect their residents' natural resource base. Another variable distinguishing actors are their interests, which range from private to corporate financial interests and public local to supra-local. The distinction and categorization of different groups is rather generalized. Not only interests overlap, moreover some individuals are affiliated with different groups. For example, the village head is not only an official, but also a farmer and most likely involved in trade or other business. Besides affiliation to different groups, there are also multiple connections between the different actors. Figure 26 displays the outcome of a crude network analysis, based on field research. Without being able to quantify the strengths of relations, different clusters of groups become visible, for example the "ecological cluster" and the "business cluster".

The detailed analysis of quantitative and qualitative relations and the web of influence and power between the participants go beyond the scope of this study. However, the spatial arrangement of the actors in Figure 26 does indicate certain differentials in power, i.e. actors in the upper part of the figure are more influential than those in the lower part. The analysis and display of actors is the first step of analysis in the IAD framework. The boundaries between the different levels of action are blurry, since some

actors are involved in action arenas on different levels, as will be discussed in the next section. The patterns that emerged by analysing actors in the research area facilitate categorization in different levels: constitutional, collective choice or operational.

Actors	Constitutional	Collective Choice	Operational	Spatial Influence
Supra Local State Actors				
Party and Government	Determines: -property law -land use -economic structures -environmental protection policies -declaration of nature reserves			Total NNNR
State Land Resource Department	Determines land use policy	Designs regional and local land use strategies and activities	Implements land use activities, such as resettlement	All State and Collective Land in NNNR
Agricultural Department	Determines agricultural land use policy	Designs -regional and local strategies -activities for agricultural development	Implements agricultural development activities through extension service, subsidies	Paddy, shifting land, dryland
Forestry Department	Determines forest policies	Designs -regional and local strategies -activities for forest exploitation and protection	Implements and supervises commercial forestry activities and also conservation activities	State Forest, community forest, private forest
NNNR		Designs strategies for protection and sustainable use	Implements and supervises protection and sustainable use strategies	Partially state forest, community forest
Local state Actors				
Party and Government		Defines rules on access and use rights to collective land	Propagates, implements and supervises strategies and activities from upper levels	Collective land and partially state forest
Economic Actors				
Traders			Influence land use and production transfer of technologies	Forests, agricultural land
Land-buyers			Influence property and access rights	Agricultural land
Households		Influence decision on land use rules of collective land	Obey or disobey rules and regulations Determine community rules and elect community leaders	Forests, agricultural land

Figure 27: Actors involved at crafting and implementing rules concerning land use in the NNNR

4.3 Institutions and actors on the constitutional and collective choice level

Land use and institutional formation and transformation is determined and negotiated on different levels. Figure 27 provides an overview on levels of actors, which will be discussed in further depth here, from the constitutional to the operational level. The analysis will focus on those participants who could be directly observed during the field research, i.e. participants on the collective choice and operational level. The constitutional level, which relates to larger political and economic structures and events will be only briefly discussed. As a National Nature Reserve, the research area differs from other rural areas in China, with differing institutions, claims and actors which determine and negotiate land use and land use change. Apart from selected state and government actors, the organization and role of the Nature Reserve Administration, which is active at the collective choice and the operational level will be scrutinised. Figure 27 displays an aggregation of actors at different levels and their extent of influence within the geographical space of the reserve.

4.3.1 The constitutional level: transforming the overall framework for land use

Legal framework

The period after Mao Zedong's death brought a shift in the state rulers approach to governance:

"The central government firmly believes that, in the transition from a socialist to a market economy, the traditional "rule of man" - renqing shehui, or "society of human emotion" - which dominated China for so long needs to be supplanted by the "rule of law" to provide people with a secure, rational and impartial mediation of interests." (HO 2000:241)

This "wind of change" was also perceivable at the constitutional level, responsible for the most profound changes in all matters concerning land use. The Constitution of 1982, Article 10 states that: "No organization or individual may appropriate, buy, sell or lease land, or unlawfully transfer land in other ways" (NATIONAL PEOPLE'S CONGRESS (NPC) 1982). The option for lease of land was specified in the revised Constitution of 1999. In the 1980s a number of laws concerning land, forestry and natural resources were adopted by the National Congress and promulgated through the President of the People's Republic of China, which altered the framework for land-tenure, property and access rights. Property rights and tenure are further specified through a number of laws, ordinances and regulations:

- General Principles of Civil Law of China (NPC 1986);
- Land Administration Law (NPC 2004);
- Law of the People's Republic of China on Land Contract in Rural Areas (NPC 2002).

These laws regulate not only land ownership and land administration, but also the protection of farmland. Farmland protection has gained attention since the 1990s, when problems of environmental degradation on the one hand and change of land use for construction on the other became pressing issues, worthy of increasing political attention. The main actor concerned here is the Ministry of Land Administration, directly under the State Council, and its departments at lower levels, which are "responsible for the planning, administration, protection and rational utilization of such natural resources as land, mineral and marine resources in the People's Republic of China" (MINISTRY OF LAND

AND RESOURCES OF THE PEOPLE'S REPUBLIC OF CHINA 2007). However, the state did not create the institutional framework of property rights in the form of full privatization, and left a certain ambiguity in respect to land-tenure.

Other laws relating to land use were for example the Forestry Law (NPC 1998), the Environmental Protection Law of the People's Republic of China (NPC 1989) and more specifically, the Nature Reserve Law (STATE COUNCIL 1994). Those laws can be considered as the first attempts to fill the institutional voids which had caused degradation of land and forest resources.

More specific regulations to protect land and water resources including soil, water, forest and biodiversity were introduced. Major policies were for example the Sloping Land Conversion Programme (SLCP) and the logging ban in western China.³⁴ In recent years, actors forming and transforming institutions on land use and environment have been increasingly influenced by supra-national organizations and international discourses, dialogues and conventions. The management approach of the Naban Nature Reserve is influenced by the UNESCO's Man and Biosphere Programme (MAB) launched in the early 1970s. This approach served as the institutional model for the Reserve. Furthermore, it is likely that the MAB concept has influenced the Nature Reserve Law itself, since the National Reserve Law from 1994 shows certain similarities, such as in the zoning concept. Over the last two decades, the nature conservation and protection agenda gained further momentum through the appearance of the biodiversity debate on international forums. Through China's participation in the Convention on Biological Diversity in 1992, the protection of Xishuangbanna's unique flora and fauna gained more national importance.

The transformation of the economic system from planned to market economy does not directly govern land use. Nevertheless it can be considered as an important change of the constitutional framework, because it influences land use through allocation mechanisms. Purchasing prices for agricultural products were increased and obligatory grain quotas lowered, while private markets were allowed and even fostered. The permission of private transactions boosted agricultural production and the demand for NTFPs. Integration into global markets boosted the national economy and consequently the demand for natural resource products. The privatisation of procurement instigated the emergence of another group of actors, private traders of natural resources, who have gained tremendous influence on farmers' decision making and thus on land use in the NNNR. For example, the constitutional framework created to establish an environment

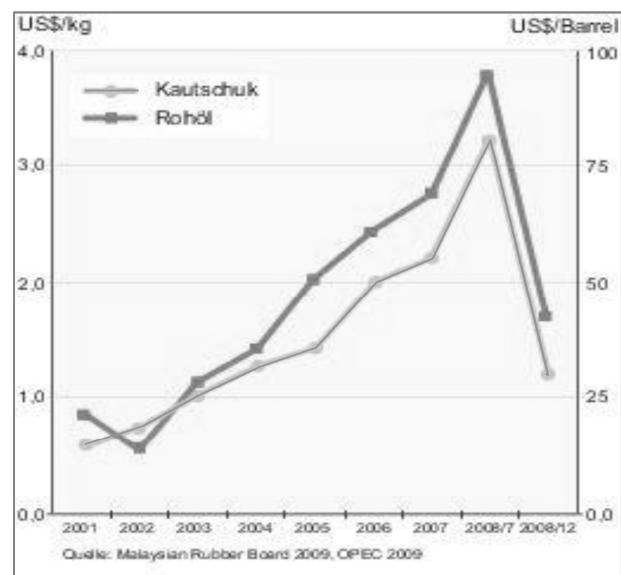


Figure 28: Development of oil and rubber prices.
(KORFF & WEHNER 2009)

³⁴ XU ET AL (2004:325) offer a concise description of the SLCP as an "initiative to combat the serious problems affecting rural China of deforestation, soil and water erosion in ecologically fragile areas, poverty and the environmental sustainability of agriculture (...) focussing on the connection between rural poverty and environmental degradation."

for economic growth has triggered national production of automobiles and car tires for the national and international market for which natural rubber is needed. The rubber price is linked to the world oil prices, as Figure 28 shows. From all land use possibilities available, rubber cultivation has turned out to be the most lucrative one for the individual. Banks surmises: "The state plays a critical role in governing institutional arrangements. At a macro-level, it determines the general institutional environment and, more specifically, the range of possible institutional arrangements that resource users can adopt." (BANKS 2001:724)

Tenure and use rights

With the land reform, land in rural areas was categorized and placed under different tenure, management and access-right institutions. State land, for example state farm areas and state forests are owned and managed by the state and its organizations. Land previously owned by the people under the institutional arrangements of the People's Communes attained the status of collectively owned land. As Ho points out: "(...) collective ownership was not defined by law" (HO 2000:258), leaving a range of options for the formation of local institutions on the one hand, but on the other hand it is coupled with insecurity of tenure and property rights on the other. Collective land is owned by the collectives and governed by township and administrative village agencies. It is leased to individual households or managed by the village collectives, processes that will be described in further detail later on. The transformation of property arrangements lead to a shift from open-access to private or common pool regimes, with great variations at the local level.³⁵ Forests, which are particularly important in the livelihoods of Yunnanese farmers, were also redistributed under new institutional structures, including state, collective and private forests. Under the new legislation a variety of tenure systems has emerged, ranging from state forests, which are at least theoretically under a private regime, while collective forests are either open-access, private or common-pool resources (in the case of local shareholding systems) (LIU 2001).

The actors shaping institutions on the constitutional level, namely the central Party and Government organizations reconfigured the settings for decision making on land use. Most notably, power for decision making was devolved to lower levels. With the "Forestry Three Fixes" strategy for example, "[a]they authorized the decentralization of authority from central to local government, thereby enabling counties, townships and administrative villages to make and increasing number of decisions." (XU & RIBOT 2004: 160). This policy regulated landownership, mountain use rights and responsibility for management of forests. Local actors gained more influence and power over local resources. Institutions governing land use were shaped and implemented by local state agencies. On the one hand this process of decentralization returned control over resources to local levels. On the other hand, the control over local resources was taken out of the reach of local participants through the integration of resources into global market processes (KORFF & WEHNER 2009).

4.3.2 The collective-choice level

Depending on the objectives and topics of responsibility, the boundaries between collective choice and operational levels are blurry. The action arena of the collective choice level is diverse, but predominated by different state agencies, such as the Department for Agriculture, the Department of Forestry and the Environmental Protection Agency in

³⁵ Ostrom (Ostrom 2005) distinguishes between, private, open-access and common-pool regimes.

form of the Nature Reserve Administration. Township and particularly administrative village level actors play a hybrid function: even though they are the extended arm of the upper level government, they have a range of freedoms regarding the adaption and implementation of constitutionally anchored regulatory frameworks. Moreover, and more lucratively, the township governments are in charge of “brokering” use-rights over collective land to external investors (HSING 2009), also underpinning their role as economic principals. In many parts of China, the fees levied for land transactions make up a large percentage of the township budgets (GONG 2009). Thus townships have a great interest in promoting land transactions with external investors. Field investigation has shown that several investors or state agents have leased or bought land in the Nature Reserve. For example, Pabin village has leased parts of their collective forest to a local cadre who turned it into a rubber plantation. Subsequently, the cadre, himself well connected to local authorities, sub-leased the new plantation to the State and Land Department. This department manages land-issues concerning the construction of the hydropower dam on the Mekong. The new rubber plantation is used as compensation for the people who lost their land and were forced to relocate in the wake of the hydropower construction.

Land distribution institutions

Administrative villages have a certain degree of control over resources, in particular land resources. Even though GONG (2009) points out that the township level is the de facto land owner and has the right to approve and disapprove over the distribution of collective land, decisions concerning collective land are usually made by the village administration and the members of the community. A classification of land according to vegetation cover, soil quality, eco-system functioning, usage or spiritual value and other factors has a long tradition in mountainous areas of Southwest China and Southeast Asia. While these customary institutions were neglected and suspended during the collective period, a new classification was introduced, based on current and potential usage. The transformation of the collective tenure into household tenure became the responsibility of the local administration, which had to decide on rules regarding:

- “(a) The principles by which to allocate land among community members;
- (b) stipulations for future land redistribution based on populations changes;
- (c) whether and how to adjust land allocations for land quality differences; and,
- (d) how to allocate encumbrances and duties (grain quotas and taxes) among community members.” (LIU ET. AL. 1998: 1796)

As field research has shown, the legal frameworks regulating land distribution were open to interpretation. Local administration agencies and village leaders were able to shape local institutions according to local circumstances. Processes and outcomes regarding fairness, processes and the consideration of old ownership structures vary.

Case 1: Mangfei

Collective land was divided into plots and one member of each household (in most cases the head of the household), took part in a “lottery”. By drawing tokens of plots according to the number of people in the household, land was divided equally and arbitrarily. Mangfei village had only been established in 1960, so there was no need to consider pre-collective ownership rights. Every villager, from infant to senior received about 45m² of paddy land and 1 mu of dryland.³⁶ Apart from the collective land, every person received,

³⁶ One mu equals 1/15 of a hectare (15 mu=1 ha)

within the boundaries of the community, an allocation of 14 mu of forest and wasteland which had previously not been used for agricultural activities. Each family was allowed to choose the area they wished to reclaim and cultivate (Mr. Dao, Mangfei, born in 1956).

Case 2: Da Nou You

DNY village was founded in 1971 and pre-collective ownership did not play a role. The collective land was not only allocated according to size, but the carrying capacity was also considered: "At that time, we did not use *mu*, we use *luo*, a basket. The *luo* was full of grain. They distributed the land size based on how much land we needed to plant the grain of a *luo*." (Mrs Li, DNY, born in the 1950s). Furthermore, as the village head reports, distribution was not completely fair and equal. There were irregularities concerning distribution of land, because some families did not receive land from the collective, but had to reclaim land:

"We distribute all the lands which we developed in the communal period. According to the population, the land was distributed to households. The households with many people got more land than the small ones. There was a little disorder, because some land was distributed equally to the households and some families did not get any land during the distribution, so they went to the mountain and reclaimed it themselves." (Mr. Zhang, Party Secretary of DNY, born in 1948)

Case 3: BGH

In Bengan Hani, land was also divided into plots and every person received 1.3 mu of paddy land. Pre-collective property was returned, but only to a certain amount:

"Before the communal period, people had the private plot which they gave to the commune. In 1983, the land was measured and every person got the same amount of land. The previous owner got their plot back, but only up to 1.3 mu. If they had owned more than 1.3 mu before the communal period, they could not claim it." (Mr. Yang from BGH, born 1965)

These examples show clearly that within the constitutional framework, which had finally put the ownership of collective land into the hands of the village collective under the township administration, the lowest level gained a certain degree of independence to shape and formulate local distribution institutions. Local decision makers indeed took traditional institutions into account, as in the case of BGH, where pre-communist ownership structures were made part of the new institutional conditions. This can be considered as a reinterpretation of institutions within the institutionalization process (BERGER & LUCKMANN 1967).

Redistribution of land according to demographic changes, particularly paddy land is also legally anchored, but frequency of implementation depends on local decision-makers. Mainly paddy fields, which are still the main subsistence base in the Reserve, are redistributed from time to time. In Mandian, areas of irrigated land have been lost due to the construction of a bypass road and a new settlement for the people who were relocated due to the Mekong dam. Thus, rearrangement was undertaken in 2008 and about one quarter of irrigated area was redistributed to balance out differences. Looking at the statistics, the maximum area per person and standard deviations have both decreased, indicating that redistribution has led to a more equal access to paddy land. It seems that inequities concerning access to land are furthermore regulated through informal lease regimes within the extended families and communities.

Even though at the village level informal options are available, the formal matters remain in the hand of the township government. Land lease contract transactions,

extensions of contracts etc. are legitimised through the township government. Figure 29 shows a household responsibility contract for the second term of lease between Mr. Li from BGH and the Mengsong Township Agricultural Department, valid until July, 31st 2027. In the conditions for the first term, levies for the lease (in the form of grain) were fixed at an exact amount. However, in the conditions for the second term, grain quotas were no longer stipulated. Neither did the contract stipulate the concrete use of land, except for certain restrictions, such as prohibiting the use of irrigated land for certain activities (i.e. construction).

农村承包土地基本情况登记		Land use classes		
承包户主	姓名 李表都 人口 5 劳力 3	1. Irrigated land		
地址	勐宋 乡(镇) 蚌冈村 哈二社	2. Arable land (suitable for rain-fed agricultural production)		
承包土地面积(大写) 壹拾柒点壹 亩		3. Tea field		
其中	1. 水田	3.1	亩	4. Orchard
	2. 旱地	12	亩	5. Forest
	3. 茶叶地	2	亩	6. Wasteland (suitable for rotational or permanent production or reforestation)
	4. 果园		亩	7. Fishpond
	5. 林地		亩	
	6. 荒山		亩	
	7. 水面		亩	
农户应交承包金(提留) _____ 元				
发包方	勐宋乡(镇) 蚌冈村哈二社 (盖章) 一九九九年一月八日			

Figure 29: Land contract between farmer and Mengsong township administration

Institutions focussing on rural and economic development

Apart from regulating land access, which will be discussed later, local state bodies, from administrative to prefecture level governments have other duties which directly or indirectly influence land use. The institutional transformation triggered in the 1980s went further than changing allocation and access regimes over land and resources. Institutions were redesigned in order to offer incentives for individuals and to improve regional economic performance. Instead of pursuing the perfect socialist society, economic growth, poverty reduction and increase of agricultural output became the objective of the state and its agents. New institutions were installed or expanded in order to enhance agricultural and economic performance. Markets were reintroduced in the 1980s as a space for economic transaction and social interaction. This provided farmers with an opportunity to directly trade their surplus fruits, vegetables and wild plants in the growing markets in the country towns like Gadong, Mengsong or even Jinghong. By 1988, already 50 official markets had commenced operation within Xishuangbanna (ENG 1998:17). The opening of interprovincial and international trade opened further opportunities at several levels. The markets and their participants on the operational level will be discussed in a later chapter.

A major institutional change at the collective choice level triggered the expansion of rubber state farms and their role in innovation and technology transfer. State farms,

which had been established since the 1950s further expanded. For example, in 1981, the 14th production brigade of the Jinghong state rubber was established near Mandian village. The 1980s marked an important change in attitude towards property rights, and not only in regards to material commodities such as land. Bromley remarks: "Property rights - an important aspect of the institutional structure - indicate who "owns" particular portions of the ecosystem (land, the trees, (...)). Property also indicated who owns (controls) valuable techniques (machinery, knowledge and processes)" (BROMLEY 1985:786). To reduce poverty and to increase of agricultural output, capital in form of knowledge was transformed from state property into common property. The state farms, governed by the provincial level, after pressure from local authorities, were instructed to propagate rubber production amongst small-scale farmers. This included the provision of extension services in form of knowledge and expertise transfers and the supply of materials. Innovation spread mainly to the villages adjacent to the state farm near Mandian. Moreover, the Jinghong Tropical Crops Research Institute, established in 1953 opened their door to small-scale farmers. In the 1980s, about 5000 villagers were trained as agricultural village technicians for rubber production (CHAPMAN 1991:42). The attained knowledge enabled farmers, already in possession of labour and land as production capital, to use these endowments more efficiently than before, albeit with detrimental environmental effects.

Cash crop production remains one of the major pillars of Banna's economy. The 11th Five-Year Plan (2006-2010) of the Autonomous Dai Prefecture of Xishuangbanna clearly focuses on the task of increasing and stabilizing agricultural output and thereby improving rural livelihoods (GOVERNMENT OF XISHUANGBANNA DAI AUTONOMOUS PREFECTURE 2006). The Five Year Plan has strong influence on policies and activities of county and township departments. While the state farms played a major role in those villages suitable for rubber cultivation, the Department for Agriculture at its various levels was the most important actor in providing extension services to other areas. This included technology transfer and propagation of high yielding varieties of food crops and the expansion of cash crop production. For example, high yielding hybrid varieties of rice were propagated throughout the prefecture in the early 1980s to improve food security. Techniques, seeds and other farm input were delivered by the agricultural offices of township administrations. Sugar cane, tea and fruit, and in recent years bamboo, hemp and walnut trees were innovations which were also mainly introduced by government agencies. The introduction of hemp is an interesting example of how decisions on land use are negotiated amongst different actors. In accordance with the demand for the fibre factory in Menghai Industrial Area, which is partially state owned, a directive by the Prefecture Government is issued regulating the amount of hemp production, so that the factory's demand is met. Each administrative village in the highlands is obliged to plant a certain area of hemp. Bengan administrative village was given the task to grow 2500 mu of hemp. In return, farmers received financial and technical assistance from the upper level units, delivered by the township government and financed mainly through the Department of Finance and the Department of Agriculture of Menghai County.

Forest management

In the 1980s, the "Forestry Three Fixes policy" introduced a demarcation of collectively and state owned forests, which was, according to Sturgeon, an unprecedented activity (STURGEON 2005). State owned forests were placed under the responsibility of the Ministry of Forestry, which later became the State Forestry Administration. The responsibility

of the Department is a dual and contradictive one: on the one hand it is in charge of the protection and maintenance of remaining forests, with its success measured by indicators like reforestation rates. On the other hand it focuses on the economic aspects of forestry, valorising the abundant timber resources of China's Western areas (XU & RIBOT 2004). Beside the forestry departments at township and county level, the Administration of the Naban River Watershed National Nature Reserve (ANRWNNR/ANR) is involved in the management of state forests.³⁷ Here, the flexibility of the legal framework again becomes obvious: while in state forests belonging to Jinghong county, the ANR has the main responsibility, the responsibility for state forests of Menghai county remains with the forestry department. For example, different authorities with different objectives have led to differences in the implementation and supervision of the total logging ban which was declared in 1998 for Western China and also influences the formation of community forest management systems.

After the devastating floods of the Yangtze River, the Central government introduced a total logging ban for Western China in 1998 and launched the Sloping Land Conservation Programme (SLCP) the following year. These institutions had the objective to protect remaining forest resources and to convert fragile arable land into perennial land cover. The monitoring and implementation of those policies are both under the responsibility of the State Forestry Administration. Particularly the implementation of the logging ban had not been taken too seriously in Xishuangbanna, where priorities had been on increasing rubber plantation areas. The official land use nomenclature leaves room for this: rubber plantations, as perennial plants are classified as "economic forests" and therefore are counted as forests and are even financially supported through the SLCP.

Ownership of collective forests and wastelands passed over to the village collective in the early 1980s. From this, different management and tenure systems emerged at the local level. Parts of the forest and wasteland were leased to individual households, in form of family plots. Other parts remained under management along with collective use rights. The collective forests in particular suffered from degradation in the reserve. Even though usage and access is (nominally) regulated and monitored by the forestry department or the ANRWNNR, many local forests had been exploited due to lack of institutions regulating and monitoring sustainable use. In order to increase forest cover, the Forestry Department pushed the conversion of wastelands and shifting lands into rubber plantation. This was especially impacting the lowlands below the rubber line. Many areas of primary or secondary collective forest fell victim to rubber plantations with little opposition from the Forestry Department. Institutional mechanisms seem to have failed in some areas, while mainly in highland areas, the institutional framework and local management regimes fostered regrowth of natural forests at least in some areas of the reserve.

The Nature Reserve Administration (ANRWNNR)

Even though protection of natural resources and the environment is not a post-Mao concept, since the 1980s emphasis on protection has intensified at different levels, and has been institutionalized in form of nature reserves. The Naban Nature Reserve was established in 1992 as a provincial level reserve with very limited financial, personal and knowledge resources. The establishment of the Nature Reserve was an attempt at the

³⁷ The ANRWNNR will subsequently also be referred to as ANR, or ANNR.

supralocal level to protect remaining resources in the face of a growing population and the increasing demand for rubber and other natural resources. In the year 2000, it was upgraded to a national level reserve and in 2008, the administrative office was even upgraded to a bureau. The protection and sustainable management of resources has been neglected for several decades, ever since local, customary institutions and regulations on resource use broke down. Constitutionally, the Administration of the Naban National Nature Reserve (ANRWNNR) is bound to the Nature Reserve Law of China when designing and implementing the protection policies and measures. The ANRWNNR as an organization is at least theoretically one of the most important actors at both the collective choice and also operational levels of decision making on land use. The organization not only implements regulations within the reserve, but also forms and transforms institutions.

The tasks of the ANR are the comprehensive management of forest conservation, scientific research on biological diversity and ecology and community development. According to the concept of a biosphere reserve, the ANNR supports local people in building a more sustainable livelihood, for example by improving farming and forestry management or energy supply with biogas. This strategy of inclusion and harmony between the human population and natural environment is in contrast to conventional conservation concepts. Other strategies of conservation demand a complete withdrawal of anthropogenic influence from the area, excluding the local population. The organization of ANNR itself follows the typical Chinese communist administrative hierarchical structure, with administrative/scientific and political departments on the upper level of the hierarchy. Based in Jinghong, the Administrative office has a staff body of approximately 30 (as of 2008), mainly professionals. Another 20 staff, mainly local people who received some training work within the Reserve area. In 2009, the whole Reserve was monitored out of two stations, Guo Men Shan and Mandian station. Two more stations, one on Bengan area and one at the conjunction between the Mekong and the Naban River are under construction. A major characteristic of the ANNR approach is the concept of community co-management, which allows the communities to participate in the decision making and management process. The relationship between reserve staff on the operational level and the communities will be discussed later.

The Nature Reserve has also been subject to international organizations and their efforts. Currently, parts of the Reserve are being integrated into the GMS Biodiversity Corridor Strategy of the ADB. Furthermore, the ANNR is influenced by other external actors, such as research organizations or the German *Gesellschaft für Technische Zusammenarbeit* (GTZ), which implemented an agro-forestry project within the NNNR between 1998 and 2004. These different influences from the local to international level and experiences on the ground enabled the ANNR to draft a manual of rules and regulations adapted to the special situation of the Reserve. According to a senior staff member, the draft has been submitted to the upper level for approval and is of great importance to the successful management: "So far we are governing NNNR with the National Nature Reserve Law of China. (...) Actually the National Nature Reserve Law of China is not suitable for NNNR." (Mr. Cao, ANRWNNR senior office staff, Jinghong).

Even after three years of research within the Nature Reserve, an organizational analysis remains difficult, due to a lack of data and information.³⁸ However, it was possible to draw some conclusions on the issue of why institutionalization of appropriate pro-

³⁸ Interviews with ANRWNNR management staff were rarely possible.

tection and management structures remains a difficult task. The capital theory of Bourdieu offers a suitable framework to analyse the organization within the social sphere of the Nature Reserve and beyond. The endowment with different types of capital determines power and capabilities of an actor (BOURDIEU 1992). The main types of capital which are considered important here are social and financial capital. Rather, social capital is analysed on different levels of the action arena. On the operational level, social capital is important for liaising with local actors, for example when institutionalizing the community co-management. On the collective choice level of decision making, social capital, or more precisely political capital is an asset when it comes to influencing legislative and executive processes and securing financial capital and support.

Since the founding of the reserve, protection of biological diversity receives more political attention and also more funding. Environmental concerns and increased attention to poverty reduction and community development have led to an improved financial situation. The ANRWNNR was able to employ more staff in the office and on the ground and has upgraded and added facilities. Nevertheless, there are still gaps in endowments. The reserve area is monitored by twelve forest rangers only, which is limited capacity for such a large space. Also, the administrative office staff in senior positions work long hours to fulfil their work loads. Apart from the staffing, financial capital for projects is limited, for example budgets for remuneration of farmers for environmental services or sustainable management. When farmers receive compensation for only for a limited period, they are often less or even not willing to maintain certain practices without the assurance of further compensation after the project has ended. This means that certain practices are not institutionalized but only temporarily adopted. Other projects, like the installation of small biogas digesters could only be implemented in two villages due to a lack of funding. Not yet being able to generate income, for example through lack of fees from visitors, the ANRWNNR is completely dependent on upper level state agencies, thus competing for funding with other Reserves in Banna and Yunnan.

Another form of capital, which is accumulated through staff and financial investments is the knowledge base, which has been constantly growing. The importance of knowledge determining the success of organizations and their role in the institutionalization process is highlighted by North: "The kinds of skills and knowledge individuals and their organizations acquire will shape evolving perceptions about opportunities and hence choices that will incrementally alter institutions." (NORTH 1995:23). When the Reserve was set up, little was known about the flora and fauna of the area, which contains some of the best maintained forests in Xishuangbanna. It took years and much effort to gain scientific knowledge about the ecological diversity of the NNNR. The more floral and faunal diversity, particularly endangered species were found within the Reserve, the more attention and importance the area gained. The NRWNNR is now a destination for national and international scientists to do research and exchange knowledge. This knowledge has enabled the organization to participate and become visible in spheres of discourse within the national and international scientific community. They also reach higher decision making levels, which further adds to social capital. Furthermore, the ground staff are increasingly well informed, transmitting knowledge to local communities. Over the last decades, not only the scientific knowledge of NNNR staff has been constantly growing. The understanding about social and cultural aspects, including traditional environmental knowledge about the area has increased and is more valued. Local knowledge has transferred from the local people and local staff to the administrative

staff. Combined with scientific knowledge, it feeds into the decision making and planning of better adapted projects and activities within the Reserve.

Social capital has accrued on several levels. Since its foundation in 1992, the Nature Reserve NNR was upgraded twice. The recent upgrade from office to bureau status has not only opened more financial channels, but also improved the Reserve Administration's political position. At least from a formal point of view, it is now equal to the forestry bureau in power and influence, which facilitates enforcing their claims and interests. However, the formal nomenclature does say little about actual power structures within the Chinese state structure. These become obvious when conflicts of interest with economic oriented state agencies appear. Government actors' strive for economic development is often in favour of those aiming to valorise natural resources regardless of environmental concerns. A good example is the Bamboo plantation in the Western Part of the reserve. Even though the plantations are inconsistent with the Nature Reserve Law of China, the local governments gave permission. The formal authority of the ANRWNNR was overruled by other actors. However, with the promotion of the ANNR to a bureau, a new leader was installed, a highly skilled professional, increasing social and knowledge capacities of the organisation. As former staff of the Yunnan Environmental Protection Agency, he has good political contacts and networks on provincial level and above. But also on the operational level, social capital, the fundament of community co-management has considerably enlarged.

„I can still remember the first time we went to a Lahu village in 1993, two years after NNNR was set up. We went to Huilao and all villagers started to hide behind their houses when we were still 400-500m away from village. They only left the very old people and kids behind. It's better now - they don't run away even if foreigners go to their village.“ (Mr. Yan, ANRWNNR official in 2009)

This anecdote told by a high ranking staff member illustrates how much effort it took to build trust and enhance relationships with the inhabitants of the reserve. Over the last few years, the ANNR as an organization has improved its social network within the NNNR through personal presence and involvement of charismatic people. For example, reserve rangers were elected according to their reputation and status in the community, such as village heads or other members of the village elite: through personalization, the organization started to become rooted within the social sphere of the reserve. Through the presence of and discussions with upper level staff in the villages, their reputation has improved, certainly aided through direct financial assistance with community development projects. This issue however will be elaborated in a further chapter. Cooperation and trust is an important aspect in the process of institutionalization. Particularly in the process of institutionalizing top-down rules and regulations, participation of local people strongly depends on the credibility and legitimacy of the actors, which seem to be based on trust.

4.3.3 The operational level

Institutions on the operational level are those institutions which directly influence and shape local resource use and management and thus directly form the landscape. Some of those actors and organisations who constitute and shape institutions on the collective-choice level also appear and act on the micro-level. Apart from the individual farmer and household, village leaders, traders and increasingly so reserve rangers are participants on the operational level.

While the ANRWNNR and their professional staff form regulations and projects on the upper level, the rangers mainly act on the local level. Their duty is to transfer information, monitor compliance and report infringements if necessary. Rangers are employed by the government, receive training and a monthly salary. As middlemen within their communities, the forest guards are in an ambivalent situation, similar to that of the other village officials. They play a “double role” and occupy the interface between the interests of their employer, the ANNR and the interests of their village or even their family. An example illustrates this conflict: one of the rangers, during his night watch at the Mandian station at the entrance of the reserve let a truck pass through illegally. Driven by a close relative of the guard, the truck was loaded with illegally logged timber. Whether this was a planned coup or whether the ranger decided in favour of his relative on the spot is not clear, but it shows the difficult situations that the rangers are exposed to. Being affiliated to different groups can create conflicts like loyalty and open opportunities for corruption.

Forest guards are carefully selected from within the communities. Personal characteristics and a good standing and reputation within their community are the most important selection criteria. Sometimes they also hold or previously held an official or elected position. Moreover, their reputation is often based on knowledge – many of the local ANNR staff have profound knowledge about the area and traditional knowledge on the local environment. A good example is Mr. Li, who has only recently retired as a forest guard in Xiao Nuo You Shan Zhai. He was the former village head in his village and is well respected as a traditional healer, even beyond the village. Due to his open personality and his tremendous knowledge on flora, fauna and geography, he became one of the main informants for many of the researchers within the LILAC research project.

Gibson and Becker have pointed out three conditions for sustainable management of local resources: “(1) locals must value the resource, (2) they must possess some property rights to the resource, and (3) they must construct local-level institutions that control the use of the resource.” (GIBSON & BECKER 2000:135). As important actors in the community co-management strategy, rangers try to raise awareness of the value of natural resources, particularly forests; they also facilitates (re-)establishment of local institutions concerning access and use rights. The installation of forest guards as local monitoring actors of the ANNNR who are rooted within their communities is an important factor to gain trust, credibility and legitimacy among the villagers for the new organization and the rules and regulations.

Similar to the Reserve ranger, the village head is an interface between villagers and upper level government. Thus he is in charge of conveying rules, regulations and information to the base. In return he needs to articulate villagers’ interests to the upper levels. For example, in the reserve, village leaders are liaison persons for the staff of ANRWNNR. The attitude of the village leaders is, according to ANRWNNR officials, crucial because of their generally large influence over the community. Depending on the village head’s attitudes and interests, the community is inclined to comply with regulations and participation in new projects or not. Thus he shapes the villagers attitudes and behaviour: For example, the implementation of local forestry regimes is only feasible if village heads have a certain level of awareness, convince the community and exert a certain amount of (social) pressure to enhance compliance with the regulations. These differences in attitude become obvious when comparing different villages in the north-

ern part of the reserve. Villages with similar environmental conditions show different approaches to managing their forests. One village has a well-tended collective forest, even though the village has relatively little land per person. The adjacent village, which initially had more land available, has replaced their collective forest almost entirely with perennial cash crops. When upper level agencies aim to introduce innovations, i.e. new crops or new technologies, village heads are obliged to take part in the trials and experiments. For example, when Mengsong township introduced hemp to Bengan villages, except for the village head and other members of the village leadership team, participation was optional for farmers. Despite the risks involved, the village elite must take up the position of role models in order to convince the rest of the community. The attitude of the village head has huge influence on the adoption of new practices and institutions. Regarding land use, one of the duties of the village administration and the village leader is mediation of conflicts over resources at different levels. Village leaders, at least if well respected, are asked to settle land disputes between different households within the community, for example when issues over inheritance of land emerge. During the last land reform, which again demarcated state from private land, many disputes over boundaries arose. For the first time, areas were measured with technical and precise equipment, (i.e. GPS- technology) by the local authorities, in this case the heads, as intermediaries had to engage in conflict resolution.

4.4 Institutions and land use on the operational level

4.4.1 Shifting perspective from the social to the geographical space

Analysis of actors and institutions created on the constitutional and collective choice level has shown that limited room is left for decision making on the operational level. Upper level actors and organizations determine to a large extent institutions governing land use in the Reserve. While the analysis of the previous chapter focused on the social space, within which different participants interact and negotiate in different action arenas, impacts on the geographical space also needs to be considered. The geographical space is predefined through physical, (i.e. environmental) conditions. Interplay of anthropogenic influences and those environmental conditions has led to the emergence and the transformation of cultural landscapes. In the Nature Reserve, different landscapes have evolved and form socio-ecological niches, which have undergone rapid transformations in the last decades. Particularly considerable is the divergence of landscapes and landscape transformation between upland and lowland areas, clearly divided by the rubber line. Different action arenas and actors on the local level need to be analysed in order to understand processes and impacts of landscape transformation and environmental change. Here, borrowing a methodological framework from the field of regional political ecology lies at hand, where Robbins demands that:

“investigating into system changes that attribute environmental transformation to social and political forces (...) researchers must:

- Establish the overall type (...) of possible multiple environmental changes
- identify the drivers of that change, human and non-human; determine the environmental context in which changes occur, including pre-existing variability and dynamics
- explore specific impacts of various practices in terms of their intended and unintended effects (...)”(ROBBINS 2004:105)

The levels of constitutional and collective choices were analysed through an actor centred perspective. In order to explain actual changes within the geographical space, the analysis of the operational level shifts to a spatially centred perspective. The geographical space, or landscapes of the Nature Reserve are divided into different action arenas, which are analysed. Division into action arenas is based on altitudes and the Chinese land classification system, which is related to functionality of the geographical space.

Over the last decades, communities within the NNNR have taken different paths of social and economic development, which are strongly influenced by the material, i.e. environmental conditions they are endowed with. A most influential factor is altitude, which constitutes the environmental suitability for rubber cultivation. Analysis of socio-economic data and land use maps support the concept of a rubber line, which segregates those villages occupying land beneath 1,000 meters (suitable for rubber cultivation), and those with land mainly above 1,000 meters, an environment which is still unsuitable for rubber plantations.

	Pabin (mu/person)	Mandian (mu/person)
Average availability	0.42	0.8
Minimum availability	0.18	0.2
Maximum availability	3.16	1.58
Standard deviation	0.58	0.36

Figure 30: Distribution of irrigated land in Pabin and Mandian in 2008 (Village statistics 2009)

The cultivation of rubber, as will be shown, has a very strong influence on different dimensions of space. The rubber line is only partly determined by natural factors. It is a fluid boundary, because intensive effort is undertaken to breed rubber varieties suitable for higher altitudes. It also divides the social space of the Nature Reserve, thus these two geographical and social spaces of highland and lowland NNNR will be looked upon separately. Those considered as lowland villages have access rights to land below 800-1000 meters. The land use categories under scrutiny, based on official Chinese classifications and own research and preliminary results from subproject ECON-B outcomes are: irrigated land, dryland, forest land. Communities classified as highland villages only have access rights to land above 1000 meters and are analysed within four prevailing land use categories: irrigated land, dryland, shifting land and forests. After the institutions which influence the NNNR in general were analysed, the analytical focus of the remaining chapter will look at particular institutions, their transformations and the impact on landscapes, environments and to a limited degree repercussions on the social sphere.

4.4.2 Institutional structures and processes in lowland communities

Irrigation land

When entering the eastern part of the NNNR via the main road, the most striking features are the ample terraces covering the bottom of the valley. Given that arrival was during the appropriate time of year, between May and August, the valleys resemble a vast green sea. The paddy fields, typical for the Southeast Asian and southern Chinese countryside have always been the backbone of Xishuangbanna's livelihood, and moreover of its socio-political structure as laid out in Chapter 2. Rice cultivation in the nature reserve, mainly produced for subsistence, is still one of the major land use practices. Even though the meaning of rice is declining, both in economic as well as symbolic terms, it remains, even in the more affluent lowland communities, an important product.

Information on traditional institutions concerning irrigated fields is only available for Xishuangbanna in general; those available for the villages in the Naban watershed are only fragmentary. According to contemporary witnesses, paddy fields were limited due to a lack of labour in the past. Only after considerable population growth in the 1950s and 1960s, increasing labour availability allowed the expansion of irrigated land. With the introduction of communes, the power of decision making was removed from local actors and institutions were homogenized throughout the country. Institutions regulating access to land, tenure-ship, techniques and technologies have been and still are mainly decided at the collective choice level or above. The action arena of irrigated land is in many ways dependent on regulations from actors above, with limited options for local adaption.

Since the introduction of the HRS, all villagers received equal use-rights within the collective/state property regime. In the wake of decollectivisation, the irrigated fields of a collective (namely a natural village or a village group) were distributed amongst all villagers at an equal per capita share. In Mangfei, a village without geographically anchored traditional use rights and ownership structures, distribution of land was done by lottery. In other villages, the concept of ancestral territory was taken into consideration and households had a kind of pre-emptive right to their traditional family land. According to the size of the collective land and the population of each village, the per capita amount differs between the communities (see Figure 30).



Figure 31: Resettlement village viewed from the northern fringe of Mandian (2009)

Tenure security for the paddy fields is less stable in comparison to other land use types. In many villages, redistribution of land occurred before the official end of contracts. In order to guarantee a basic support for each villager in a growing community, adjustments were undertaken, and access rights to paddy fields were rearranged. The decision making power in this case lies with the village committee. People lose their right to paddy land once they change their *hukou*.³⁹ New residents who migrate into the village and start a new household however are not endowed with the same amount of paddy fields as the “long-term” residents. For example, Mrs. Yu, born in Mandian village lost her access right to paddy fields when moving to Naban village after her marriage.

³⁹ *Hukou* is part of the Chinese household registration system and can be translated into residence permission. A Chinese citizen either holds an urban or an agricultural *hukou*, which entitles him/her to access to public services and in case of the agricultural *hukou* also to some land (see also FAN 2008)

When she and her husband returned to Mandian several years later, she only received a few square metres of paddy field, much less than the village average and not enough to cover subsistence demand. Her husband, employed by the ANRWNNR is not eligible at all for access to local paddy fields. However, the flexibility of access-right handling and the decision making power of local governors may facilitate at least a minimum degree of equity in access and basic support.

Tenure ship institutions on paddy fields and irrigated fields have developed into quasi-private and collective property regimes. After land distribution was completed from 1982 to 1983, households were encouraged to reclaim fields and increase rice production. Households and families which had received plots potentially suitable for irrigation and which possessed enough manpower, could extend the irrigation scheme and open new irrigated land. The land, which was reclaimed by individual households, is not subject to redistribution. Dating back to the 1980, this informal institution, following the new achievement principle, explains the strong differences in access to irrigation land of households in Pabin. For example, the vice-village head's household owns 15 mu of paddy field, of which most is privately reclaimed. The local population considers this land as private land, beyond the reach of the collective or other state agencies.

The national framework aiming at food security and maintenance of subsistence turns land classified as irrigation land into one of the most stable land use categories. Even though the actual usage to produce paddy rice may vary or decline, the law is rather specific in stipulating that irrigated land cannot be re-dedicated to other land classes or be permanently used for other purposes. According to the strategy of food and grain security on the national level, for every piece of paddy land used for other purposes, an adequate plot of the same size within the same township needs to be rededicated as irrigation land (Mr. Yang, head of the Environmental Department of XBN Prefecture Agricultural Department). While this rule seems more necessary for irrigated areas at the fringe of urban areas like Jinghong, where land has become a highly priced commodity, there are processes also in the rural areas that place irrigated land under pressure.

One example showing the conflicts over land use, where local interests in subsistence and national interests in land use collide is that of Mandian village. In favour of infrastructure expansion, higher interests and objectives of national importance supersede local and even national rules. In 2009, the new hydropower station on the Mekong, one of the largest hydropower facilities in the country with a dam wall of 108 meters was taken into operation. The damming of the Mekong River led to a rise in water levels, also affecting the tributaries, including the Naban River. Villages along the Naban River, for example Naban He Shan Zhai were forced to relocate. Inundation did not only affect their settlement area, but also the irrigated fields and parts of their rubber plantations. The hydropower company (Yunnan Hydro, a state owned enterprise (SOE)) constructed new, modern housing for the village, for which parts of Mandian's paddy fields were expropriated. Mandian villagers apparently received compensation, however no one was willing to give details on the exact conditions. This shows that informal as well as formal institutions are still subject to change in face of the interests of higher powers, in this case being the State Land Department, which was responsible for addressing rededication and resettlement issues. The construction of the hydropower station and its consequences for the villagers, in particular, the loss of their capital for basic subsistence

(even though protected by national law), were all subjugated to national and financial interests in electricity generation.

The externally prescribed institution concerning use of irrigated land is not only eroded through supra local actors alone, but also through informal, local arrangements for land lease. When travelling along the Naban or Mandian Valley, the sea of green is sometimes replaced by a sea of plastic, transforming large areas of the valley bottom into temporary greenhouses. Most irrigation fields are indeed still used for rice cultivation for at least one harvest per year. The second period is becoming more often used for the production of other crops, like capsicum or watermelon. Crop rotation in paddy fields is not a new or modern phenomena, but has been identified as a traditional practice, at least in Dai villages closer to the old centre (see Chapter 2). However, the circumstances have actually changed. Previously, local farmers cultivated alternative crops to diversify subsistence base and produce surplus. Now the responsibility has been handed over to external investors through short-term leases over individual plots. Previous attempts of local farmers in Mandian to cultivate capsicum, encouraged and supported by the government, have failed, due to lack of expertise and marketing structures. Instead of cultivating by themselves, many farmers rent out their land to external business people on short term lease contracts, mainly for one production season. These contracts are based on informal rules, which provide hardly any legal security for the farmers. However, some of these schemes actually help to improve the situation of individuals or even the whole community.

In Mangfei for example, major parts of paddy land were leased to a businessman from Henan Province for one season. In terms of financial compensation, the farmers did not profit individually. The collective decided to lease the collectively owned paddy fields to receive compensation for collective and public benefit: the businessman, in return for the use of land invested into the upgrading of the road leading to the village. A team of migrant workers was brought to Mangfei to do the field work. Local villagers were not employed, so neither a transfer of capital through income nor of expertise occurred. In the case of Naban an external investor has also leased paddy fields on a short term basis, not from the collective but from individual land owners. Villagers are employed on a daily basis as farm labourers to work in the water-melon fields, earning 25 Yuan per day. This provides some extra cash income opportunity for farmers in the non-rubber season. Mandian again shows a different pattern. Individual plots are leased to an external farmer, who temporarily moves into the area to work in the fields, without providing wage labour opportunities.

The new lease systems certainly bear opportunity and risk for farmers. Short-term land lease offers additional, albeit unstable opportunities to increase farm income through rent seeking or wage labour. The temporal and informal nature of contracts leaves room for flexibility concerning production decisions. The cultivation of alternative crops actually only occurs for one harvest period and still allows annual cultivation of rice. This is different in other places of Xishuangbanna, where paddy land is used for banana plantations. These plantations are intensive in knowledge and financial capital and are considered as risky. The other side of the coin is the loss of influence over chemical input, which can in horticulture be quite considerable. Farmers neither know, nor have control over the pesticides and fertilizers which are applied by the leaseholders, most who do not have an interest in the long-term health of the soil and water resources, and are rather interested in short-term yield and profit maximization.

One major change was the introduction of hybrid rice varieties in 1983, which occurred all over Xishuangbanna. Before hybrid rice was introduced, numerous different varieties of rice were cultivated, among them many varieties of glutinous sticky rice. These varieties have become extinct, except in some villages, where minute amounts are still cultivated for ceremonies and ritual use. As a consequence of the disappearing traditional varieties, food habits changed and people lost part of their food sovereignty, at least concerning quality. The new rice is still not favoured and particularly older people dislike the new variety, but have little choice. The introduction of new varieties brought about more changes. Pesticides and chemical fertilizers are necessary to cultivate the hybrid varieties, preventing loss of harvests through pests or soil depletion. Purchase of farm chemicals is required, commonly financed by income generated with the sale of cash crops like tea and rubber. In order to encourage farmers to maintain rice cultivation, a compensation or subsidy is paid to farmers. They receive 15 Yuan as subsidy per mu of paddy field. As a direct financial transfer, the subsidy is not linked to the actual use of land for rice cultivation, neither is payment bound to the purchase of farm chemicals used at the plot.

In the 1990s, a process of mechanization started spreading from Mandian village northwards. Mandian was the first community to introduce the three-wheel tractor, which can also be used for ploughing. Besides engagement in rubber cultivation as early as 1987, Mandian profited from tourism in the 1990s, with the nearby waterfall in the forests as main attraction⁴⁰. Tourists became an important source of income, passing through the village on the way to and from the waterfall. As a result, the additional cash income was partly reinvested into farming. Subsequently, other villages could increase their cash income from revenues of rubber production, and at least partly reinvested the profits in farm machinery. Now, most households in the lowlands own at least one three-wheel tractor. Recently, in An Ma Lao Zhai village, the first large four-wheel tractor has come into use. Combined harvesters have not been introduced (yet), unlike for example in the huge rice producing areas of Northern Thailand, where their introduction had severe impacts on the socio-economic structure (RIGG 1997).

As a major side effect, mechanization in NNNR led to the decline in animal husbandry, namely buffaloes, which were once most important for transportation and ploughing paddy fields. Only few buffaloes are left in the lowlands, since topography allows for construction of terraces wide enough to use machinery. Some households keep a buffalo or two and rent them out to other households, whose paddy fields are unsuitable for the use of tractors. In traditional rice cultivating systems, buffaloes were an important source of natural fertilizer. Grazing in the fields after harvest, they fertilized the paddy fields with manure. Thus, the abolishment of buffaloes has, on the one hand increased the demand for chemical fertilizer input. On the other hand, it has changed labour demand on households for husbandry activities. While it sets free certain labour capacities, there is also negative impact. Tending and herding buffaloes has been the traditional role of senior villagers, who could fulfil this time consuming task with little physical strain. As a negative social consequence, elderly people have lost some of their tasks, which in the past had provided them with a purpose and structure to their daily routines. Rice cultivation has always been a collective task. Families, neighbourhoods, and later on working groups have shared and exchanged labour in the

⁴⁰ The Mandian waterfall was a dedicated tourist destination after tourism emerged in the 1980s. After the construction of large and easily accessible tourism spots like the Elephant Valley, hardly any tourists found their way to Mandian.

different stages of cultivation, such as preparing the fields, transplanting rice and harvesting. To enlarge irrigated areas, upper level governments financially supported the expansion of irrigation schemes.⁴¹ Nevertheless, installation and maintenance of irrigation schemes remains a collective task, coordinated by the village administration. While individual households are responsible for the smaller channels on their fields, the village collective cleans and maintains the major installations and channels together. One person from each household needs to deliver collective work a few days per year for this task. Also the production process has only changed slightly: transplanting and harvesting – both activities with peak demand in labour - are still activities subject to mutual labour exchange.

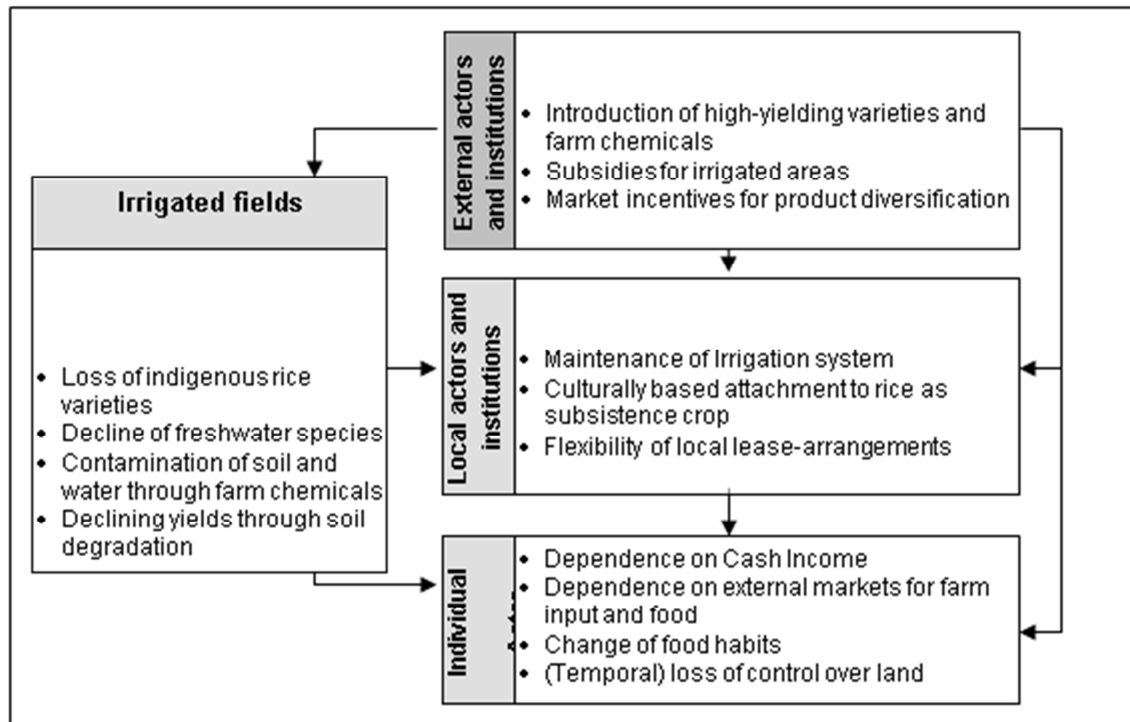


Figure 32: Human-environment interactions in the action arena 'irrigated land' in the lowlands

Through introduction of machinery, labour intensity has decreased and so has the need for mutual labour exchange. As reported by villagers, the gender aspect does not any longer play a major role. Transplanting rice for example, traditionally a typical female task, is now undertaken by both men and women. The decline in significance of rice cultivation seems to be accompanied by the decline of spiritual values. The traditional institutions which bonded the spiritual and material realm of rice production seem to have lost much of their earlier importance. Rituals and practices, which played a significant role in pre-communist Dai society have not been resumed since relaxation of religious bans. The above mentioned obliteration of gender roles in rice cultivation is only one of the more obvious indicators thereof. The material space of rice cultivation is despiritualized, the practices of rice cultivation do not seem to any longer bear their traditional meaning. However, in both the Dai villages, two important festivals, the Close-Door and Open-Door festivals are celebrated. They mark the beginning and the end of the rice growing season, starting with celebrations at the temple and following more mundane festivities.

⁴¹ The Government's policy to increase food production includes financial support for the installation of new irrigation schemes in Xishuangbanna. Whether communities in NNNR have been financially supported could not be elicited.

Between these dates in July and October, activities like marriage and construction of houses are not permitted, in order to concentrate available labour on agricultural tasks. Many households still maintain the cultivation of glutinous sticky rice in a small section of their paddy fields. Packets of sticky rice, wrapped in banana leaves are brought as



Figure 33: Rice terraces and rubber plantations of Mandian village

offerings to the temple and are handed out as mutual gifts. In terms of agro-biodiversity, the introduction of hybrid species has led to a great loss of traditional species which had been locally bred and adapted to the local conditions over centuries (GREENLAND 1997). In his work on biodiversity in the paddy fields of the NNNR, Prechsl concludes that the floral diversity has significantly declined.⁴² All plants

except rice are considered as weeds and combated by herbicides. The faunal diversity has also suffered. As reported from other parts of Banna, paddy fields as habitat of fresh-water animals like crabs, molluscs and small fish have dramatically declined in quality, due to the destruction of the agroecosystems, which suffer from the input of farm chemicals (HALWART 2003). Aquatic animals from these “fish-cum rice-systems” once provided an additional food source for local people, but have now disappeared from the ecosystems and the diet.

The introduction of high yielding varieties and the subsequent increase of mechanic and chemical input also has an influence on soil properties, which cannot be discussed here due to lack of data. For example, the use of farm chemicals for rice and other cash crops has led to an increasing influx of chemicals into local waterways. The content of farm chemicals has led to declining water quality in the Naban river. Preliminary results indicated that the main source of pollution can be traced to an overuse of phosphorus ferti-



Figure 34: Mangfei farmer preparing rubber tree for tapping

⁴² Personal communication with Uli Prechsl, University of Hohenheim in January 2008.

lizer (ZHANG ET AL. 2010). The alteration, i.e. the intensification of rice production has led to an increased output per mu. However, first cases of declining yields due to soil degradation have been reported.

Non-irrigated agricultural land

The term "non-irrigated agricultural land" is an amalgamation of different types of land in the Chinese classification system, namely dryland and former wasteland. Most of the land classified as wasteland is land which had been reclaimed during the communal period. It was either used as shifting cultivation land or was left unused because the reclaimed area had exceeded the commune's labour power. Traditionally cultivated crops were predominantly corn and upland rice, depending on soil properties on a shifting cultivation or annual cultivation scheme. In the geographical space, it is hardly possible to distinguish between areas categorized as dryland and wasteland, since boundaries are blurring. On a formal level, the distinction between the two has also lost meaning. In many of the new land contracts, the category wasteland has been mainly replaced by the category economic forest, or in some cases even more precisely, rubber fields, according to current usage. This indicates the extent of transformation which has occurred in these areas. Like irrigated land, when the HRS was introduced, dryland in all its varieties was leased to individual households. Each household was each allocated an equal lot of dryland, and in some communities also a share of bushland or degraded forest which households were allowed to or even encouraged to ameliorate and put under production. In comparison to irrigated land, the contracts between households and the collective are more stable: redistribution is neither a legal nor an informal option. The first term of contract lasted from 1983 to 1998 and the second term ceased in 2008. Hereafter, the contract period was extended to 30 years, with the new contracts lasting till 2038 (however this period seems to differ between communities). Even though the land is formally still property of the collective, the new contracts come very close to endowing the farmers with de facto private property rights. Certain informal practices, which have been subsequently formalized have strengthened land holder rights, including transferability of land and use as collateral.

Transferability, which according to Ostrom is one of the most important characteristics of private property, has been strengthened. Contracts on dryland and forest can be passed over to other members of the household. Irrigated land, which is potentially still subject of redistribution, is exempted. When the initial contractor (i.e. the household head dies), the contract remains with the household and is taken over by the new household head, mostly the oldest son. Moreover, when children leave the parents' household, land contracts may be transferred.

On the practical level, this is not a new institution, since it has been practiced by farmers for many years, albeit on a small and also more local scale. Temporal relinquishment of land, particularly for other households in the community or members of an extended family, mainly in exchange for part of the harvest, is an old informal institution. In recent years however, larger plots, mainly rubber plantations, are sub-leased or even sold on a long term basis in exchange for money, not seldom to persons who are not part of the community. In recent years, a legal framework was created, which allows farmers to use the farmland as collateral for credit. However, research has shown that none of the households has made use of this opportunity in lowland NNNR. Moreover, farmers are allowed to sub-lease their plots.

Liberalization of land transactions has various consequences for the local communities. The long term contracts are supposed to increase land stewardship, and the farmers' sense of security over tenure. After perpetual conflicts over land during the last decades, many farmers still express their insecurity over the resource which is the foundation of

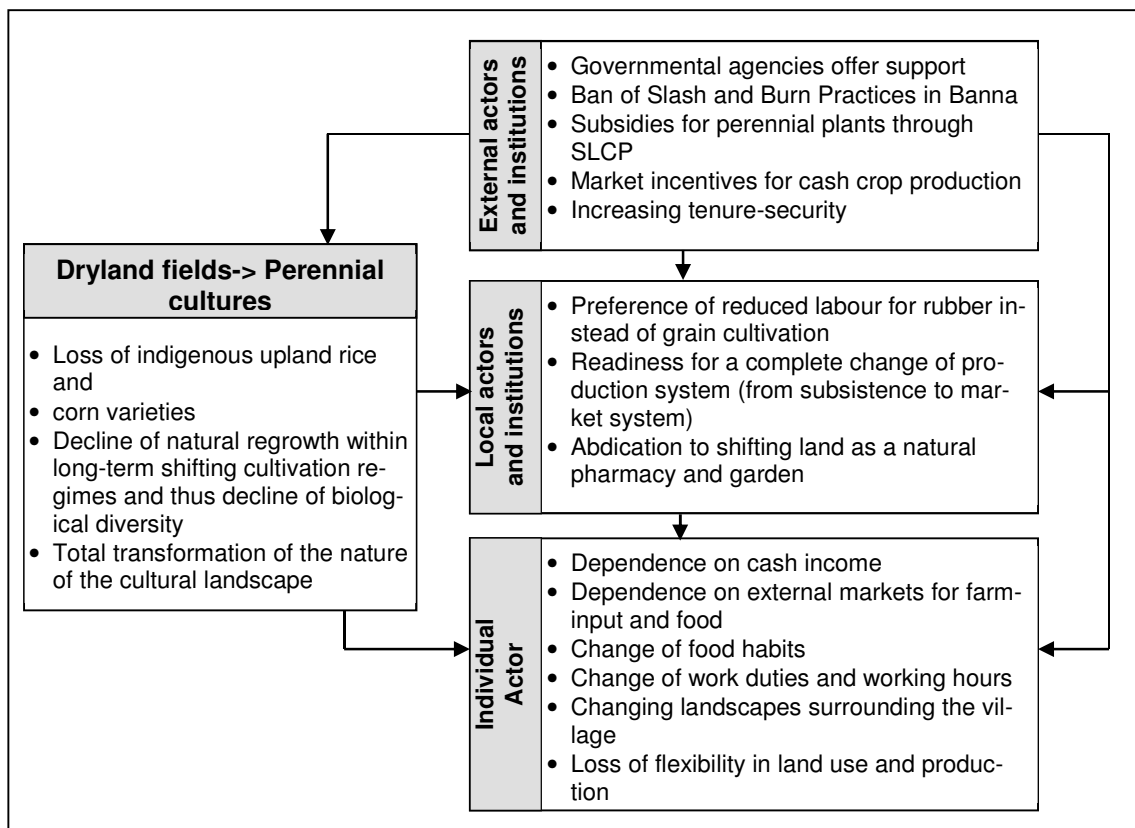


Figure 35: Human-environment interactions in the action arena 'dryland' in the lowlands

their livelihoods. The transformations of production practices and thus landscape classified as dryland have been most profound through lowland NNNR. There was an almost complete shift of land use and land use practices from annual or rotational crops to perennial crops. Traditionally, rain fed agricultural fields were used to produce upland rice, corn and other annual crops, which added to subsistence supply, either for direct consumption or corn for animal fodder. The lowland landscape now looks completely different from the typical mainland Southeast Asian patchwork landscape, which is shaped by dryland or shifting cultivation systems. The landscape is rubber dominated. Rubber plantations start directly at the valley slopes, with paddy fields passing directly into rubber trees. Apart from rubber plantations, the areas covered by tea plantations have also slightly increased.

Land use types	Number of species
Forest	877
Rubber (young)	389
Fallow	216
Tea	100

Figure 36: Species in different land use types (LIU 2010A)

Although attempts to cultivate rubber were already undertaken in the 1970s, they failed due to lack of technical expertise and interest in the new crops. A former village head explains: "First rubber was already planted in 1975, about 10 mu per family, but the buffaloes were not guarded well and ate up the saplings." (Mr. Dao, Mangfei, born in the 1950s).

When the farmers recognized the opportunity, i.e. the economic viability of rubber, first trials were undertaken in the lowland villages close to the State Farm. These villages,

among them Mandian, Pabin and Mangfei are today the villages with the highest household income.

Rubber cultivation is an activity demanding rather little input and labour, at least compared to other agricultural practices. This decreases the work load of farmers. On steep slopes, terraces need to be constructed and maintained, while on slopes with less inclination, this procedure is not necessary. Once a plantation is established, production, in comparison to other crops like upland rice or corn is less labour intensive. The main work is the tapping of the tree in a two to three day interval, over a period from April to November. Tapping requires only a few hours of labour per day. However, the rubber needs to be tapped during the cool hours of the early morning, before nine or ten o'clock, depending on the season. An interesting example for the development of new practices is the farmers' approach to the rubber pest which had affected large parts of Banna in 2008. Mildew hit large parts of the rubber plantations in the Reserve area and when the tapping season had started, yields were reduced and demand for pesticides increased. The only remedy known and used is sulphur, which is applied to the leaves of trees with a dispenser. During this period, sulphur, which is regularly supplied as a pesticide became a rare and expensive good in Xishuangbanna. The coping strategies of different communities are noteworthy, because they differed greatly. In many villages, an individual strategy was chosen: every individual household took care of themselves, even for purchasing of sulphur and collecting information on the disease etc. In Pabin, where the village head has particularly good connections to the rubber state farm in Gadong, the village head used his good relations. He could secure a supply of sulphur for a good price for the households of his village and sent his son, who is one of the few people with a professional technical background on agriculture in the NNNR to receive information and know-how in order to pass it on to the villagers. A third approach can be found in the DNY administrative villages, which are part of Menghai county. Since villages and farmers of Da Nuo You have only recently become involved into rubber production, expertise is rather limited. Thus the Menghai County Government and Mengsong township government intervened and summoned a village leader meeting. During this meeting, technical experts from the agricultural bureau lectured the village heads on pest management and supplied technical advice. Villagers were offered to purchase their supply of sulphur through the government store at a discount price. Moreover, village heads were encouraged to form a cooperation to purchase and handle machinery for pest management. Particularly in Mengsong Township, expertise with rubber is still limited and the government wants to maintain rubber farming in their area and thus support their farmers accordingly. In Gaza township, where rubber plantation has a longer tradition, farmers are supposed to be more self-reliant. In contrast to irrigated land, dryland is not, at least from the government perspective, under pressure to be maintained as a base for food production. Thus, farmers are allowed to, or even encouraged to shift from annual to perennial crop production. This follows two rationales: an increase in cash income, i.e. to increase value added from the land, and also an attempt to improve the environmental situation in mountainous terrain through the cultivation of permanent crops. For the second goal, a nationwide programme was introduced in 1999 and also implemented in NNNR to increase the rate of forest cover through the plantation of perennial cash crops.

This strategy to increase forest cover followed both national and international pressure to increase forest cover on a large scale. For example in Pabin, farmers received

financial and technical support for establishing more rubber plantations on dryland and wasteland through the SLCP (Slope Land Conversion Programme). In 2003, five households received subsidies for planting rubber trees. The ecological changes within the area after the transformation from annual or rotational cultures to rubber or tea plantations are difficult to assess. As noted before, the changes are visible on the landscape level: corn and upland rice fields have subsided to rubber and tea plantations. The degree of biodiversity loss is according to new, preliminary results of the ECOL subproject - various. The impact on biodiversity loss is influenced by a variety of factors, such as the type of previous land use, previous intensity of land use, input of farm chemicals, and fallow periods, etc. The decline of biological diversity resulting from the replacement of dryland or shifting cultivation systems with rubber plantations proceeds gradually. For example, first results show that biodiversity, especially in younger rubber plantations is higher than in annual cropping systems, with varying quality and quantity⁴³. In older rubber monocultures, the diversity has dropped drastically. For this, a bundle of factors be held responsible, amongst them increasing shading of the ground, weeding, chemical input, and gradual extraction of old seeds and trunks (Liu 2010b). The exact degree of environmental deterioration as a result of replacing corn with permanent crops cannot be elucidated here. In terms of erosion and soil depletion, the cultivation of corn and upland rice steep slopes in particular is generally said to be unfavourable. However it is not provable to consider rubber or tea monoculture as the better option in terms of soil and erosion control.

Forests

According to Wu & Yang (2003), the rate of forest cover in the NNNR rose from 45% to 67% between 1992 and 2002. However, these numbers are somewhat misleading, because what is classified as "forest" is much broader in the Chinese statistics. This definition does not only include native or secondary forests, but also perennial plantations, which are called „economic forests“, namely rubber plantations. Thus the class "forest" does not necessarily describe the actual vegetation. Except for the State forests, which are not the subject of this Chapter, most other forests are either replaced by rubber plantations or are severely degraded. The institutions regulating the use of areas classified as forests were either not implemented or not strong enough to protect the remaining secondary forests. During the land reform in 1982 and 1983, forest lands, like agricultural land, were distributed amongst the collectives and from there on partially amongst private households. While the collective forests can be considered as a "club-good" and is accessible to all members of the community, private forests were demarcated and distributed to individual households. They are, like dryland, under private tenure and management. The management and monitoring of collective forests belongs to the Forestry Department`s sphere of responsibility. This department however, is not willing nor not strong enough to enforce existing rules and regulations, particularly when it comes to exploitation of NTFPs. Thus, theoretically 'club-good', collective forests resemble open access-systems with very weak local level governing institutions.

⁴³ Quality of biodiversity refers to the species composition (e.g. exotic or endemic species, protected/threatened species etc.)

The traditional use of forest amongst mountainous communities has been highly diverse. The Dai have been described by some authors as to have placed special emphasis on their "holy forests". These holy forests have remained untouched throughout the centuries and include some of the best maintained forests in Xishuangbanna. These days, when particularly lowland forests have almost been completely diminished, these holy forests are supposed to be a nucleus for conservation efforts (PEI 1993, XU ET. AL. 2005). However, in none of the two Dai communities in NNNR a 'holy forest' is left. While Naban, for esthetical reasons, is at least surrounded by some secondary forest,

Classification	Ownership	Tenure/Access- /Use-rights	Management	Use
State forests	State	State	Forestry Department/ANNR	Protected Area
Private forests	Collective	Private Household	Forestry Department	Plantation or extraction
Collective forests	Collective	Community Members	Forestry Department	Plantation, extraction of timber/NTFP

Figure 37: Classes, tenure and use of forest land in lowland NNNR

Mandian has deliberately replaced its 'holy forest' with rubber trees, leaving only a few of the oldest trees situated on a ridge above the settlement. The use of forests has fundamentally changed from originally passive, hunting and gathering activities, which had a comparatively low impact on the existing ecosystem. Of course, human activities over the centuries (and even more so with increasing population) has had an impact on flora and faunal composition. However, impact on ecosystems was limited and system had the capacities to adapt. Through the introduction of rubber, a fundamental change of environmental and use system occurred, from native forest into monoculture plantation, with high demand in input of energy, which should be defined as a fundamental change of system rather than an adaptation. Most lowland communities have only a very limited area of collective forests left, of which most are over-exploited and degraded. A declining amount of forest area is still needed to fulfil the demand of NTFPs and timber for a growing number of community members, plus the demand in a growing market for NTFPs. The history of collective forest in Pabin is a good example of the tragedy of forests in NNNR: When people moved to Pabin in 1980, the settlement was surrounded by dense native forests and every square meter had to be manually cleared. With an increasing number of households and demand for agricultural land, the surrounding forests were more and more decimated, along with a gradual loss of flora and fauna

In recent years, parts of the collective forests were sold by the collective to an external entity and replaced by a rubber plantation. For the money the collective received, a road linking the village to the main road was constructed (and possibly the new home of the as some villagers suspect). Other parts of the collective forests were illegally turned into rubber plantations by individual villagers in 2007. The question of what will happen to the plantation and the trespassers has not yet been solved and has been handed over to ANNR. Pabin now owns only a very limited amount of badly degraded collective forests. However, the demand for hunting game and extraction of NTFPs, especially mushrooms for the market is now covered by exploitation of the adjacent State Forest. Pabin people moved to this location only three decades ago, originating from Bengan Hani. A space of special importance to people of Pabin is the cemetery forest at the eastern fringe of the village, a small area which remains untouched except for burial of deceased community members. Apart from that, they don't seem particularly attached to their land and traditional land use practices and have shifted their livelihoods towards mod-

ernisation and technical progress. According to the villagers, they base their claim to the state forest on traditional access rights. The state land adjacent to the village was only put under protection by the ANNR in the early 1990s and thus removed from the villagers' grasp. However, considering the short time of settlement since the mid-1980s, it is questionable whether those claims have as much weight in comparison to those from much older communities who have an ancestral linkage to the land and landscape. Hunting was traditionally a common and popular activity that also supported the food base. However, in 1999, hunting became illegal, a regulation which is detested by all villagers and disobeyed by many. The forest areas of the lowland zones in NNR have, like in other parts of Xishuangbanna experienced the most fundamental, multi-dimensional change: from a multi-purpose, spiritual, economic landscape to a commodified, monostructured, single purpose space.

Institutions implemented by the ANNR include certain regulations for forests use. Most lowland communities, located in the buffer zone of NNR do not have control over their forests. Just like in other parts of Banna, logging is not permitted. Even "economic trees", like rubber trees which have become unproductive, require permission from the Forestry Department. NTFPs, fire wood and timber can only be collected for private consumption and commercial logging is officially not permitted. The ecological changes within the previous forest areas are probably the most fundamental. As Figure 38 indicates, the villages, in this case Pabin, were surrounded by dense and (in terms of biodiversity) highly diverse forests. The further humans encroached the forests, the more habitat was lost, as was observed by the villagers themselves. The faunal diversity did not seem to have a value per se, but forests were treasured as hunting grounds. Through the extinction of larger animals, forests lost some of their attraction for traditional

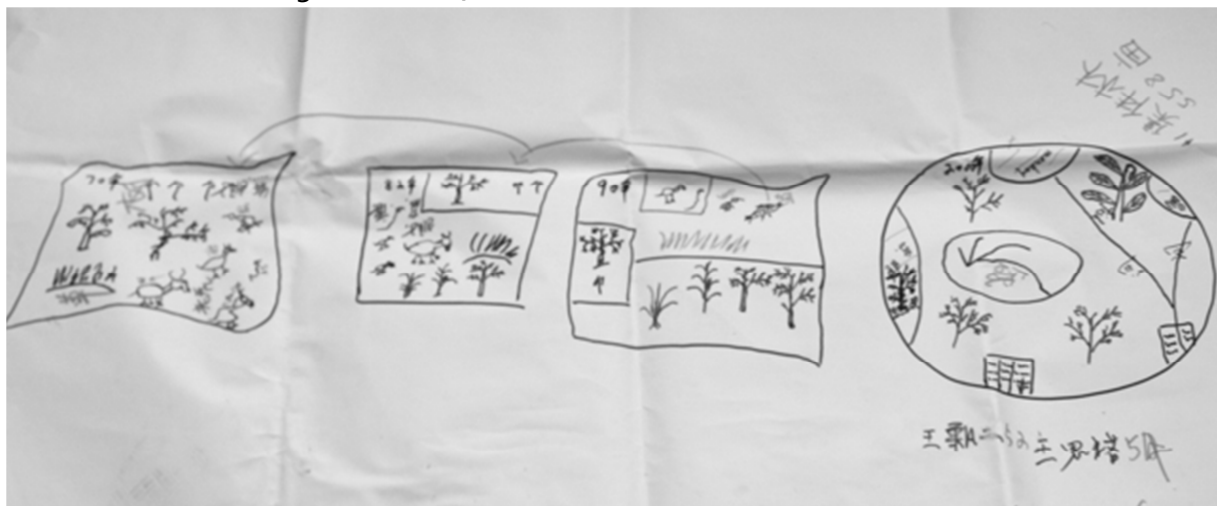


Figure 38: Loss of biological diversity through clearing of forests in Pabin drawn by Mr. Wang

hunters, who now have to resort to poaching birds or small mammals instead of deer or wild boars. The same applies to the collection of NTFPs from the forests, however there is no data available on which plants have become extinct or are no longer available to villagers. On many occasions it became obvious that the term biodiversity does not bear any meaning to the villagers. Some villagers even express positive attitudes towards the decline of native forests, arguing that the forests are a source of wild animals and vermin that can destroy the crops. It is also argued that there is now less threat from dangerous animals such as tigers, which have in the previous decades, become extinct:

"In the 1970s,(...) there were a lot of wild animals, for example snakes, bears, *Bos gaurus*, monkeys, turtledove, wild deer, tigers, and Da zui que (one kind of

the bird which has a big beak). There was little field to plant crops.(...) In the 1980s (...) the area of the virgin forests was reduced, wild animals in the forests were reduced, a lot kind of the animals was disappeared, for example tiger, Da zui que, wild deer. (...) From 2000 till now, (...) we only can see snakes, monkeys and turtledoves in the forest.” (Mr. Wang, village head of Pabin in 2008)

As Liu (2010a, 2010b) suggests, young rubber plantations can still function at least as corridors between fragmented native forests. However, the diversity of plant species declines with the age of the rubber plantation. Nevertheless, the expansion of rubber plantation has negatively influenced biological diversity and has a negative impact through further fragmentation of native forest patches (WU ET. AL. 2001, LOREAU ET. AL 2007). The loss of biological diversity is not the only adverse effect of rubber monocultures. Through the large scale exchange of forests, the hydrological system seems to have been altered. While “scientific” corroboration through the LILAC project is still pending, several sources reported that less water is available for irrigation and household consumption and that changes in micro-climate have occurred. Reasons for these changes could be the different water peak consumption patterns of rubber, which demands the most water for production of foliage in the period of February and March, when groundwater levels are already very low at the end of the dry season (FOX 2009). Moreover, water storage and evapotranspiration are lower within rubber monocultures, leading to higher surface water runoff and less groundwater refill. Changes are also negatively perceived by the villagers through hotter and drier micro-climate. According to literature, the decrease of humidity, particularly the decrease of foggy days in particular, which are important to forest-ecosystems, have a severe effect on still existing forests (LI ET AL. 2006). Furthermore, villagers reported that they noticed a decline in the availability and quality of water over the years. This includes the declining availability of

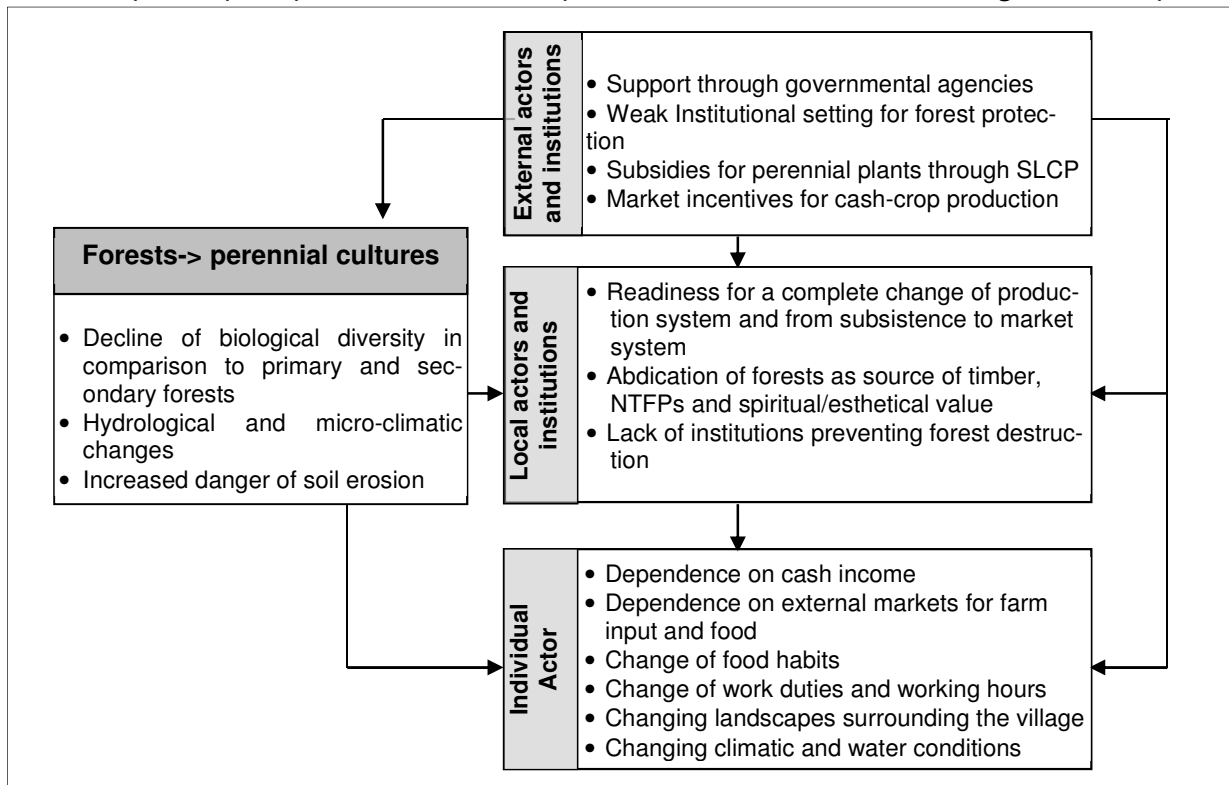


Figure 39: Human-environment interactions in the “action arena” forest in the lowlands water for irrigation and decreasing quality of household water. Initial results of LILAC researchers show an increasing amount of phosphorous, which indicates overuse or misuse of fertilizers, and an increased volume of discharge after rain in the lower reach-

es of Mandian river. The water quality, according to international standards is still within category II and III (ZHANG 2010, WU & YANG 2003). However, it still contributes, albeit to a small extent, to changes in water quality and discharge patterns affecting environments and people beyond the Naban River Catchment.

4.4.3 Institutional structures and processes in highland communities

The villages of the higher altitudes of NNNR are ethnically relatively homogenous Lahu, Akha and Mountain-Han communities. The altitudes between 1,000 and 2,000 meters above sea level and the extreme topography make this geographical space less favourable for human appropriation in comparison to the lowland communities. Most villages, especially the long-established ones have access to larger tracts of lands than the average lowland community. This may be due to a smaller carrying capacity and productivity of the areas of the highlands in comparison to the lowlands. The state has not yet reached out on a large scale to the highland areas, as for example in the area around Mandian, where the State rubber farm was established and indirectly decreased the area available for lowland communities. Also, resettlement policies have taken the strain somewhat away from the upland areas, but have at the same time increased pressure on the lowland areas.

Unlike other "hill tribes" for example in Northern Thailand or Laos (whose livelihood is based mainly on upland rice cultivation), ethnic highland dwellers in the NRWNNR area have adopted paddy cultivation a long time ago. Temporary witnesses indicate that terraced rice had existed before the Mao-era. Nevertheless, centuries of anthropogenic influence, including shifting cultivation, rotational farming, tea production and extensive forest use were the systems which had shaped highland NNNR into a cultural landscape. Despite similar historical settings and the political influences during the collective period, including land use categorization, the landscape can be described as much more diverse. Nonetheless, as a starting point for analysis, the classification which was already used in the previous chapter will be used, since it allows for some comparability.

Irrigated land

Despite the fundamentally different environmental conditions of highland rice production, institutional settings, like land distribution, tenure rights, governmental subsidies and maintenance regimes do not differ greatly from those discussed for the lowlands in the previous chapter. Thus focus is on those factors which characterize and distinguish the 'uplands'. Given the harsher climatic conditions (during the winter months, even frosts can occur), the rice cultivating season is restricted to the months between May and October. Like in other parts of Banna, hybrid rice was introduced to increase productivity, however some areas are too cold and are thus not suitable for the cultivation of the hybrid variety introduced by the government. Under these circumstances, old varieties of rice were able to survive in some areas, which are lower in yield but highly favoured by the villagers for their taste. Apart from climatic conditions, the topography of the area poses further restrictions on the farmers. The scarcity of flat land forces farmers to construct and maintain very small and narrow terraces. Many of those terraces are even too small for the use of tractors, therefore buffaloes are still an important farming requisite. The construction and particularly the maintenance of those terraces demand much more attention and labour input than those ample terraces in the lowlands (Figure 31&32) Many rice fields are remote from the villages, mostly at the bottom

of valleys, and often a few kilometres away, not to mention the difference in altitude, which impedes access. Those areas in the valleys are scarce and since many villages share the same valley bottom, conflicts over tenure-ship occur. The conditions of soil and fertility management also appear to follow different patterns. PRECHSL (2008) has found out that higher lying paddy fields are less exposed to farm chemicals and fertilizers and thus cultivation does not have such detrimental external impacts. The finding that highland farmers use less farm chemicals on their rice fields is also corroborated by results from a household survey conducted in cooperation with ECON B. But these soils are also more prone to soil nutrient loss when too little fertilizer is applied. No detailed research has been done within the highland rice systems of NNNR, but data from other parts of Menghai County indicate that a loss of soil fertility and subsequent decline of yields occurs. Farmers in those areas lack the financial means to buy farm chemicals, particularly fertilizers, and thus cannot maintain the productivity of hybrid rice systems (Farmer in Damenlong area March 2009). Since only one harvest is possible and the use of farm machinery is still restricted, the rice straw and the manure from ploughing and grazing buffaloes adds organic fertilization and helps to maintain soil health. Unlike in lower altitudes, rice fields are not used for horticultural activities through third parties, due to unsuitable climatic conditions and probably for the peripheral location and difficult accessibility of rice fields, which makes it unattractive to external producers. An exception of this are the fields from those villages who have fields in the lowlands. For example, some families from Hui Lao Xiao Zhai, a two hours foot-march away, who have tenure rights in the vicinity of Mandian village in the Mandian valley. Those families base their decision on a second rice harvest on the yield of the first harvest:

“It is possible to cultivate rice two seasons in one year but if we have enough rice in the first season we grow only during the summer term. 10 bags of rice per person should be enough for subsistence for one year. We started to rent the rice field to the Dai people to grow the watermelon in the second season three years ago.” (Mr. Yang from HLXZ, born in 198x)

The existence of a certain degree of flexibility is also observable in inter-familial lease patterns. Households or household members who earn a living outside the village without changing their *hukou* leave their fields for those left behind, mainly in exchange for a part of the harvest. These arrangements are not covered by formal institutions or even infringing formal institutions. It shows the emergence of institutions for the mutual benefits of parties evolved, which support flexibility of land use and socio-economic circumstances. In comparison to the lowland, the nature of the environment restricts technical modernization of rice cultivation. Environmental conditions prevent the exchange of manpower with mechanisation, the change from local to hybrid rice varieties. Through lack of mechanization, environmental conditions at least partially maintain input of organic matter for the maintenance of soil health, instead of the application of farm chemicals. Rice cultivation in irrigated fields in the highland can be described as more extensive and less dependent on external inputs, but less productive in terms of yield per area.

Dryland and shifting land

The category of dryland is a heterogeneous one and an amalgamation of different land use classes. It includes land which is not classified as irrigated land and land which is not formally classified as forest. This category includes land suitable for annual agriculture and shifting cultivation land, with less favourable conditions for agricultural use.

Wasteland auctions, which had taken place in other parts of Yunnan in 1994 (XU & RIBOT 2004) were never mentioned by any of the informants. Large areas of wasteland, covered by bush and grass originate from deforestation binges in the 1950s and 1960s. Lack of manpower prevented members of the commune and later on the individual farmers from keeping the land under production. Exotic weeds and introduced species like Crofton weed (*Ageratina Adenophora*) seem to have facilitated the prevention of a healthy succession of native forests. During the 1980s, in the wake of the Three Fixes Policy, so called wastelands, apart from the official dryland, were also divided amongst farmers, who received certificates for this type of land. As a condition, farmers had to ameliorate the land with perennial plants. Besides the planting of tea however, there is no evidence that those regulations were followed by the farmers who used the land as shifting land. Recent developments have led to a blurring of boundaries between the two land class types in terms of actual land use. Land is not a scarcity in the majority of highland communities. The two village groups constituting the natural village of Da Nuo You, for example, according to official statistics, do not own any dryland at all; their complete arable land has been classified as shifting land. In general, upland soils are not as fertile as those in the lower areas, and the altitude and climatic conditions restrict the production of tropical fruits. As a result, the highland areas are more remote and thus generally less attractive.

The landscape, land use and agricultural systems of the highlands - hardly involved in external market chains until a few years ago – are still much more diverse than in the lowlands. The production of a variety of plants mainly upland rice, corn, winter wheat, buckwheat, peanuts, potatoes and tea, sugarcane and lately hemp as cash crops has nevertheless increased over the last years, with intensified use of land and the blurring of boundaries between dryland and shifting land.

Traditional shifting regimes, which are diverse and highly adapted to local social and geographical conditions, are described widely in literature on Southeast Asian ethnic groups (i.e. Spencer 1977). The scope and focus of this study prevented detailed research on the ancient agricultural systems. Farmers however reported fallow periods of 10-20 years for traditional use-systems. The longer fallow periods allowed re-growth of native vegetation, replenishment of soil through nutrient cycling and a source of products ranging from edible and medicinal plants to construction materials and firewood. As research by Ghorbani has shown, many of the plants used by the upland villagers are collected in the fallow shifting fields (GHORBANI ET AL. 2011). In the last decades, for political and environmental reasons, official strategies aimed at eradicating these shifting regimes. A condition in the contract for shifting land is the duty of the leasee to improve the land. Farmers are supposed to ameliorate the land with perennial plants- either native or economic trees. However, with no further incentives and no monitoring, this regulation was not intensively abided, apart from the extension of tea plantations. Active amelioration of wasteland only started seriously in 2003, when the SLCP was introduced and implemented. However, while the programme as such is considered useful in its objectives, there are doubts about the success: "Current evidence (...) indicates that SLCP is in danger of failing to achieve its long-term goals." (XU ET AL. 2004:325). Another strategy to reduce shifting cultivation is the prohibition against the cutting of re-grown trees which size exceeds a certain limit. None of the informants could give precise figures, so the regulation is certainly subject to the discretion of local officials. In other parts of Banna, the rule is interpreted by local officials in the form of a logging prohibi-

tion on tress which exceed 5 cm in diameter at breast height (XU ET AL. 2009). This regulation has certain unintended effects. Farmers who have excessive land break the fallow cycle sooner than necessary to circumvent this regulation. They clear their field more often than usual in order to prevent regrowth and thus also prevent natural succession. Other farmers, who were not aware of this new regulation had lost some of their agricultural land, which lead to conflicts and transgression of the regulation.

Since rubber is, due to climatic conditions not (or not yet) an option, tea was propagated as a cash crop. Banna, as one of the "cradles of tea" has become a prominent producer of tea, with Menghai as the centre for tea processing and trade. While tea was formerly extensively produced in tea gardens within the forests, tea was a neglected product during the collective period, maintained for self-consumption only. The prevalence of tea changed rapidly over the last two decades. The area of tea fields (in the whole NNNR) rose from 1,660 mu in 1991 to 7,650 mu in 2003, a fourfold within about 12 years. Although no numbers are available, research supports that between 2003 and 2007, even more gardens were established due to excellent prices on the (world) market. Even though also suitable for the lowland areas, tea is a product of the uplands: over 80% of tea gardens are found in Menghai county area of NNNR, most lowland communities of Jinghong county keep tea mainly as a subsistence crop and to a limited extent, as a security for farmers.

The establishment of tea gardens was also supported by the SLCP (Slope Land Conversion Programme), starting in 2003. In Xiao Nuo You Shang Zhai, a village at 1,400 meters altitude, 200 mu of tea gardens were established around the village, some even in intercropping with walnut trees. Within this programme, farmers received the saplings for the trees and the tea bushes, and compensation in the form of cash and rice for a period of eight years from 2003 to 2010. For Shi Jia Zhai, a group of households who moved out of Bengan Hani in 1992, this programme allowed villagers to introduce tea cultivation. When moving out, the new village received a large plot of land (former shifting land from Bengan Hani), which was not distributed officially among the new households but found their owner through the "first use first own" principle. According to the villagers, Shi Jia Zhai households had little resources to invest in cash crop production. The support of the SLCP enabled each household to establish several mu of tea plantation in former bush and wasteland areas (Interview with SJZ Village Head in March 2007). The environmental impacts of tea, which is mainly kept in monoculture, cannot be established at this point, because no detailed research on this topic was undertaken in NNNR. While denied by many villagers who are told that organic tea is a favoured product and receives higher prices on the market, many farmers use pesticides and fertilizers in their plantations.⁴⁴ From the esthetical point of view tea as a traditional local product seems to fit well into the cultural landscape of Xishuangbanna- constructed though it might be. In the highland areas hemp (*Cannabis Indica*) was introduced as an alternative cash crop as a raw material for fibre production. Hemp was introduced to Bengan administrative village within a trial phase by the Mengsong Agricultural Centre. Participation in the trial scheme was not obligatory, except for farmers who held an official position, such as the village head, in order to set a good example. As compensation for the first year, each household received 400 Yuan per mu. Farmers were encouraged to engage in hemp production. When Prime Minister Hu Jintao paid a visit to Menghai county, inspecting the emerging hemp industry, he promoted further development. In

⁴⁴ Results from a survey conducted by ECON B in 2008

2006, the Prefecture Government dictated the task of cultivating 2500 mu for Mengsong township. Over 60% of all households participated in planting cultivation and the

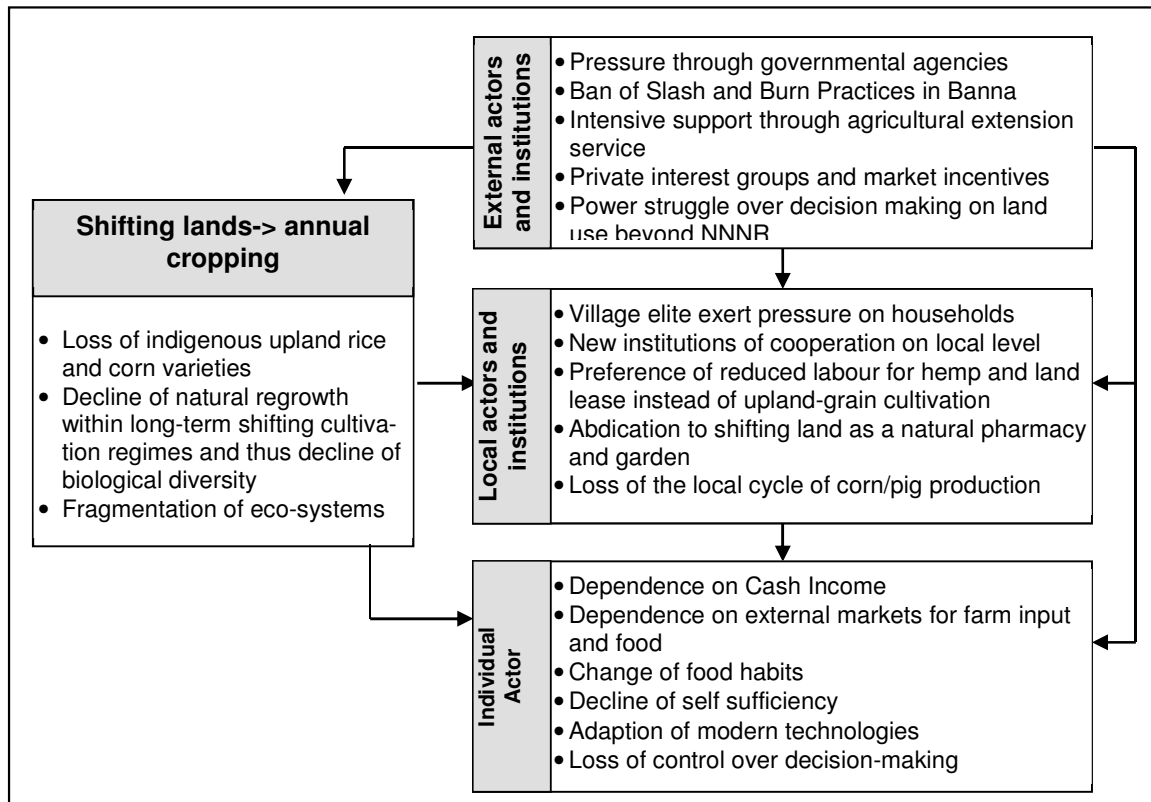


Figure 40: Human-environment interactions in the "action arena" forest in the highlands task was achieved.

The strong propagation of hemp did not serve as a mere attempt to arbitrarily increase the output of highland farmers. A new factory in Mengsong was set up for hemp processing. It is owned by a joint stock company, of which *Yage'er*, an Eastern China based fabric company is the largest shareholder. Another shareholder is the General Logistics Department (directly subordinate to the Central Military Commission), a main supplier of the People's Liberation Army (PLA). The establishment of the hemp industry is an attempt at integrated regional development that aims at increasing regional value. The local governments have a strong interest in supporting the new factory, since tax paying enterprises and employment outside agriculture are still rare. The new factory, one of the most modern and largest in the world, was set up by non-regional investment and is considered highly valuable to the area, providing directly up to 400 jobs.⁴⁵ While support from local government in agricultural production was hitherto rather limited, hemp growing farmers received ample support through various organisations and institutions. The Menghai County Agricultural Station institutionalized the support by enlarging the hemp working team from one to four extension service officers, and distributing seeds and lending machinery to the producers. Fertilizer was subsidized with an amount of about 140 Yuan per mu of hemp until 2007. This was converted into an interest free loan for purchase of fertilizer offered by Mengsong township administration. To finance this loan-scheme, the township administration, endowed with little financial resources itself, receives a loan from Menghai County Financial Department. Through "modern" media, the Prefecture Government tries to offer further information and enhance production optimization. The Agricultural Bureau published a booklet providing information on

⁴⁵ Information was gathered during a visit to the both the hemp and bamboo factors in 2008.

planting, fertilizing techniques and pest management. However, these booklets are only distributed to village heads and agricultural liaison persons in the villages. Written information does not reach the average farmer, who remains dependant on government officials for support.

The pressure to increase production is transmitted through the village official. According to the decree of the Chairman/Party Secretary, only those families or groups of families who plant a minimum of 10 mu are entitled to the hemp harvesting machine. This condition of course puts pressure on the producers, but it also enhances inter-familial cooperation, since several families can form a voluntary working group which is entitled to borrow the machine and exchanges labour during the harvesting season. The Party Secretary is very optimistic about the new crop: "The management of tea field takes 100 years but the hemp just 100 days." (Mr. Wang, Party Secretary and Chairman of BGH). Most farmers seem to share this attitude, despite the rather strict top-down approach by which it was introduced. Compared to the cultivation of upland rice and corn (crops which are substituted by hemp), hemp is less work intensive and the cultivation techniques are rather simple. A price guarantee of 8.5 Yuan per kg and an additional subsidy for fertilizer offers the farmers the possibility for stable and sound cash income. Differences in yields are large and not only caused by environmental factors. According to Mengsong Township officials, yields also reflect management competences and how serious farmers take the new crop. Nevertheless, the farmers capabilities to manage the new crop in general is improving.

Village	Average mu/hh	Average yield/mu (kg)	Average revenues/mu (Yuan)	Minimum revenues/mu (Yuan)	Maximum revenues/mu (Yuan)
Bengan Xin	12	39	295	71	611
Bengan Lahu	10	50	420	155	1361
BGH 1st group	4	60	516	1167	227
BGH 2nd	4	33	227	1	780
BGH 3rd group	4	41	315	36	733
BGH 4th group	5	64	580	147	1114
BGH 5th group	5	38	282	96	596
Shi Jia Zhai	11	44	347	73	529

Figure 41: Hemp cultivation in Bengan administrative villages: areas, yields and revenues in 2008
(Mengsong township Agricultural Office Statistics 2008)

The down-side is interference with traditional production systems and increased pressure on the available land resources. Depending on the availability of land, households either give up corn and upland rice production or shorten/abandon their fallow cycles. Crop rotation within fallow periods is practiced only by those farmers who have enough land to allow a fallow period. Regarding the "ecological footprint", the production shows more sustainable characteristics as for example cotton, another fibre crop. Hemp is rather undemanding, easy to manage, and its natural resistance to pests and limited demand for soil-nutrients minimises input of farm chemicals (CHERRETT ET. AL. 2005). Data on risk of erosion and fertility decline is not available, and officials do not consider these factors as a problem. Moreover, through the subsidies on fertilizers, farmers are encouraged to apply fertilizer to maintain soil fertility. In terms of soil stewardship, this might be an advantage: other crops, which are not subsidized and which margins are too low to apply fertilizer may have more negative effect on soil health. Rather, officials see the risk of over-fertilization, which increases soil salinity levels and thus leads to a decline in

soil fertility.⁴⁶ Even though the impact of hemp production on the environment per se might not be overly negative, the problem lies in the increasing pressure on land resources which is detrimental to biological diversity.

It is a declared task of local governments to maintain soil fertility through rotational cropping. After three to four years of planting per plot, a fallow period of three to four years is considered as appropriate. A survey of nine (out of forty) households in XNYSZ in October 2009 has shown that the reality is quite different. Depending on the availability of plots, farmers plant hemp or corn for three to five consecutive years, leave the plot to fallow for one year and then will rotate the crop and plant corn or hemp respectively. Some farmers, who have reserve land, will also place under cultivation those plots which had been wasteland/pasture for the last few years. As a result, fallow periods are shortened or abolished, leaving no time and space for the natural vegetation to recover. Despite well-meaning declarations from government officials, in practice it is not possible to maintain fallow periods, due to the lack of land in many communities. As pointed out by YIN (2001), biological diversity in shifting fields is rather high, an observation which is also corroborated by preliminary results from ECOL B (GHORBANI 2011). Similar detrimental effects on agricultural diversity can be expected, since local upland rice and corn varieties will decline.

Like in the lowland communities, external actors have started to show an interest in the land of highland communities. In 2006, Yunnan Mengxiang Bamboo Industry Co. Ltd. (YMBI), a SOE owned by Yunnan Provincial Government, leased 2500 mu of shifting land in the possession of Bengan Hani village collective for a period of 30 years. The land in question has, according to the villagers, low fertility and is used as pasture or for infrequent cultivation. However, farmers frequently resorted to the area and used it for crop-production when necessary. Based on a decision of the collective, the land was leased to YMBI on the following conditions: in the first five years, the collective receives 8 Yuan per mu, and in the following years, when bamboo starts making profits, the collective receives 40 Yuan per mu plus a possible bonus. Villagers however cannot gain employment within the plantation, since they are considered to be unreliable and more loyal to their own fields than to the company (YMBI employee in 2008). The bamboo plantation will harvest bamboo for fibre and construction material and considering that bamboo is a traditional and native plant to the area, could be a beneficial enterprise for the parties involved. What seems like a favourable situation is not welcomed by all actors who have a stake in NNNR. Rather, the case of the bamboo plantation is a prime example for the struggle of interests and power over decision making on land use between inter-governmental bodies and also between the communities and government agencies. A staff member makes the position of the ANNR very clear: „Mengxiang Bamboo Company is illegitimate in NNNR. It came into existence without approval of NNNR but they got approval from the government.“ (Interview with staff from ANNNR, Jinghong 2009). Monocultures of this extent do not concur with the ANNR-regulations on land use and the ANNR, as the agency in charge, has already been reprimanded by the Yunnan Environmental Protection Agency (EPA) (of which they are a subordinate body). However, ANNR have so far not been strong enough to enforce their rules, which follow the National Nature Reserve Law of China. Rather, YMBI in cooperation with the community and local governments has tried to find a way around the regulations. The

⁴⁶ Salinization in this case happens when mineral salts, a component of mineral fertilizers accumulate in the top-soil due to lack of drainage and leads to unfavourable change in pH-levels of soils.

area owned and formerly managed by the collective as a whole is now leased to individual households, which in return have individual sub-lease contracts with YMBI. As a consequence, a 2500 mu monoculture forms a landscape, but is on paper virtually nonexistent. While negotiations are ongoing, the case shows that even though institutions are codified by national law, actors like the ANNR have limited influence and power to implement those institutions against the will of local communities and the economic and political interest of external local actors. Plans to establish larger scale eucalypt plantations for pulp and timber production had already been abandoned due to environmental concerns by ANNR and EPA. The planting of eucalypt, which is an introduced plant disturbs the hydrology because of its large water demand. Interestingly enough, in contrast to bamboo plantations, eucalypt plantations are also disfavoured by Xishuangbanna Prefecture level government agencies due to the negative impact on soil and hydrology (Senior staff of Xishuangbanna Prefecture Agricultural Department 2009).

Forest land

The negative picture drawn of collective forests in lowland communities does not generally extend to upland communities. On the contrary, according to ANNR officials, the amount of native forests in upland communities has increased over the last decades. This has several intertwined causes. Firstly, forest is still valued for its economic and aesthetic reasons, and secondly, upland communities are generally endowed with larger amounts of land, including collective forests. Some communities have undertaken strong efforts to reforest land, particularly in the vicinity of their village. According to Mr. Li, a long-term 50-year old forest-guide, the forest surrounding XNYSZ (Xiou Nuo You Shang Zhai) (as visible in Figure 51) has regrown over the last 30 years. Obvious also are the stands of bamboo at the fringe of the forest. An initiative of the government also supports the small-scale production of bamboo, opening additional income opportunities for farmers.

Due to absence of rubber cultivation, and until recently other profitable cash crops apart from tea, highland communities so far depended on their forests for timber, fire-wood and NTFPs to a much higher degree than lowland communities. Through educational projects, information and also support for social development offered to communities, the ANNR has evidently added to maintain or increase the value and respect that local people pay to their forests. This however is different in communities, such as DNY, which have certain areas below the "rubber line". In recent years, when new varieties of rubber suitable for higher altitude became available, most collective forests had to yield to tea and rubber plantations. In Menghai county, where most highland communities are located, collective forests are under the management of the ANNR, which established common property rights under the following regulations:

- Non-timber forest products, such as herbs, wild fruit, mushroom, roots and bamboo can be collected by the community members for own consumption;
- members of the community can obtain a permission to collect fire-wood for a small fee. In XNY for example, the collective forest is distributed to individual households and removal of dead wood for fire wood is free of charge;
- members of the community can purchase timber for construction at the cost of 20 Yuan per cubic meter.

This management scheme attempts to maintain a certain degree of the forests' ecological sustainability while allowing households of the local communities to cover their self

sufficiency needs. The emergence of a thriving market for NTFPs over the last years has brought more strain on forests and forests management. Certain kinds of bamboo shoots and mushrooms (*Mu Er*, e.g.) gain increasing popularity in urban Jinghong restaurants and beyond. A new industry has developed for example around bamboo shoot collection in the western part of the reserve, where villagers collect and dry/smoke bamboo over open fires and receive up to 20 Yuan per kilogram. Thousands of kilograms are extracted annually from Bengan Hani forests, providing households with a fair amount of additional cash income, but also straining the forest resources. So far, no regulations on extraction have been institutionalized, even though, according to villagers, yields have already begun to decline. Regardless, existing institutions of boundaries are breached by collectors from other villages, which turns the collective property regime into an open access regime. Likewise, awareness amongst the ANNR and farmers about the problem of over-exploitation and trespassing is there, but so far in most villages, there is an institutional void and no actor with the power and/or willingness to tackle the situation. The rule to limit harvest of bamboo in bi-annual intervals has been



Figure 42: Re-grown forests surrounding XNYSZ as viewed from ANRWNNR watchtower

discussed, but implementation and monitoring has not been institutionalized. Bengan Hani is the largest village in NNNR, with a population of 830 people. The establishment of local management institutions is considered as necessary by the local authorities, but they express concerns that they do not have the capacity to take on responsibility, as implementing, monitoring and executing new regulations would strain their resources.

In some villages, communities have responded to the new situation. The rules are monitored and territory especially is vehemently protected against the intrusion of outsiders. For example, when external collectors entered the collective forest without permission by the community of Na Kang Xiao Zhai, their motorcycles were damaged and

the collectors removed with force. This anecdotal example shows that externally introduced institutions of the common-property regime are accepted by the community, for they protect the communities interest. Due to the incompleteness of the institution, in this case the lack of monitoring and execution through external actors, the institution itself is threatened to fail. This shortcoming is filled by the local community through an act of self-administered justice, which is not uncommon in China (MUEGGLER 2001). The practice of exploiting forests of the Reserve for market activities is incoherent with formal regulations for forest use. Even though the statutes prohibit the sale of NTFPs from the Reserve area, these activities are not at all sanctioned by ANNNR. In the opinion of the villagers, the ANNNR has even provided a licence to external businessmen to purchase bamboo shoots - one for the eastern and one for western part of the reserve

In contrast to the opinion of informants from several villages, staff of the Nature Reserve deny that bamboo purchase is licensed: „NNNR didn't choose anyone to do bamboo business, the villagers can sell their bamboo shoots to any business man. It's a free market.“ (Mr. Yang, senior staff of ANNNR, August 2009). Beyond the implications of monopoly and licensing, this statement shows that, at least in terms of NTFPs, the ANNNR does not strictly implement the regulations on restriction to cover the subsistence level only. This is most likely in order to maintain carefully established relations with local communities. While the quantity of native forests has increased over the last decades for several reasons, the quality of native forests in terms of biological diversity may not have. Like other parts of the upland cultural landscape, particularly the former swidden fields, forests are subject to increased exploitation which, particularly in recent years goes well beyond extractive activities for subsistence. Forests are more and more interlinked with external processes, which remain largely unregulated on the local level, with unknown mid- and long-term consequences for the respective forest ecosystems.

4.5 Conclusion: Institutions and the changing landscapes of NNNR

In the last 30 years, interests regarding land use have diversified and accordingly so have actors and institutions. Property rights and tenure regimes have been changed in favour of local actors and individuals. At the same time, supralocal actors have gained interest and influence, particularly with land and natural resources becoming scarce. Conflicts have emerged and intensified, particularly over issues of protection and valorisation. New institutions have been introduced, mainly from a top-down level through actors on the supra local level. Institutions which regulate protection, i.e. regulations by the Nature Reserve Administration, have not yet become embedded in many communities. Rather, individuals or even whole communities find ways of ignoring and avoiding restrictions, or simply using institutional voids to enlarge their scope of agency. Furthermore, actors with interests in land use have many-folded. Actors with “national interests” or actors from high government levels, like the indirect interest of the PLA to be provided with fibre impede the capabilities and influence of the ANRWNNR.

Technical modernization and the new paradigm of economic development have triggered a change in land use practices which becomes tangible in the local spheres. Looking at the geographical space, an important finding is that the NNNR, an old cultural landscape, in terms of morphology, vegetation and function, is not as homogenous a landscape as it was in the past. Divided roughly by the rubber line, we can now observe at least two different cultural landscapes: The landscapes of the lowlands, which have mainly turned into rubber monocultures have lost much of their diversity in terms of

biological, agro-biological and land use diversity. Perennial cash crop plantations, even though under smallholder farming systems have replaced shifting-cultivation and forest systems. Cash crop cultivation has diminished the meaning of rice cultivation and rice subsistence. Lowland landscapes turned static and have little flexibility left for land use change. The upland areas, those areas above the rubber line at approximately 1,000 meters have also undergone far reaching transformations. However, neither face nor functionality have changed completely in the uplands. Despite intensification of land use and introduction of cash crops, the landscape has maintained some of its most important features; its dynamic and flexibility, still catering for a diversity of farming practices and land use patterns.

5 Socio-economic transformations and the role of land use: from moral to cash economy?

The social and economic situation of the villages in NNNR today is inhomogeneous and shows widening disparities. Agriculture and exploitation of natural resources remain the main economic pillars. Even though by now cash crop production has superseded the subsistence economy in many communities, the differences between villages are huge, manifested for example in disparities of income and endowment with social infrastructure. By changing land use practices, lowland communities have turned into cash economies and have lost many of the characteristics of a moral economy. Such characteristics remain more prevalent in the upland communities. Focussing on the socio-economic structures and their transformation, the main differences between highland and lowland villages will be discussed, considering the main factors of the moral economy such as subsistence levels, mutual assistance and integration into external structures. In order to gain an understanding about the socio-economic system which was common in ancient Southeast Asia, a thorough introduction to the concept of the moral economy is necessary. An analysis of historical patterns in the research area helps to understand the depth of transformation which communities have been faced with.

5.1 The moral economy as an analytical framework

5.1.1 Moral economy as a socio-economic and cultural system

Looking at household and village levels, socio-economic patterns have undergone tremendous changes over the last decades. After elucidating institutional and land use change, the aim of this chapter is the analysis of the change in socio-economic patterns and the similarities and differences which have emerged between different communities in the area. Based on the assumption that Xishuangbanna can be, at least historically, considered as a part of Southeast Asia, theories of socio-economic systems of Southeast Asia offer a basis for comparison. The historic situation in the NNNR will be analysed based on the ideas of JAMES SCOTT (1976) and his seminal theory of moral economy and Samuel Popkin's works on the peasant societies in Vietnam (POPKINS 1979), the latter offering a critical perspective on the moral economy concept.

Scott's works were highly influenced by Polanyi's theories on peasant societies in Europe (POLANYI 1944/2001), which he has further developed and adapted for and within the Southeast Asian context. Characteristics of the moral economy were elaborated through ample research on Southeast Asian peasant societies and their transformation mainly triggered through the influences of colonization. Scott's main argument is that colonization processes introduced market mechanisms into village economies and thereby damaged or even destroyed traditional subsistence economies and socio-economic structures to different degrees under different local circumstances. However, Scott found ubiquitous patterns constituting the moral economy, which will be outlined, critically discussed and contextualized within the NNNR. Traditional Southeast Asian livelihoods and village communities were based on subsistence production and an intricate network of mainly intra-village institutions based on moral and social obligations. Market mechanisms, i.e. exchange for cash or silver were at a low level, since the closed system of the village provided almost everything for every villager and surplus production was limited. Goods unavailable in the village were often procured through barter-networks - for example salt, fish and cloth. Demands beyond the physiological needs of

human reproduction, such as status symbols and amenities were culturally and locally produced and thus differed locally, depending on the level of affluence and subsistence. Traditional social, religious and other cultural institutions offered a framework for individual well-being.

The limitation of surplus production and thus the lack of market transaction is ascribed to the "safety-first" principle on which peasants based their decision making for agricultural production. Subsistence security for the household was most important, with risk avoidance and diversification as basic elements. For example, locally adapted land-races which were known for their stable yields were preferred to other varieties with higher maximum yields in bumper years, in order to avoid a drop below the subsistence level in bad years. Farmers chose techniques which gave the highest and most stable income for the labour (CHAYANOV 1966). Another institution of diversification and risk avoidance, particularly in regards to land use was the distribution of plots. Even though the pattern of holding multiple, small plots in different areas of the village land is also in many cases owing to cultural inheritance patterns, the distribution of plots was a buffer against natural calamities. For example inundations, erosion or pests on a micro-level might affect only one of the plots. The farmer can still harvest the crop from the other plot, even though a smaller number of larger plots is more labour efficient than a larger number of smaller plots. Subsistence security of peasants was paramount to profit maximization, especially for farmers who were just lingering above the subsistence level. The basic social and economic unit was the household, which was primarily focused on reproduction, while little energy was left for production, i.e. surplus generation.

In most communities, arable land was a limited and restricting factor as a result of environmental and political circumstances, or as an indirect result of labour shortage or social constraints. Opportunity cost for labour was generally low, and the marginal utility near the subsistence level – due to limited income generation alternatives was accordingly high. Peasants engaged in activities with extremely low returns, a fact that can be considered as "self-exploitation" (CHAYANOV 1966). Subsistence economy was focused not only on the extraction of natural resources in form of agricultural production, and hunting and gathering activities. In some, less remote communities the subsistence basket also included petty trade, particularly in local markets, small craft, casual wage labour and even migration (SCOTT 1976).

Even though the term 'moral economy' implies an underlying, moral-oriented pattern, equality amongst households and villagers was not included in the concept of the moral economy. Equality within villages was not a necessary end; inequalities were according to Scott (1976) tolerated and accepted. Local social structures, based on mutual aid and reciprocity, provided a safety net for emergencies and individual household crises. Scott identified patterns of patron-client relations, which he defines:

"The patron-client relationship - an exchange relationship between roles - may be defined as a special case of dyadic (two-person) ties involving a largely instrumental friendship in which an individual of higher socio-economic status (patron) uses his own influence and resources to provide protection or benefits, or both, for a person of lower status (client) who, for his part, reciprocates by offering general support and assistance, including personal services, to the patron." (SCOTT 1972:92)

This dyadic and not necessarily equal pattern of relationship secured loyalty, cheap labour and support for the dominating patron. The client gained easier access to employment, credit and other assistance in times of need.

Another feature of the moral economy is the obligation of 'better-off' villagers to render munificent donations to religious institutions, such as temples, which play a central role in the cultural and social life. Part of the system is also the requirement to offer gifts and contributions during ceremonies of individual households such as weddings, according to the household's economic standing. This pattern of behaviour, which is socially expected of course strengthens the position of the donor within the community and is probably not an act of pure altruism. Nevertheless, the institution of exchange through gifts, discussed as "gift economy" (MAUSS 1954), has certain redistributive effects and is thus beneficial to the less affluent households of a community, since donations or gifts at special occasions contribute to the subsistence basket of relatively poor households.

Mutual labour exchange within a network of family, neighbours and close friends within peasant villages is another important constituent within the theory of the moral economy. Again this institution of mutual assistance is based on reciprocity and trust, and each of the parties involved pay their toll in times of need. Especially during peak agricultural seasons, like during harvests, labour is pooled to increase efficiency. Mutual exchange is not restricted to labour, but also extends to the lending of tools, grain and other necessities in times of need. While it is possible to distinguish between direct and indirect reciprocity, mutual exchange of this kind- unlike within the patron client-relationship - works mainly on a direct basis, i.e. one day of labour is equally repaid by a day of labour.

Peasant villages in Southeast Asia, despite being predominantly closed communities, were not isolated. Rather, they were included in a wider political network of kingdoms or chiefdoms. Thus, at least part of the production was taken out of the subsistence basket of villagers. Levies and taxes, mainly in kind, but also in cash and silver were extracted in favour to a superior institution, a state, kingdom or chiefdom. This relationship was rather exploitative than reciprocal, since peasants in most cases had little benefit in return. As an explanation for the relative stability of these exploitative structures, Polanyi and Scott suggest that resistance starts, when the levies and taxes are so exploitative and burdensome that they leave peasant households with less than what is necessary for subsistence, and the "social right to subsistence is denied" (SCOTT 1976:33).

Individuals or individual households receive security within the social system through different institutions, which are based on reciprocity and act as shock absorbers. This is achieved by buffering risk within the social system by establishing interdependence through mutual claim on each other's resources in case of need. However, the system fails to provide security for the whole community, in case of collective threat/calamity, when resource level of the collective drops below a certain level.

5.1.2 A short critique

The concept of moral economy, particularly its strong tendency towards a high level of moral standards in regard to peasant welfare, has been questioned, for example by Popkin, who admonishes about romanticism and the creation of the myth of the village (POPKIN 1979:3). According to his argument, little information and data is available on the level of wellbeing in pre-capitalist societies, in which local institutions are supposed to provide a framework for individual wellbeing. He argues that particularly in traditional

societies, many peasants' livelihoods were based below a tolerable level, with few economic and political rights, a fact that is neglected in Scott's argumentation. The institution of the safety-net, based on high moral claims of a community which trigger collective rationality is, in particular, questioned. POPKIN (1979) argues that the safety-net for individual households is not necessarily based on collectively rational action in order to buffer individual risks, but rather on the rational decision of the individual. For example, he considers the distribution of collective fields to avoid environmental risks as an individual strategy.⁴⁷ As an efficient, collective action based strategy, the maintenance of a granary, which can be found in several Southeast Asian traditional societies allows safety as well as efficient use of production factors.

As Popkin stresses, the village elite aimed at maintaining their dominant position and at cementing stratification within the village through several strategies and institutions. These institutions were not necessarily based on moral principles like equality and collective safety. For example, in order to secure cheap sources of labour for themselves, the elite could prevent poorer farmers from opening up new land and thus becoming more independent and enhance their subsistence level. Also, village heads, responsible for the limited outside connections used their position to their own advantage in controlling relations to higher authorities and traders. In case of tax collection, the shifting of tax payments to poorer peasants was more widespread than a progressive tax system exonerating the less advantaged households of the community. Village elites also had a monopoly on regulating trade relations to external traders, from which they gained economic and political advantage.

Popkin also argues that the transformation from closed to open villages did "(...) not necessarily result in loss of support, although it may change their nature." (POPKIN 1979:32FF). For him, the opportunities of the market and commercialization are not paid due consideration and are painted too negatively. Engagements into markets neither leave the village without a safety net, nor should it be considered as a "(...) last-grasp response to a declining situation, but a response to new opportunities (...). Moral economists take too benign a view of villages and patron-client ties." (POPKIN 1979:33). In romanticizing village life, neither the harsh reality often formed by economic and social inequality is aptly reflected, nor are positive aspects of modernization and market economy appreciated appropriately. Haggis et. al. go even further in their criticism and conclude that: "It seems probable to us that it was just this unequal distribution of the means of production and the intense exploitation which stemmed from it that generated much of the subsistence-centred, risk-avoiding behaviour which Scott observes." (HAGGIS ET.AL. 1986:1453).

5.1.3 Moral economy in the history of Xishuangbanna and NNNR

Looking at the plethora of socio-economic and cultural systems in pre-modern South-east Asia, it is clear that there is no 'one-size-fits-all' concept available; patterns of moral economy can be found in different cultures in different historical, spatial and economic circumstances. The concept of moral economy and its critique offer a suitable point of departure to analyse the research area of NNNR. After having outlined the key components of the concept of moral economy in a critical light, structures and processes within the NNNR will be analysed based on secondary literature and empirical data which was

⁴⁷ The distribution of fields could also be an outcome of inheritance institutions similar to the 'franconian law of succession', where all children or sons inherit equal shares of land, which lead to splitting and special distribution of plots over several generations.

collected between 2007 and 2009. Albeit the knowledge and sources of information on traditional systems of Xishuangbanna are limited, they lend support to the theory that like other agrarian societies in Southeast Asia, the socio-economics of villages under the Dai feudal system of Xishuangbanna were also based on principles of moral economy. Patterns were similar amongst the different peoples dwelling in Banna and NNNR, despite differences not only between ethnic groups but also between different places. Since it is not possible to provide a detailed analysis of the diverse historic configurations, only a basic analysis of general patterns, drawing mainly on data from Bengan Hani, an old Akha settlement in Western NNNR is provided. To cover the basic principles of moral economy, different factors will be discussed in a historic context: the safety-first principle and subsistence agriculture as the basic principle of village economies, the exchange systems, i.e. trade and taxation and as a third parameter the patron-client relations, including redistribution mechanism, which were an integral part of the moral economy.

The economy of NNNR communities was mainly based on subsistence agriculture, with a high, but variable degree of internal cooperation. Certain land use practices like shifting cultivation were only possible if at least parts of the community worked together during certain activities within the annual production cycle, such as clearing of forests and establishment of new fields. These collective tasks were vital in maintaining the subsistence base and only worked through a network of mutual social obligations. Paddy rice cultivation, one of the foundations of the Dai Kingdom also demanded a high degree of cooperation, particularly the maintenance of irrigation infrastructure. Labour exchange was not restricted to agricultural activities, but also extended to tasks like the construction of private houses and the construction and maintenance of public buildings, for example temples, village gates and other places of worship.

Another factor of the moral economy prevalent in historic NNNR are mechanisms of redistribution. Religious institutions, such as temples and monasteries have lived off, or relied on donations from more or less affluent members of the community. Thus, they can also be considered as an institution of redistribution of economic means. During festivals, food was sponsored by richer members, allowing also the more needy villagers to indulge in sumptuous meals. Also, particularly in the Buddhist communities, the monastery was responsible for the education of boys. The monastery provided board and lodgings for a certain period of time, financed through donations. This unburdened poorer households, who then had fewer mouths to feed. Despite certain mechanisms of redistribution and mutual aid found in different cultures of Banna, these institutions were not a means to the end of total equality. However, one should keep in mind that equality within the community is not a prerequisite of Scott's idea on moral economy. Rather, inequalities are part of the system and are institutionalized, a point to which he, according to his critics, does not pay enough attention. In some areas of Banna, for example in the part today known as Mengsong County, community members had more equal access to land, decreasing the danger of poverty and perpetuating economic disparities. In the case of Bengan Hani, in Western NNNR, the situation was different. A contemporary witness described that about 30% of households were very poor, 60% of households did ok and about 10% of households could be considered as rich. They owned horses and even had rice surplus to sell to other villages:

"Those who were poor from generation to generation, they did not have land. They worked for the households who had more land, paddy fields and dry land.

(...) some of the nicer rich ones, if the poor asked please give some plot to me, they would allow it. But some would not." (Mr. Aboe from BGH, born in 1925)

Poverty was linked to and caused by landlessness and the elite, i.e. the rich households did not feel compelled to relinquish inequality. The relations between rich and poor households can be described as patron-client systems, which helped to perpetuate these inequalities. The village elite, i.e. those households endowed with more capital, took advantage of or exploited the poorer households, for example through exploitation as daily labourers. The workers, in return, received food and daily necessities and could thus remain above the subsistence level. A temporary witness describes the situation:

L: "Before liberation, what was life like and what did you grow?"

W: "We planted opium, corn and upland rice. We did not own any paddy fields. Due to that we did not have enough to eat, so we worked for the rich in the village (...)."

L: "Did you get enough to support your family?"

W: "Not really, when we had more rice, we ate more, if we had little we ate less. Most of the time we felt hungry." (Mr. Wang from BGH, born 1926)

Poorer households lacked labour and particularly the necessary tools to clear forests, thus they could not open up new arable land. According to the memories of informants from Bengan Hani and Xiao Nuo You Shan Zhai, at least forest land was not a scarcity. Rather, poor households lacked social and/or financial capital to invest in tools to open up new fields:

L: "In my parents' period not so many people owned land, what they did was help the rich household, and exchange the food or daily commodities with labor. As I know, in my family last three generations were wage-labourers and I had been wage-labourer for twenty years."

J: "Why didn't you reclaim your own fields?"

L: "We didn't reclaim lands, because we didn't have tools to do it, but the rich had money to buy tools to reclaim lands."

J: "Did the rich or landlord treat you well or badly?"

L: "In general they didn't dare treat us badly, for if they treat wage-labour badly the rich or landlord couldn't hire labourers anymore." (ibid.)

These households had little opportunity to escape dependency from the richer peasants and wage labour. However, they could sustain at least a meagre living through agricultural activities and side income opportunities provided by other community members. Apart from subsistence production, villagers of Bengan Hani cultivated opium until the 1950s. Again, the village elite, especially the village head was in an advantageous position. The village heads generally held a trade monopsony and benefited from outside connections. Farmers or peasants delivered their surplus harvest to the village head who acted as a middleman and sold the produce to external traders. The profit gained from the position as middleman again strengthened his economic position within the community (HILL 1998:80). The trade monopsony itself also created and reproduced dependencies of villagers on the village head. The *Tu-Si*-system, endowing the village head and other members of a village elite with official titles and functions of the Chinese administrative system, further strengthened those members of the community. They had, for example the right and the duty to collect taxes, which were not paid on an individual or level, but on a village level. The duty of tax collection not only included collecting the tax, but the village elite also fixed the amount of tax the individual household had to

contribute to the lump sum paid by the village community. For example, in Began Hani, the village had to come up with six or seven birds and one kilogram of opium as tribute to the king. The tax burden of Mandian was due during the time of the water splashing festival in April: "The landlord collected bamboo and money from each household and delivered it to the King. The landlord before is similar to the village head now." (Mrs. Yu from Mandian, born in 1941). Just as Scott describes, the village elites could use their decision making power, legitimized through the feudal system to levy taxes to their advantage and again boost their position. The tax and tribute system also indicates that the patron-client system did not end at the village gate. Probably village leaders with good connections to the upper level authorities, be it Dai officials or Mandarins could manipulate their tax duty in favour of their village.

Despite unequal and somewhat exploitative structures, the community nevertheless provided protection and security, even from external calamities. In the 1940s, different armies and armed groups roamed the countryside and the villagers were compelled to hide frequently. The evacuation process was institutionalized and very well depicts both aspects of the village structure: on the one hand, it becomes obvious that the community – in the case of emergencies - provided a security network. On the other hand, hierarchies and dependencies within the village become obvious. A contemporary witness describes the activities when Japanese or Nationalist troops approached the village:

"We were a group of 13 households and we fled from the village with the horse. The food was organized so that the rich families provided rice. Poor families who had no rice provided chicken. Some of the poor who couldn't provide anything cut grass for horse as fodder and some members of the group carried the belongings of the group. The leaders rode on horseback to the place of hiding and the villagers carried their belonging for them." (Mrs. Ming from BGH, born in 1940)

This example shows that the evacuation process was well organized, including the whole village so that everyone was taken care of under the leadership of the village elite, who were the ones possessing horses. Everyone had their duties and tasks, and mechanisms to redistribute food and secure subsistence and survival were institutionalized. This indicates a high degree of social cohesion and moral obligation within the community, despite otherwise unequal structures.

Data and literature available for this period is fragmental and based on the memories of few individuals. Thus it is not possible at this stage to make a detailed analysis of the structure of the socio-economic system. However, as outlined above even though patterns might have differentiated from village to village, the moral economy built the underlying modus operandi of societies in the NNNR and Banna as a whole.

5.1.4 The Moral Economy in the collective period

As established earlier, the commercialization and integration of political entities of Southeast Asia into supra-local economic networks and the disturbance of subsistence livelihoods to a larger degree was brought through colonization processes from the 16th century onwards (REID 1993). Despite Xishuangbanna's position along several trade routes, the degree of subsistence had remained rather high. Except for the limited production and trade of tea and opium, commercialization of agriculture was brought to Xishuangbanna rather late. The transformation from subsistence to cash crop systems has commenced in the last decades of the 20th century by the integration into the Chinese market economy. A peculiarity of Banna within the Southeast Asian context is the period of collectivization. Collectivization, particularly in remote mountainous areas

cannot be found to such an extent in the socialist neighbour states of Laos and Vietnam. Thus, before looking at current transformation processes, the changes which took place during the collective era will be looked upon in regards to the impact on moral economic structures.

The gradual introduction of the commune system shook the socio-economic structure to the core and vanquished almost all previously established characteristics of the moral economy system at the village level. The household lost its status as the basic unit of decision-making and production, and at the top level the commune was installed as the institution of reference. In how far familial ties and relations were considered when structuring the working groups cannot be established at this stage. However there is evidence that neighbouring households were pooled; one working group encompassed 10-15 households or a complete hamlet, i.e. natural village. Thus, at least some traditional relations were taken into consideration when restructuring village society, since cooperation between families and neighbouring households have always played an important role. However, during this time, artificial villages were assembled, for example XNY and DNY, by centralizing smaller hamlets which were spread out over a larger area. Taken out of the hands of individual households was not only the decision making on how to meet the subsistence level - i.e. on which activities to spend time and resources, but also decisions on land use and production techniques. This became clearly visible through the destruction of previously untouched forests and, since agricultural practices which were far less sustainable and risk avoiding were introduced, the turning away from risk-avoiding behaviour concerning environmental circumstances. This tactic is described by HEBERER (1984: 95) and corroborated by local farmers:

“Shifting land had no meaning in the communal period. We cut this piece of field this year and next piece next year, that was the way we used land in that period. There were no fields before *da kai huang* (open up wasteland). In the *da kai huang* period lots of field were open up by all the villagers. Many fields which we are cultivating now were reclaimed back then.” (Mrs. Li from DNY, born 194x)

The disregard of the practices which were based on traditional ecological knowledge can be interpreted as a break from the “safety first” maxim, which Scott defines as “(...) a logical consequence of the ecological dependence of peasant livelihood (...)” (SCOTT 1976:29). Moreover, alternative subsistence sources were destroyed, for example through the abolishment of local markets for agricultural products and handicrafts, in-kind exchange networks and of course, wage labour. This curtailed the individuals in their risk-avoiding strategies of diversifying their income and subsistence base. Important exchange networks were cut off and the trade monopsony was taken out of the hand of the village elite and usurped by the institution of the Unified Purchase and Marketing System (UPMS).

The State, through incorporating Xishuangbanna and the villages of NNNR into its body, took, at least to a certain degree, the responsibility for production, and also the safety function away from the local level. Through the “iron rice bowl” principle, basic supply should have been secured for every member of the work team. However, the basic supply was fixed at 27 *jīn* of un-husked rice per month, per adult, an amount which lay well below the international standard of 44 *jīn* per month and per adult (OI 1991:44).^{48, 49} This brought the rural population into dire conditions, particularly during

⁴⁸ This provides an amount of 2,000 calories per day

⁴⁹ One *jīn* equals 500 grams

years of bad harvests and in grain poor regions. Firstly, the higher authorities prescribed the grain quota so that little of the produce remained in the community (HEBERER 1986). Secondly, the collective work system and the work point system offered little incentive for the individual members of the work team. The system showed local variations, and there is no coherent and detailed information on the system of the villages in Banna. However the system provided each working group member with a basic share of grain, independent from their actual labour input. On top of that, villagers could collect working points through agricultural and collective labour, which can be considered as a type of productivity bonus: "There was a policy to follow that there was basic grain and point grain. Different area regulated that 30% were distributed as basic grain and 70% as point grain, in some area 40% was delivered as basic grain and 60% as point grain." (Mr. Zhang, Party Secretary of DNY, born in 1948).

According to Nolan (1988), the system promoted the occurrences of free-riding, i.e. individuals took advantage of the common goods, since management and control was scarce (NOLAN 1988). Traditional institutions like moral obligation and mutual help lost their influence. The new institution did not have the power to maintain the system of mutual obligation, since not all villagers felt compelled to provide sufficient labour to the labour pool necessary to maintain subsistence. Previously the safety net was based on institutions which were locally anchored, based on common understanding and mechanisms of sanctioning. The safety net of the iron rice bowl was a prescribed one, imposed by the new government. Mechanisms of sanctioning and provision, as well as possibilities of adjustment to local circumstances were largely taken out of the local peoples' reach and uplifted to a higher level. Institutions based on personal relationships and mutual obligations were subsidized through a more impersonal and static bureaucratic system.

The village had to deliver a grain quota and was forced to sell the surplus at a fixed rate. According to Oi, this system was an equivalent to paying taxes, however team leaders, unlike village heads before, could not fix the contribution of each household like before. Rather, this lump sum came out of the working teams' production to which every able member was obliged to contribute labour. The low productivity of the mountainous areas made this a difficult task: "How much you should deliver depended on the area of the village. The mountain villages owned large areas but the production of the grain was very little. But you must deliver the tax, so starvation also occurred in this area." (Mr Zhou from Zhong Zhi Chang, born in 1957). In the case of severe shortages, the possibility to apply for additional grain was theoretically given, but involved a complicated administrative process. Moreover applying for grain-aid had the power to damage the local leaders politically, since they were considered to be incapable of securing decent production. The transformation of the safety-net from an interpersonal to a bureaucratic one did not prevent food shortages or starvation, due to various reasons discussed by Oi (1991). Major reasons were the extraction of grain from the communities in environmentally difficult conditions and a lack of transfer of public services back to the communities. The new system, for example was at least partly responsible for periods of food scarcities, starvation and famine, of which the Great Famine of 1961-1962 is the most prominent example. The grain quota lead to bizarre excesses with severe consequences for the peasants, as the Village Head of DNY recalls:

"There was a story in Danuoyou that we received the task to plant beans. But the producers just piled the seeds up in the field and in the report they said: oh

Danuoyou is the one team who fulfilled the task successfully. In the end, people suffered starvation in that year." (Mr. Zhang from DNY, born in 1948)

But even younger people from NNNR can remember times of food shortages in the 1970s and 1980s, as Mr. Ai, who grew up in Naban points out: "When I went to the field I took some rice and chilli sauce for the whole day. We did not have too much to eat that time, life was bitter. We did not have too much meat to eat, not even oil to cook the food." (Mr. Ai from Mandian, born in 1966). Little is known about the actual situation and nutritional standard before liberation, so direct comparisons regarding whether general welfare level was improved or has declined is not possible. However, for most villagers, memories of the communal period are ones of *chi ku* - eating bitterness and hard labour. The commune provided basic services to the brigades and work teams, but almost completely relied on the surplus grain from the teams. This meant that back then, poor communes, particularly those in areas with already adverse conditions for agricultural production were in a disadvantageous position. This situation changed only gradually through urban-rural transfers and support from the more affluent areas of China in the 1990s. Not only was the economic system transformed, but also relations within the villages. Particularly patron-client relations changed tremendously through the class struggle. The villagers were classified (sometimes through violent action) into landlords, rich peasants, middle peasants, poor peasants and landless ones, a process which broke up old patron-client system, as Mrs Li reports:

L: „At that time, Bengan governed us. I remember that the landlords were taken to Bengan wearing the specially-made hat. On the hats there were inscriptions to humiliate the landlords. On the way to Bengan, the landlords were hit by other people. Someone died of hitting."

I: "Do you know why the landlord got such bad treatment?"

Li: "People complained the landlords did not take care of the poor, and treated them badly. (Mrs. Li from DNY, born 194x.)

Although very young at that time, memory has survived. Interestingly enough she was the only person in the village who would openly talk about this period, while most other informants avoided the topic. New leaders were installed, however not through an election process. Rather, villagers from the lower classes were chosen and installed by the upper level administration, while landlords and rich peasants were excluded from official posts. The old elites, particularly landlords who had wielded much economic power and influence were denounced and stigmatized, and their land was sequestered. Villagers were asked to isolate those elements, as one villager remembers:

I: "Was the landlord looked down upon by other villagers?"

Wang: "The leader said that we could not become friend with them, and we were not allowed to marry the people who were classified as landlords." (Mr. Wang from BGH, born in 1948)

This disrupted social cohesion and destroyed old relationships, but did not put an end to patron-client relations as such, as Oi (1991) argues. The system of patron-client relations remained a vital part of society and economy, but rules, spheres of influence and individuals were exchanged. Prior to liberation, peasants had a client-patron relation with the village head, while the village head played a weaker role in a relationship with external traders and feudal lords as a client. Within the commune system, the village head (or team leader) played a double role: as a patron to the normal members of his work team and as a client to the brigade and commune leaders. This again placed the farmers, and

commune members into the weakest position, while the team leader and other village cadres were endowed with influence.

The team leaders, as “important political actors” (OI 1991:105), were put in a rather difficult situation. On the one hand, they had to follow the policies, directives and tasks they received from the brigade and commune. On the other hand, they were responsible for the subsistence and welfare of their own team members. To satisfy patrons and clients, “(...)team leaders adopted a rationality of evasion”⁵⁰ (OI 1991:104). This included certain legal and illegal strategies, like hiding grain and faking accounts. Establishing relations with brigade or commune leaders could help team leaders to cover irregularities. The team leaders could rule more or less strictly over the distribution of working points, had influence on the work team’s budget and could manipulate grain rations in favour of members of the teams in order to increase the team’s welfare - or of course, his own. Like in feudal Banna, the village elite were again responsible for the exchange of goods from the village through collection and handing over of taxes. In how far team leaders could actually derive personal benefit or even profit from their role as middlemen between state and peasant, was certainly dependent on the degree of corruption. Team members who entered into a patron-client relationship with the team leader could receive the best work assignments and other favours. In return, “[a]the client was characteristically the team leader’s most enthusiastic supporter and helper.” (OI 1991: 147). This was vitally important to both strengthen the team leader’s position within the team and also during inspections of higher cadres when the performance of the team leader was put under scrutiny. Of course, not all peasants established long-lasting relations with their team leaders. The majority of peasants, if looking for preferential treatment at all, rather relied on the opportunity of specific and immediate exchanges, which were also based on financial and social capital. When special support was needed, for example a chicken was exchanged for an immediate personal favour (OI 1991). This again put those villagers who had special capabilities or disposable cash or commodities into an advantageous position. The members who were poor in commodities and skills could hardly participate in this exchange system.

To postulate that the commune system in NNNR was just another form of a moral economy would reach too far, particularly with such thin empiric corroboration. However, some characteristics indeed remained, particularly the institutions which were based on the system of patron-client relations. Even though the new system gained legitimacy through a bureaucratic, external entity (and not through traditions and customs), it still left ample space for individuals of unequal status to gain advantages through relationships. The old village elite was ostracized and replaced by younger people who were fascinated by modern ideologies. Many young people were fervent for the ideas of equality and abolishment of the old system which was increasingly perceived as oppressive. This new elite had a pivotal role between state and peasant and was endowed with a lot of influence. Within the communist system, the team leaders were often faced with the dilemma as to whom to render loyalty: the State or the peasants.

5.2 Market economy encroaching: economies in transition

Merely three decades of a collective system and command economy had passed by before the next economic transformation processes commenced. One major aspect was

⁵⁰ Inverted comma taken over from the original source

the return of the household as the basic unit of reproduction. Technological progress, gradual mechanization and motivation through economic incentives increased general agricultural output. Farmers transformed from mere reproducers to producers. Surplus and cash crop production was further encouraged to improve small-scale farmers' livelihoods and to provide products and natural resources for national and international markets. As discussed previously, the collective and command systems had maintained, or even produced, certain elements of a moral economy. After the introduction of tenure and market reforms, the declining role of the state in economic activities of the household and the increasing responsibility of individuals, households and local political and economic agents, has led to a partial re-emergence of the institutions of a moral economy, i.e. mutual aid, patron-client systems and community festivals.

For example, labour exchange is widespread again, but due to a change of practices and technologies, its demand is generally decreasing. Moreover, some of the work load that cannot be covered by household labour is supplemented with paid labour. Similar patterns can be found when looking at tasks, such as the construction of housing within a mutual aid network or the maintenance of the village road, which were formerly undertaken by members of the community in an informal or formal setting. Now, paid labourers, which are also skilled in modern construction techniques are employed for construction, private homes and likewise the maintenance of infrastructure. However, the increasing engagement into market structures and individualization of households does not lead necessarily to an atomization of the village community and weakening of social cohesion. Family ties remain strong and social life seems to have gained momentum. Social activities such as individual celebrations or collective festivities bear witness to a vivid social life. This is partly owing to a higher amount of disposable income and leisure time, but also facilitated through a re-emerging consciousness about ethnic and religious identity evident throughout Xishuangbanna. Mutilated throughout the command economy era, exchange patterns with the "outside world" have also changed and intensified. Exchange, particularly between market networks has become much more diverse in the lowland villages, where village elites have lost monopoly of trade, particularly concerning rubber.

5.2.1 From subsistence to cash economies

By the end of the first decade of the 21st century, none of the villages have maintained an economic structure completely based on subsistence. Cash crop production and commodities are part of farmers' livelihoods in all villages, albeit the degree of subsistence production and market integration varies widely. The difference between upland and lowland economies does not constitute a dichotomy between subsistence and market economies. Rather the situation can be described as a continuum, varying between villages but also between individual households within the villages. None of the villages in the survey were completely independent or outside the sphere of the cash economy, and neither had any of the villages given up subsistence support completely. Figure 48 shows the different land uses in different villages, indicating subsistence or market orientation.

Even though this compilation offers only a qualitative overview it becomes obvious that diversity of production is much higher in the upland villages. This offers not only a broader base of cash income to decrease vulnerability, but also a broader diversity of food, which increases resilience. The role of animal husbandry (buffalo and pig keeping) has declined in several villages as a consequence of change of land use and practices.

According to villagers, pigs are fed by corn. Due to replacement of corn through other cash crops, pig production has declined. This negatively impacts food autonomy and the maintenance of nutritional level, since lard is an important source of fat for highland villagers. Furthermore it curtails the options of benefiting from the generally growing meat demand and the expanding regional and national meat markets.



Figure 44: Household income and income variability in NNNR villages in 2008

The degree of subsistence has been constantly decreasing in all areas. The rubber line is a clear boundary between subsistence and market oriented communities. However, with the introduction of hemp, the upland villages have undergone another step towards commercialization not only through generation of more cash income but also by decreasing cultivation of subsistence crops. Particularly interesting is the transformation of patterns and meaning of rice cultivation. Rice has been the staple and subsistence crop per se, which not only has a high economic, but also symbolic value. In many of the rubber villages, i.e. in Mandian and Pabin, farmers are less willing to devote labour and land for subsistence production, since the cultivation of rubber is more efficient in terms of labour and income generation. One mu harvests approximately 400 kg of rice, enough to support one person per year. An amount of 400-600 Yuan covers the costs for purchasing the same amount of rice on the local market. One mu of rubber, with much less labour input, can produce 40-60 kg of rubber per mu, equalling a return of 600-1,000 Yuan per mu, depending on the quality and current price of rubber.

While irrigated fields are protected by law from transformation into rubber or other perennial crops, the production of rice for subsistence has, at least in the lowland communities, decreased. The fields are either leased for the production of rice or (to an increasing extent) for cultivation of vegetables. At the time of writing, new information became available on land lease schemes in Naban village which corroborate these findings. External investors offer Naban farmers an amount of 1,000 Yuan per mu and year for their irrigated land. For a term of five years, bananas will be produced, with expectation for extension. Apart from the large amount of rent, farmers get the opportunity to engage in farm labour, with a daily wage of 60 Yuan, which is well above average for daily labour in rural areas of Xishuangbanna. On the one hand, this provides the farmers who lease the land with a stable income, and diversifies both land use and income

generating opportunities. There is no information available on how many households participate or how much area will be leased out. On the other hand, while banana production increases farmers' income and decreases risk emerging from a mono-structured farming system, the system of banana plantations decreases control of land-holders over their own resources.

Until recently, most farmers aimed for a maximum amount of rice production. Having access to land for which availability of irrigation water and temperature allowed a second harvest was a privilege. This pattern has changed, with most farmers giving up the second harvest. Local informants offered various reasons:

- Too much/hard labour;
- cheap rice available on the market;
- less irrigation water available through changes in hydrology. Some farmers in Naban village for example have not enough irrigation water for a second growing season;
- land is rented out for other uses;
- it is not profitable, because, if not all, but only some farmers plant rice, the harvest of the intersecting plots is subject to destruction by birds, insects and wind.

These multiple explanations indicate that the socio-ecological and socio-economic systems of rice cultivation in the lowlands have changed significantly. In the uplands, paddy rice cultivation remains important and rice is only purchased or obtained from external sources when subsistence demand cannot be covered through individual production. The degree of subsistence is also mirrored in household incomes. Villages and farmers in NNNR could, from an economic, or more precisely from an income perspective, benefit greatly from the introduction of cash crops. Due to lack of historic data on income, quantitative data received through the survey is not suitable for comparison. However, according to respondents, farmers from all villages could increase their cash income and their income generating capabilities, particularly through rubber or tea.

All farmers interviewed expressed content about their overall economic situation in comparison to the past. However, particularly highland farmers are aware of their vulnerability to tea price fluctuation and envy the relatively stable and high income of lowland rubber farmers. The increase of income has not favoured all villages equally; large discrepancies in income have developed over the last years. Figure 44 shows clearly the high intra-village disparities, with higher mean income in the rubber villages of Pabin and Mandian. In the higher altitude villages of MXLL and SJZ, both mean income and income variability is significantly lower. An exception is the village of XNYSZ: Here, income and income distribution ranges almost as high as in Mandian village. The extremely high tea prices in the year the survey was conducted could be an explanation. The tea prices skyrocketed during 2007 and 2008, particularly due to speculation activities (personal discussion with several farmers and government officials in 2008 and 2009), only to drop to about a quarter of the price in 2009. The right box plot graph in Figure 44 displays a model of incomes and income distribution, assuming a 50% drop in the price of tea. This gives a more realistic view on income and income disparities between villages above and below the rubber line. Moreover, it shows the rather high share of tea as a source of income generation and thus the dependency on and vulnerability to the world market. In Xiao Nuo You for example, the average household income decreased from

30,000 Yuan to about 12,000 Yuan, in Shi Jia Zhai it dropped about 30%, from a low level of about 8,000 Yuan to around 5,000 Yuan.

Most farmers are aware of the risk, since tea and rubber prices dropped in 2008 and rubber yields went down due to mildew epidemic. It is now interesting to consider in which ways commercialization has destroyed local safety institutions, as suggested by SCOTT (1976). When analysing different villages according to different aspects of the safety strategy, a very diverse pattern becomes obvious. Many of the safety principles claimed by Scott have actually lost their importance, while others were maintained or have been transformed or adapted. Scott argues that the safety principle is born from the ecological dependency of farming livelihoods. One aspect of this is the distribution of plots throughout the village area. This is a practice still maintained, even though it seems less efficient due to increased travelling time and less chance to control the fields. In the highland villages, households have several plots, which are still subdivided through fallow periods. Even in the rubber cultivation areas, for example in Mandian, households own between one and six plots of rubber.

The change from local to hybrid rice varieties certainly constituted in a way the giving up of part of the local safety system. However the hybrid variety has so far not lead to a local food shortage. A decline or failure in yields was not mentioned by any of the informants. However, decline in yields in combination with lack of chemical fertilizer input was reported in other areas of Banna. In the highland, local crops are subsequently replaced by other crops, particularly hemp. Even though corn and upland rice are partly replaced, other traditional crops, such as winter wheat and buckwheat, are reintroduced. Cultivated during the winter months, since they fit into the agricultural cycle with hemp which is planted from Mai till August, it can at least partly replace corn and upland rice as staple crop. The diversification of produce is maintained particularly by the highland villagers and in case of deterioration of prices or collapse of markets for certain products, most households can still maintain or quickly re-establish a production aiming at subsistence. As one villager explains:

Mr. Li: "Last year, the tea price was high, my family made around 30,000 Yuan, but this year my family just made around 10,000 Yuan. I think my family income is medium. Yes, the income is higher than before."

J: "What is the main source of income in your household?"

Mr. Li: "Since the tea price is very low, I will say that hemp is my family's main source of income."

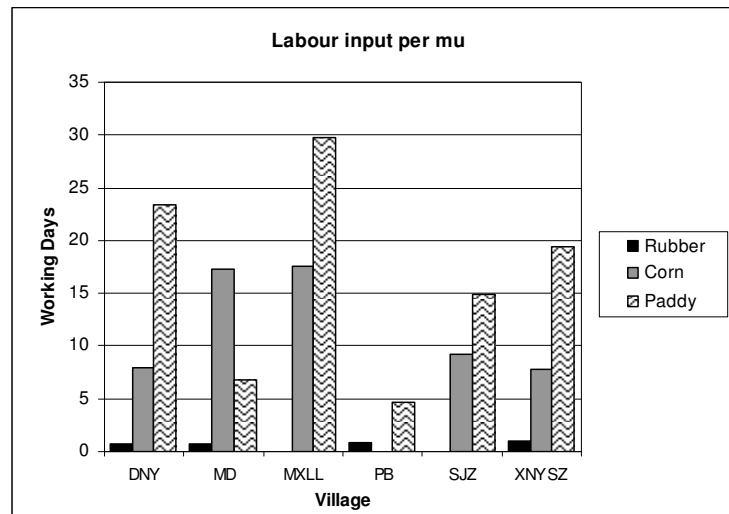
J: "Do you buy rice and vegetables? Do you go and collect wild food?"

Li: "My family does not buy rice and vegetables, we grow it. Usually, we do not go and collect the wild food, but when we go to field if we see the wild food we do collect it." (Mr. Li, BHG, born in 1966)

In the rubber dominated areas the situation is different, but most households have not completely reverted from the safety idea. Particularly in the lowlands, households are potentially self-reliant in rice production. In times of need, short term lease patterns can be changed and a second harvest can be reintroduced. Only the long term lease of rice fields for banana production is an exception, but it also provides villagers with an income. In comparison to the upland villages, the economy of the lowland villages can be considered as being less flexible. High investment costs make quick changes to another production system less likely. From the perspective of environmental dependency, the fact that systems in the highlands and the lowlands depend on their ecologically sus-

tainable use is being neglected. In particular, lack of fallow periods may have a long term negative effect on soil fertility and regeneration capacity. But, despite commercialization and commoditization, both upland and lowland villages have maintained the possibility of returning to more subsistence-oriented production systems.

One aspect which is considered as integral to the system of the moral economy is the momentum of self-exploitation. In order to sustain a living at the margin of subsistence, the poorer farmers especially needed to carry out practices and activities which brought only marginal return. Also during the collective period, practices with little efficiency were undertaken in order to get by.



Looking at the explanation farmers offered for the lack of a second rice harvest, this becomes very clear. For many farmers, having more leisure time offers more to them utility than harvesting more rice, especially for rubber farmers. The adoption of hemp was also welcomed as a good option, because cultivation of hemp is less burdensome and hemp is more remunerative than other crops.

For example, rubber cultivation, compared to other agricultural practices, is an activity demanding rather little input and labour, decreasing the workload of farmers. On steep slopes, terraces need to be constructed and maintained, while on slopes with less inclination, this procedure is not necessary. Once a plantation is established, production, in comparison to other crops like upland rice or corn is less labour intensive. The main work is tapping each tree in a two to three day interval between the months of April to November. Tapping only requires a few hours of labour per day. However, the rubber needs to be tapped during the cool hours of the early morning, before nine or ten o'clock, depending on the season. The necessity to attend to rubber tapping in the early hours of course has implications for the rhythm of work and life. The task of rubber tapping requires starting the working day as early as two-thirty a.m. so that the daily task is already fulfilled by midday. During day time, the workload, particularly on rubber-dominant farms is negligible. Application of pesticides and fertilizer and some weeding activities mainly take place in the winter months. According to survey data, labour demand for a mu of rubber hardly exceeds two days per year, excluding tapping. In comparison, corn, for the same area, requires 15 to 20 days of labour input. Despite the tasks during night time and the decrease of workload, in comparison to other agricultural products, it is very much welcomed by the farmers. The relatively little labour input is, apart from the financial benefit, regarded as a big advantage of rubber cultivation.

Off-farm opportunities

Commercialisation and market orientation of agriculture has not (or at least not yet) led to the development of a large wage labour sector. The opportunities for off-farm income generation in NNNR remain low. Unlike in other parts of China, where Township and Village Enterprises (TVE) have been established and provide off farm jobs, this has

not been the case for villages in NNNR. In most villages, farmers add to their farm income through various insecure off-farm occupations. Wage labour has some tradition in the area, originating from a time when landless villagers needed to sell their labour for food and daily necessities. Wage labour still occurs, however this is in addition to income from own agricultural production and on better terms. In DNY, for example, farmers increased their annual income by 500 to 2,000 Yuan by engaging in casual construction work, weeding and setting up of rubber plantations. Apart from casual daily labour, the transformation from a subsistence-based to a cash economy has led to the emergence of a small tertiary sector, which is increasing with available cash surplus. Income is generated mainly through transportation, health and retail services. Some villagers have invested in a vehicle and offer transportation services, in the form of mini-buses to cover the demand for increased mobility, or in form of trucks to offer transportation services for agricultural production or construction materials.

Other private sector activities outside the agricultural sector include shops for daily demand, particularly cooking oil, sweets for children, cigarettes and alcohol. Most of the shops are owned by Han Chinese who have migrated to the village rather recently and do not seem to be included in the community. This situation could have emerged due to a phenomenon described by EVERS (1994) as the "traders' dilemma". Members of the local community can hardly run a viable business due to moral obligations to other community members. Their status demands that they grant delivery of goods on loan and give discount prices, which makes it impossible to run a successful business. Migrants, who are not full members of the local community and are not restricted by these social ties and moral obligations, can operate more successfully. However, some of the shops are also run by local families. These families belong to the group of more affluent families within the respective communities. In Pabin, for example, one of the two shops is run by the family of the Vice Village Head. In DNY, the same pattern is visible, with one shop owned by the Party Secretary's family and the other shop owned by a migrant family from Hunan Province. The village leaders are in general the more economically successful ones and migrants often arrive with some financial capital to start a business. Also, if customers take a loan it does not necessarily render the shop insolvent and non-paying customers will not immediately ruin the business. Particularly migrants, who do not have moral and social obligations can completely refuse any kind of loan or charge high interest. A more subtle reason might be that if people borrow money from a person or a family with a high status, i.e. the village head, they have more pressure to repay the debt, since they do not wish to strain patron-client relations.

In the more developed communities, as well as in BGH, private clinics outside the governmental health system have opened up to treat villagers. One example is the newly constructed clinic in Mandian, which was opened up by a medical practitioner who had retired from the public hospital in Jinghong. She now offers treatment in western and traditional Dai medicine. In many of the larger villages, restaurants or barbecue stalls have opened and are run by locals, particularly women; offering a good side income. Barbecue is very popular amongst the local youth and the restaurants cater particularly for tourists and officials who regularly visit the Nature Reserve. Until the early 2000ies, Naban waterfall was a tourist attraction, providing side-income opportunities for local people. Restaurants, transportation and small shops provide a basic infrastructure for tourists. Bad road conditions, the competition of other newly opened tourist

attractions, and possibly a loss of appeal through a decline of water and forests in Man-dian area have taken their toll. Nowadays, tourists and visitors are a rare sight.

The government is one of the largest employers, and the one which offers the most reliable income. Salaries of civil servants increasingly add to local purchase power. There are teachers who, depending on the location of the school and age of the teacher, receive a wage between 1,500 and 3,000 Yuan per month. However, this transfer does not directly support local households, since all teachers have migrated, either from other parts of Banna, or from other provinces. Certain posts in the village administration are also funded by the government: For example, the Secretary, Vice Secretary and also the Party Head receive a regular salary. Only since recently, village heads of natural villages have had little financial incentive. Depending on the size of the village, they now receive a monthly salary of 100 to 120 Yuan. Beside the education sector, the ANNR is the largest employer in this area. Currently, the ANNR employs at least four full-time staff members which are the leaders of the field stations. Apart from that, more than 10 forest guards hold a part time position. This allows them to not only engage in farming but also provides a stable and regular income, as well as connections and access to information.

5.2.1 Social cohesion and the village as a safety net

Mutual obligations and reciprocity were an integral part of traditional societies. At first glance this seems to have become less important with increasing modernization and integration. One could argue that after the negative experience the villagers had suffered during the collectivization process, self-reliance has become the new paradigm. Research has shown that this is not necessarily the case. Social cohesion, which can be considered as a closely linked to mutual obligations differs from village to village. In general, family ties and family networks are still very strong. Furthermore, mutual assistance still plays an important role, financially, in kind (for example by borrowing rice) or labour. This includes both, lowland and upland villages. Labour is exchanged throughout the area, especially in rice cultivation. Since shifting cultivation practices have been abandoned, the importance of pooling labour has declined. However, through regulations introduced for example in the context of hemp cultivation, villagers are encouraged to cooperate. Only groups of cultivators who plant more than five mu of hemp are entitled to borrow the necessary machinery free of charge, so households form small working groups and help each other during harvesting season. Mutual labour exchange remains an important institution and is based on direct reciprocity. All respondents knew exactly how many days they had helped other households and they know that they can expect these labour hours in return. Also, land which is not needed, especially paddy fields, remains within the family and is leased or lent to members of the close or extended family for payment in the form of either a small fee or part of the harvest.

Apart from its social meaning for the individual and the household, marriage celebrations are a significant part of community life and an important economic component. The wedding itself takes about three days and many more days of preparation. Generally, each household in the village or the village group is invited and sends at least one member (depending on the intensity of the relationship between the household and the marrying families). Marriage is an expensive business, especially for the bride's household. The bride's family has to provide the dowry, as well as host the celebration in their home. On the other hand, the festivity is a source of income. Taken from Chinese custom, the guests deliver a *hong bao*, a red envelope with an adequate amount of money.

The amount given depends on the economic situation of the donor and the nature of their relationship. The marital bookkeeper keeps records of the amounts received and by whom. Gifts in kind are uncommon, apart from the assistance given by family, friends and neighbours, who help with preparations. Wedding ceremony is a costly institution, not only for the households directly involved. According to our research findings, households spend a significantly large part of their income on social activities. In DNY, for example, the average expenditure on social activities was about 700 Yuan in 2008. In XNY and Bengan Hani, the average was 1,880 Yuan and 1,650 Yuan respectively.⁵¹ SCOTT (1976) describes those gifts, which are only indirectly reciprocal, as an institution to show and enhance mutual obligations. Furthermore, since wealthier households are expected to pay a larger contribution, this institution also supports the transfer and circulation of cash within the community. Other celebrations and festivals are held and have, except the re-emergence of some Akha and Dai festivals, lost their spiritual or religious meaning. For example, the purchase of new electronic devices, like television sets or refrigerators has become an occasion for what could be called an inauguration celebration. The household with the new appliance invites family and friends to celebrate. Another festival which is celebrated is the International Women's Day on the 8th of March. This day is, in some communities officially celebrated in a public space, like the office and space of the village committee. Some villages receive funds from the Township to sponsor food and drinks for the villagers to celebrate. In some communities, the Women's league organizes a leisure-trip to Jinghong for the female villagers

Elites and power relations

Patterns of patron-client systems have survived the collective period and have not yielded to the institutionalization of democratic of village elections, albeit their nature has changed. In several villages, old elites seem to have re-emerged after certain families fell into disgrace during the Mao-era. In the 1950s, people or households were classified into five categories, and the 'upper classes' - landlords and rich farmers - were banned from taking official positions. Even though this classification has been officially removed, the repercussions remain today. People remember exactly which household in their village had been classified into which class. According to one informant who was born into a landlord household in the 1950s, he is still banned from becoming a party member due to his origins. Nevertheless, he holds a position in Da Nuo You administrative village committee, is village head in Zhong Zhi Chang, the richest natural village in Northern Naban Reserve, and is a very successful farmer. Moreover, old elites seem to regain their importance in the political and economic landscape. In Bengan Hani, for example, there were four to five households classified as landlords, and even more as rich farmers. Today the 170 households of the village are divided into five groups. Each group is lead by a village head, an accountant, and a women's leader. In every group, at least one of the three positions is held by the offspring of a landlord or a rich farmer. The party secretary, at the same time chairman of the village committee, and one of the party committee members are also descendents of upper class families.

Village leaders and members of the village committee are supposed to gain legitimacy through free and secret elections; however the degree of democracy and participation differs from village to village. In Xiao Nuo You Shan Zhai, for example, the person elected by the villagers was not accepted by the township government, and thus another

⁵¹ Based on the survey conducted with Econ B

er person, approved by the upper level was installed. It is beyond the scope of this study to analyse the level of democratisation and the degree of freedom in the research area. However, there are some interesting findings on villagers' expectations of their leaders. For the villagers, the leader should be a person able to communicate with the upper level bureaucrats and moreover, a person who sets a good example, particularly in economic terms. One informant voices her opinion on the leader very openly:

"The village leader acts as he thinks. He doesn't listen to the opinion of the people, but the people listen to his advice. The village head is the richest person, because he is capable. He does business and bought rubber trees. He is also corrupt, but people still listen to him because he improved the village infrastructure and takes care of the poorer villagers." (Mrs. Wang from Pabin, born in 1973)

From time to time, meetings are held within the natural villages to discuss matters at the grassroots level. The degree of participation also varies strongly. In some villages, people are satisfied with their degree of involvement: "Decisions are taken by villagers and village head after discussing it." (Mrs. Wang, BGH, born in 1975). Particularly in Bengan Hani, none of the informants complained about a lack involvement, unlike in Mangfei, where people feel voiceless: "The meetings do not take place very often. I think the villagers don't like to attend the meeting because the village leaders will not consider the villagers' suggestions. We are disappointed with the leaders." (Mrs. Qi from Mangfei, born in 1961). This indicates a certain degree of disappointment or resignation in some villages. In general, most villagers seem to be content about the situation or show little interest in political participation. Certainly, villagers, being Chinese citizens, are not as exposed to the village head as they were to their landlord or feudal lord's mercy in former times. Theoretically, they have the possibility to file complaints at higher levels if they feel mistreated. However, the political elite is very well accepted and appreciated for their economic success. They are considered as role models for economic issues, helping the village to improve their economic situation. It seems that corruption or embezzlement is accepted as long as the leaders distribute at least a portion of the money to the village. Thus, villagers either feel no need to complain or more importantly, living in remote and socially closed spaces, they lack the capabilities for such activities. Many of the village leaders interviewed during field research are indeed very resourceful and charismatic. In general, in many villages, there is only a limited amount of people capable and or willing to take on a leadership role. As mentioned earlier, the leaders' households do not only constitute the political, but also the economic elite in most villages. Trade, little shops and other side businesses are often run by the village head's or party secretary's household. A good example of the prevalence of patron-client relations is the approach to solve the mildew crisis in Pabin. Pabin has strong connections to the Jinghong state rubber farm. There seems to be an informal obligation to deliver their produce, for which Pabin receives technical assistance or assistance in supplying necessary fertilizers or pesticides. This relationship paid off during the mildew infestation in 2008 and led to a scarcity in sulphur. The village head could secure the necessary amount of pesticide through friends at the State farm.

Also very widespread is the pampering of upper level cadres who visit the villages frequently. In order to receive financial or other endowments for the village, treating the guests with good food and drinks is common, but burdensome for the household. Despite the introduction of a bureaucratic system, the political elite have much room for decision making on the village level. The position of the village cadres could be described as a charismatic and personalized leadership with a backing up through bureau-

cratic structures, which can be invoked if deemed necessary. For example when it comes to levying fines for minor offences, it remains in the power of the leaders to act or not. An example is the case of a family who had disregarded the family planning policy: One night during dinner, the village head and the party secretary discussed fining a family for the transgression of the family planning policy. They decided that it would be a good idea to recover the fine directly after hemp harvest, when the family would be solvent. Through the meticulous book keeping concerning production of and income from hemp, which they of course can get access to, they were able to ascertain the income situation of the family. They could then decide on the amount of the fine, regardless of the 'official' regulations (see Chapter 3). Of course, should the family be dealt a low fine or no fine at all, they would naturally be obliged to repay such a favour in the future. Furthermore, leaders have much advantage in obtaining information, since they regularly travel to places with higher centrality, are able to connect and foster 'guangxi' and receive information through government meetings etc. This information asymmetry certainly explains part of their economic success. However, one point which has changed is the loss of monopoly as trade middleman, which will be discussed below. Even though most village heads are involved in trade activities, it is, at least formally, open to everybody and the channels of trade and actors involved have manifold. Yet with lacking transparency of markets and prices, farmers are often still in a weaker position than the village cadres.

5.2.2 Integration in the "external world": information and market networks

Within the feudal system, agricultural production was mainly based on subsistence. Trade-networks between upland and lowland communities existed, within which goods such as tea and forest products were exchanged against salt, fish and rice. Apart from that, the region was part of a transregional trade network for tea and later on opium, as a vanguard of a cash economy. According to secondary sources, trade of tea for example was monopolized, i.e. in the hands of the village leader. The leader acted as a wholesale agent within the village. He collected the produce from the villagers and sold it for a higher price to the external trader. Exchange between individual producers and the external traders was not tolerated (HILL 1998). After land reform in the 1950s, household consumption increased and the tribute system was abolished. Opium production was prohibited and the traditional trade networks collapsed. Exchange was regulated through quotas and implemented by the procurement agencies. Rural markets were closed down, however, informal trade networks between certain upland and lowland communities seemed to have survived, as older respondents from different villages have explained. When the HRS was introduced production increased significantly and free markets started to emerge. Farmers, codified through the Land Contract Law of the People's Republic of China gained freedom concerning the marketing of their produce. The Law states:

"(...) the contractor shall enjoy the following rights: (1) enjoying in accordance with law the rights to use the land contracted, to reap the yields (...), and the right to make its own decision regarding the arrangements for production and operation as well as the disposition of the products;" (NPC 2002, ARTICLE 16, CLAUSE 1)

HRS and long denied financial incentives lead to a boost in agricultural production, allowing farmers who now produced more surplus to engage with the emerging markets. Also, the state lost her monopoly while free markets for several agricultural products

developed. Throughout the last 30 years of reform the degree of freedom on the markets for different products fluctuated significantly, however, most markets have been expanding and face a growing, albeit fluctuating demand. After 1993, the procurement quota on grain was abolished, and farmers could theoretically choose to whom to sell their products. Diverse trade channels developed, including private traders and buyers from state enterprises or SOEs. Naban Reserve has become the delivering end of natural resources which are fed into regional, national and global trade networks. Figure 47 displays the range of different products and the location/level of further value added. The outcome is explicit: valorisation of natural resources from the research area mainly take place on regional or national level.

Most cash crops and products, traded at the farm gate or in nearby collection points, find their way into the global market chain and feed domestic as well as export oriented production likewise. Patterns of exchange and the level of formalization of exchange patterns vary, as an analysis of the most important traded goods, rubber, tea, grain and NTFPs suggests.

Product	Location of production	Trader	Location of primary processing	Location of further value-addition	Location of consumption
Rubber	Lowland	State/Private	L/R	N	R/N/G
Tea	Uplands	Private	L/R	R	R/N/G
Bamboo	Uplands	State	R	R/N	R/N/G
Hemp	Uplands	State	R	R/N	R/N/G
Mush-rooms	Uplands	Private			R/N/G
Bamboo shoots	Uplands	Private	L		R/N
Corn	Uplands	Private	L	L	R/N
Rice	Uplands	Private	L		L
Pigs	Uplands	Private	R		R

L: Local level, R: regional level (Xishuangbanna), N: national level, G: global level

Figure 47: Markets for resources from the Naban Reserve

Rubber is the crop for which the most diverse and independent marketing channels exist. Depending on whether they offer fresh latex juice or dried rubber sheets, farmers can choose the buyer. Farmers can sell the freshly tapped juice to a trader who comes and picks up the rubber from the farm for a small fee on a daily basis and pays directly in cash. Others prefer to store the rubber sheets and sell them directly to one of the buyers or processing factories throughout Xishuangbanna. Prices throughout the region differ slightly, so some farmers do not choose the closest buyer, but rather the one who offers the best price, accepting the higher transportation costs. Formal long-term contracts which guarantee a fixed price to the farmers are neither practiced and nor favoured by the farmers, at least this was the case during the time of data collection, when rubber prices showed a constant upward trend. The rubber price is just as vulnerable as other crops and shows tendencies to follow the oil price on the world market (see Figure 33). Compared to other crops, farmers are in a good position, because they possess some bargaining power and are able to choose to which trader or company they sell their product to.

The region is famous for its tea and has a long history of tea growing, albeit mostly for personal consumption. In recent years, the national and international market for tea, especially *Pu Er* Tea has faced a rising demand. The marketing chains for tea are hetero-

geneous and differ within and between the villages. Engaged in tea trade are villagers themselves who act as middlemen, buyers from Menghai, and other regional tea processing and trading centres and traders who come from different provinces. Both the price and bargaining power depend on the quality of tea and the current market price. In the bumper years before 2008, when the average price of 50 Yuan per kg was paid and demand was strong, farmers had more influence over whom to sell and for which price. When the tea price crashed, falling back to 10 Yuan per kg, farmers' power was reduced and they were satisfied to find a buyer at all, especially for low quality tea. In Xiao Nuo You, an innovative concept to boost the production of local and traditional products was introduced. Five tons of packed tea were ordered by an external businessman. Villagers cut and dried sections of bamboo poles over an open fire and stuffed them with dry tea leaves - a traditional practice for packing tea. For each kilogram, they received four Yuan plus the sale of tea. The finished product was picked up by the business man and sold in Banna's tourist tea shops. Similar to old patterns of trade monopoly concerning tea, the village head enjoyed an outstanding position. Part of the packing and storing of the product was taking place in the homestead of the vice village head, who certainly gained commission. However this type of local value-adding venture, which includes a price guarantee, is rare.

	BGH	XNYSZ	PB	MD
Hybrid rice	S	S	S	S/C ¹
Local variety rice	S	S	-	-
Rubber	-	C ¹	C	C
Tea/plantation	S/C	S/C	S	S
Tea/old tea trees	S/C	S/C	-	-
Corn	S/C	C	-	-
Bamboo	S/C	C	-	-
Winter wheat	-	C	-	-
Walnut trees	-	C	-	-
Hemp	C	C	-	-
Fruits	S/C	S/C	-	-
Vegetables	S/C	S/C	S	S
NTPFP	S/C	S/C	S/C	S
Swidden products	S/C	S/C	-	-
Buffaloes	S/C	S/C	-	-
Pigs	S/C	S/C	S	S
Chicken	S	S	S	S
S=subsistence only, C=cash crop only, S/C=both				
Figure 48 Income or subsistence generation based on Land use activities in different villages				

Hemp, the new cash crop of upland NNNR follows a monopolized marketing channel, which could almost be considered as contract farming. Farmers deliver the dried hemp, which needs to fulfil certain standards concerning moisture content, to a state-run collection point in Mengsong Township. Upon delivery, a fixed price of 8.5 Yuan per kg plus subsidies for fertilizers is paid. From there, the complete production is delivered to the Menghai Fibre Plant. At this stage, there is no free market, i.e. no competing buyers and no price flexibility. For former subsistence products, an open market has developed. Generally, transactions are carried out at the farm gate. For example, little evidence of a stable, local trade network for rice was found. Demand is covered by purchases from urban markets and surplus is collected by external business people. The social

space of the Reserve Area does not include an internal trade network for subsistence products like rice or corn. On the contrary: much of the rice surplus is sold to urban markets, while rice demand for undersupplied villages is purchased from external sources. For the collection of mushrooms and bamboo, which, despite formal Reserve regulations, are sold, trade seems at least informally monopolised. Bamboo and mushrooms are rarely sold personally on the urban markets. Rather they are collected through ex-

ternal actors. Bamboo in the western part for example is collected through a business man from Sichuan, to where the high priced bamboo shoots are then 'exported'. Furthermore, there is a middleman who collects the products from the villagers and hands them over to the traders. In most cases, the middlemen are related to the village officials. While this is certainly not an informal rule, it shows that the village head still has a prime position. He is the first person contacted when people arrive in the village and he certainly has the most contact with the outside world. This social and political capital can be turned into an economic advantage for himself and his (extended) family.

The consumption of meat is on the rise all over China and Banna is no exception. Amongst Banna people and tourists likewise, the 'small-ear pig', an upland landrace, has become a specialty which is traded on an expanding market in the urban areas.⁵² Pigs are also increasingly sought after for festivities of richer 'rubber' villagers who do not produce enough meat to cover their demand. Buyers travel to the villages to try to find a pig, which they can purchase for a very cheap price. Here, the social networks of government cadres who know many of the farmers personally also play a role. These cadres have access to good and cheap sources. Particularly upland farmers are in a weak position because they have very limited knowledge on the market prices in Jinghong and are not connected to the Jinghong or Menghai meat market.

The traditional markets, which recovered in the early 1980s, have also lost their appeal. Over the last years, less and less people chose the individual strategy to sell their products on regional markets: "We sold vegetables until about 3 years ago, but we don't sell them anymore, because the market is far from here, and the price of petrol has increased. The money we earn is not enough for transportation expenses." (Mrs. Yang from XNY, born in 1967). The market, as an institution located in a specific space at a specific time, not only serves to exchange goods, but also to exchange information and build social networks. With the transformation of market structures, farmers lose connections to the "outside world". Trade is reduced to sale at the farm gate or within the villages. Markets within the villages do exist, but they are not run by the villagers offering their local products. Mobile traders come to the villages on a frequent basis and sell fruit, vegetables and fish bought on the urban wholesale markets. Villagers thus turn more and more into consumers.

After liberalization of the Chinese economy, products as well as marketing channels have diversified. Also, the relationships of actors in the exchange networks have hugely altered. In short, it can be described to have changed from a personalized exchange network over bureaucratic procurement structures of the communes to a now rather impersonal exchange structure with little transparency. In the pre-communist system, needs which could not be met through subsistence production were covered through a personalized barter system. With the transformation into a market economy, a diversification of marketing structures took place. Most of them are impersonal, aside from the involvement of local middlemen. As one farmer describes, the relation to the external traders are loose and far from being based on a trust: "I don't know anything about the *laoban*, because I think if people learn more about them, they are scared of being murdered. I think they have lots of money, so they are scared of murder." (Mr. Fu from DNY, born in 197x). Traders are commonly referred to and addressed as *laoban*, expressing deference and indicating a certain degree of inferiority. Despite (at least at first glance)

⁵² A butchery specialized on the sale of „small ear pig“ meat to restaurants and private buyers has been operating very successfully in Jinghong

the subordinate attitude and behaviour towards the traders, the traders do not seem to be appreciated. For most products, especially in the markets for NTFPs and tea which are hardly regulated, a buyer market exists, abetting the asymmetrical relations between the market actors.

5.3 Conclusion

Since the introduction of rubber to the Reserve, nature and communities have been faced with a growing divide along the rubber line. Differences in use and perception of natural resources, social structure and human development are growing. Income discrepancies deriving from different land use options lead to different patterns of consumption behaviour and to different capabilities and capacities of participation in the modernized society.

However, despite social changes, which are brought by external influences and increases in cash income, traditional patterns of social structure are retained to certain degrees. In the lowland areas, a 'rubber strata' is emerging; households which engage in rubber cultivation earn a relatively decent income. They are now able to construct comfortable houses, purchase electronic appliances and spend a considerable amount of money on additional food. Livelihood based on rubber is perceived as positive, especially in comparison to the past. From most villagers' perspective, it means an improvement of living conditions, with a diminished work load, access to urban centres (especially for young people) and the integration into the village community on less compulsive terms. Individualisation of agricultural practices through the change to cash crops made cooperation in the labour sector redundant in many cases. Nonetheless, social cohesion appears to be strong, although based less on mutual dependency to secure survival and more on shared values, familial ties, institutions, and social activities. Celebrations, either ethnic or government sponsored, such as International Women's Day help to maintain community spirit. The increase in income of the highland area communities only lead to a slightly better living standard, i.e. better nutrition, the ability to purchase selected consumer goods, and some disposable income for education and health. Despite a gradual embedding into world market structures, upland villages remain more subsistence oriented. Natural resource products and their exploitation, in comparison to rubber, remain less viable and marginal in return. In comparison to lowland villages, the degree of social cohesion seems higher. On the one hand, individualisation is less distinct and every day life patterns follow more traditional patterns. On the other hand, the state, taking on at least to some extent the function of the safety net has more impact, with many households receiving subsistence allowance or grain aid in order to maintain the nationally proscribed subsistence level.

6 Diverging livelihoods, diverging landscapes

Land in terms of physical space, a mere biophysical object, has always offered the material base of existence for those living on it. Over the last decades however it has been transformed from being part of nature into a natural resource. It has been commoditized and has become exchangeable. Moreover, land and landscape ceased to be a source for only those people dwelling within it. It turned into a material base for societies and communities in socially, spatially and culturally distant places. These transformations were not endogenously triggered. Powerful mainly supra-local agents brought about the change to Banna and the landscape of Naban watershed. Concurrently, the functions of land have multiplied. Land is no longer a mere production base for food and other subsistence products, it is also utilised for cash crop production, infrastructural enterprises (such as the construction of hydro electric power stations), and last but not least - for the protection of biodiversity. A plethora of interests on the state level led and still leads to a multitude of organisations which all aim to exert influence and power over resources, in this context mainly land. Concurrently, institutions regulating land use were dissolved, altered or introduced and diversified, a process defined as "fragmentation of institutions" by SAGLIE (2006). Rules and institutions regarding land use in China have not only undergone one drastic and rapid change over the last decades, but rather two rapid transformations have occurred. The first revolution during the Mao-era threw overboard many of the institutions and practices which were culturally and geographically embedded and ensured a certain level of efficiency and sustainability in economic and ecological terms. The second, still ongoing period of liberalization in the People's Republic of China again brings fundamental and rapid reforms which are aimed at integrating the space into a market economy and facilitating the ability of the Chinese nation state to provide public goods and services.

When looking at the institutional landscape of the research area, two, at first glance contradicting processes influencing land use and land use change become visible. On the one hand, institutions are homogenized and at least partly codified under the constitutional level of the Chinese state. On the other hand, heterogenization of institutions has taken place in the wake of functional diversification of land use, land use practices and actors with diverging interests. While some of the institutions, which are negotiated on the local level, remained informal, particularly the regulations instituted by a top down approach show a tendency towards isomorphism, such as the poverty reduction plans and biodiversity protection, concepts which are nationally and internationally influenced or even shaped. An example is the NRWNNR under the biosphere concept. These recent developments increase agency and capabilities of local actors on the one hand, but on the other hand they limit influence and decision making over local resources.

6.1 Exogenous and proximate drivers for land use change

One important aim of this study was the identification of drivers of land use change. Institutional analysis of actors and analysis of socio-economic patterns have helped to identify a variety of drivers of land use change and landscape change. Land use change and deforestation cannot be simply pinned down to rapid increase in population and expansion of shifting cultivation. Land use change is the result of complex and interrelated processes and factors. Lambin et al. distinguish between natural variability, eco-

conomic, technological, demographic, institutional and cultural factors and globalization. Factors driving land use change cannot be accurately separated from each other but are synergetic combinations (LAMBIN ET AL. 2003). Land use change in the Naban Nature Reserve, as a result of a bundle of external and exogenous drivers and interrelated and mutually influencing drivers was the focus of analysis.

External drivers

Underlying or indirect causes of land use change are characterized as "(...) fundamental forces that underpin the more proximate causes of land-cover change. They operate more diffusely (i.e. from a distance), often by altering one or more proximate causes." (LAMBIN ET AL. 2003: 216). Considering the outcome of the institutional analysis, it is mainly actors and processes on the constitutional and collective choice level which externally drive land use change in the research area. The following causes were identified:

- Demand created by national and international markets for local resources creates favourable opportunities for rubber, tea, hemp and bamboo cultivation;
- propagation of transformation from subsistence to surplus production increased demand for land. This demand is covered by replacement of shifting cultivation, forests and the shortening of fallow cycles;
- national government pursues a strategy for exploitation of natural resources and production of cash crops as resources for industrial production in order to increase levels of resource autarky
- increased pressure on space through demand for infrastructure development (i.e. hydropower, roads);
- liberalization of ownership institutions facilitates the access to land of external private agents for monoculture plantations;
- local governments pushing land owners for cash crop production to increase household income and tax revenues;
- natural resource/forest protection institutions and organizations are not strong enough in some areas, while in others they curtail or facilitate local agency.

Endogenous drivers

Endogenous, or proximate causes of land use change "(...) constitute human activities or immediate actions that originate from intended land use and directly affect land cover." (LAMBIN ET AL. 2003: 216). Even though triggered by local actors, they are influenced by external economic or societal factors, with increasing integration into sub-local spheres:

- Population growth/in-migration increased demand for subsistence products;
- higher internal demand for food crops/higher level of consumption i.e. increased meat and alcohol consumption;
- subsistence as a livelihood base loses meaning and importance and land previously reserved is opened for other uses;
- strive for cash income, in order to participate in the wider society (education, leisure, medical expenses, motorization), since consumption has become a new institution generating individual wellbeing;
- availability of alternative construction materials/food/medicine etc. makes forests less valuable and necessary;

- aesthetical and functional values of forests gain importance, particularly in the wake of commoditization of NTFPs, leading to appreciation for and increase of native forests;
- aesthetical and functional values of forests lose importance, since rubber produces much higher revenue and facilitates entrance into the commodity society.

Research has corroborated that land use change in the Naban area is, as studies from other areas within the Mekong region suggest (FOX & VOGLER 2005, FOX 2009, LAMBIN 2001), a complex process, which is determined and caused by a variety of direct and indirect drivers. Looking at the “landscapes of power”⁵³ in NNNR, a shift in power and influence can be detected, which suggest that causes of land use change have become increasingly exogenous, particularly through institutional transformations. Locally formed institutions have been almost completely given up. Top-down approaches to install local or locally adapted institutions, for example local forest management schemes have so far been successful only in a limited number of communities. Local land use is governed mainly by external or externally introduced institutions. Given the institutional framework for decision making on access rights, modes of production and land-and-forest use regulations, it becomes clear that villagers are left with limited options to shape and create their own land use institutions.

6.2 Modelling (social) landscapes: integration into CLUE Naban

The research on institutional aspects of landscape social change was embedded into the larger research project on modelling land use cover change by a holistic approach, i.e. integrating ecological, economic and social factors. The integration of social or socio-economic data into a spatially grounded model like the LUCC model is a challenging but necessary task, because these integrated models “have the potential to improve understanding of the determinants of various land use changes” (RINDFUSS & STERN 1998). The aim of the LILAC project, particularly the Land Use Cover Change (LUCC) subproject was to develop an integrated model which can explain historical and current patterns of land use change and also calculate scenarios. The NABAN modelling framework was developed by Berkhoff and Herrmann (BERKHOFF & HERRMANN 2009), based on the Conversion of Land Use and its Effects (CLUE) modelling framework (VERBURG ET AL. 2002). Analysing institutions regarding land use (change) has proven to be an appropriate approach to providing data which was integrated into the GIS based CLUE Naban.

Institutions, i.e. institutions related to land use, can be considered as an interface between the social and the environmental/geographical sphere. Their analysis, particularly the analytical approach feasible through Ostrom’s Institutional Analysis and Development (IAD) framework offered explanations of the social processes which influence land use and land use change on multiple scales. Looking at institutions from a historical perspective allowed for explanation of land use patterns within their socio-economic settings, which still have an impact on current and future land use, for example the large scale deforestation during the collective period or the expansion of rubber through global market integration. Furthermore, the IAD approach has helped to detect underlying causes or land use change on different spatial scales by analysing institutions and related processes on the constitutional and collective choice levels. As outlined above, it exposed proximate causes of land use change by revealing structures at the operational

⁵³ Expression is borrowed from a homonymously titled monography by Zuckin (1991)

level. Thus, a variety of contextual data was generated to explain current and future land use changes. Setting land use and land use change on the local level of the Nature Reserve into a larger, national and global context also helped to attune the LUCC model according to conditions of Chinese socio-economic and political realities.

Socially constructed boundaries, for example administrative boundaries between the villages and counties can be considered as institutions which are highly spatially explicit. By exploring and mapping those boundaries, socio-economic and economic data on the village level could be integrated into the CLUE Naban. These village level boundaries were suitable spatial entities for the integration of data (from this and other LILAC subprojects) which thus gained spatial significance (BERKHOFF & WEHNER 2010). As outlined above, formal and informal institutions on the operational, i.e. micro level are, at least in some parts of the Naban Reserve diverse and heterogeneous. Analysis of institutions on the micro level revealed ownership structures, land tenure systems and different land use classes which can be considered as socially constructed and spatially efficacious. Information on regulations and restrictions attached to individual land use classes was provided, for example, logging bans in the areas classified as forest. This information, which could be indirectly or directly fed into the model helped to determine conversion elasticity, which is an important parameter in the CLUE modelling approach. The integration of socio-economic data increased the complexity of the CLUE Naban, and therefore its reliability and significance. However, integration of soft information, particularly qualitative data has turned out to be difficult. The possibility of quantifying and making qualitative data spatially explicit remains a methodological challenge.

6.3 Social transformation and production of landscapes

The emergence of localities

The Naban Reserve is an administrative construct, only loosely bound together by the rather weak institutions of the Nature Reserve Administration. Based on the concept of watershed management, the Reserve was artificially unified. Division lines within the reserve became apparent along old (administrative or customary) boundaries, newly emerging social disparities, and different ecological conditions

When linking the social and the geographical space, the concept of locality offers a suitable framework to analyse patterns in the research area. According to Korff,

“Locality emerges as a basis for social empowerment to protect own interests. Multiple local relations and interdependencies defined as locality, provide a basis for self-organization and thereby collective action. What makes a locality are local organizations that have the capacity to define and maintain spatial boundaries.” (KORFF 2003:3)

Considering the definition of locality by Korff, the NRWNNR as a whole can not be considered as a locality, since the organization is still too weak and does not represent the interests of all people. On a smaller scale, however, localities which shape the social landscape of the Nature Reserve have emerged or re-emerged.

Despite inclusion into global networks, villages in the reserve area, as providers of natural resources and incorporation into a national state, have maintained a rather high degree of social cohesion. In the last three decades, ethnic identity has re-emerged as an important source of social cohesion. Different localities and different types of localities can be distinguished, based on the concept that localities are a function of space, thought style and organization. One type of locality which has developed in lowland

NRWNNR is the 'rubber community'. These are old and ethnically homogenous settlements, mainly in the eastern, more accessible part of the reserve. The villages share a traditional geographical space. Spatial claims are further legitimized through Chinese property and tenure institutions. Social cohesion is for example established through a shared thought style. Important concepts are consumerism, rubber orientation, and also a strong ethnic identity starting to re-emerge mainly in Dai and Akha villages. These villages generally show little interest in the protection of forests and biodiversity. The legible rubber landscapes are considered as good and favourable landscapes, since they provide the basis for a good life. Rubber farming is perceived as a fortunate livelihood, in terms of work load and income generation possibilities. Farmers have developed a certain sense of pride in this respect. State bureaucratic organizations, such as the Youth and the Women's League provide a framework for community life. But the individual village also becomes a locality through its common ethnic identity and shared self-conception as rubber farmers. Embedded within the community is the idea that regulations for forest protection are against their interest. Community spirit is further created by resistance against the Reserve Management. The struggle for power over the territory which is considered as belonging to the village helps to create locality.

Another type of locality has developed above the rubber line. These upland communities share a slightly different thought style than the more modern rubber localities. Consumer orientation does also exist, but subsistence orientation remains stronger. Even though main cash income is derived from tea cultivation, upland farmers retain a safety strategy to diversify production and income sources. They show a certain pride in producing the renowned tea, but deplore their location in the highlands and envy lowland rubber farmers. These highland localities, which are embedded stronger in their physical environment through reliance on forest products are of course also organized through the Chinese bureaucratic system. But there is another factor which strengthens these upland localities: the shared idea that forest protection is within their interest and a growing awareness of the value of native forests. With the assistance of the Nature Reserve Administration, these villages have attained a certain degree of self-organization by development of local resource management institutions, which are in compliance with, but not imposed by the State.

The two types of localities outlined above are exemplary models, which do not cover the diverse social and environmental configurations within the Reserve. But certainly they show the interrelation between a community as a social unit and its environment, i.e. the geographical space.

Dividing the NNNR: the impact of the rubber line

A first glance at the land use map of the Nature Reserve (Figure 50) offers at least an idea about the status quo of current land use and land use practices. Research has shown that throughout history the border between the main land use types rubber, rice and forest has been a fluid one and probably will be in the future. Today, especially the rubber line is a border, along which ethnic differences of land use are dissolving. Lahu rubber farmers, which are still considered as one of the most backward ethnic groups in China are as economically successful as Dai rubber farmers. This could be, on the one hand considered as negative, when romanticizing about traditional land use practices as a marker for cultural and every day life practices of ethnic groups and the loss of ethnic identity through modernization and homogenization of land use practices. On the other hand, it can be considered as positive, since small scale rubber cultivation

helped thousands of farmers out of poverty into a livelihood they appreciate. On another level, it helps to transcend ethno-economical prejudices in a society where rural people, particularly with an ethnic background, are still stigmatized in a rapidly urbanizing and modernizing society like China.

The rubber line is not a natural boundary as such, albeit influenced by ecological limitations of *hevea brasiliensis*. However, this limit, once 900 meters in this latitude, has been constantly challenged Chinese scientists. Conquering nature through technological progress, the rubber line has encroached to elevations of 1,100 and higher. The appropriation of space and environment through rubber is closely linked to social institutions in the wider sense. State actors, in form of extension services and state enterprises have pushed rubber cultivation, gradually expanding their influence from the urban centres in the remote areas of the Reserve. Local institutions and actors also play an important role through their attitude towards innovation and adoption of new technologies. As visualized in Figure 50, the rubber line is a frontier, dividing upland communities with lower levels of cash income from wealthier rubber communities in the lowland. The rubber landscape is a produced space; a space produced for production. The consequence is simplification and homogenization of the rubber landscape and its ecosystems. Using Scott's landscape concept (SCOTT 1998), the former landscape is describable as a mosaic landscape which was multi-patterned, multi-functional and thus highly diverse in eco-systems. It has been converted into a bi-functional, legible and formalized landscape dominated by rubber and rice. The landscape was transformed, from a base for subsistence into a commodity for cash crop production. This leaves limited room for flexibility, particularly through the introduction of perennial crops and their relatively high entry costs for establishment. Along with commodification, which already started during the period of collectivization, a despiritualization of both forests and agricultural lands took place, with farming practices no longer influenced by spiritual and ritualistic factors but only by efficiency and technological progress and governed by supralocal institutions.

Lowland NNNR has turned from an almost closed-off landscape, endowed with a high degree of "natural productivity" (ROBBINS 2004: 92) into an externally linked and dependant landscape and socio-economic system. Particularly in those parts where the natural nutrient cycles of soil and vegetation have been damaged or broken, input of nutrients becomes necessary, leading to dependency mainly on fertilizers produced elsewhere, adding to a possible global nutrient imbalance (VITOUSEK ET AL. 2009). In order to afford the maintenance of fertility and productivity, farmers are bound to produce cash crops, subjecting themselves to unpredictable world market processes. The transition from native forest systems into monoculture forests also has disturbed processes within the area, particularly fragmentation of habitats and hydrological systems, which reach beyond the border of the rubber field, and affect farmers in other parts of NNNR (or even beyond), as the scarcity of water for rice cultivation and consumption indicates. From a first, superficial glance, the cultural landscape of upland NNNR has not significantly changed. Scott suggests that there is a differentiation between the visual and functional order of a landscape (SCOTT 1998:275).

The lowland rubber landscape is both visually and functionally "legible", its function clearly adjusted to production of rubber and visually legible through countable rows and numbers of trees. In contrast, the upland landscape retains some of its mosaic-like, patchy and unordered appearance and its functionality is less predictable. Adding to the

heterogeneity are secondary forests which have been able to recover, highly valued by communities for aesthetical and functional reasons. However, at a closer look, former shifting cultivation landscapes have also been tamed in certain respects, with the ban on slash-and-burn practices, the shortening of fallow cycles and the introduction of mainly annual cash crops. Tea plantations have been expanded and add structure to the landscape. Apart from perennial tea plantations, the upland land use systems, still based on rotation and annual plants, allow much more flexibility and more room for local decision making on land use, or in Sturgeon's terms (STURGEON 2005), have retained some of their "fluidity". The diversity of crops and mixture of cash and subsistence production allows a livelihood less cash-affluent than in rubber areas, but possibly more resilient to influences from the external, global economy.

Shifting scales again: from the NNNR to Xishuangbanna and beyond

The previous three chapters have intensely described and analysed processes in the social and geographical sphere of the Naban River Watershed National Nature Reserve. It now seems appropriate to apply these findings to the wider spatial entity of Xishuangbanna, in which the research area is embedded in. Many of the outcomes are conferrable, i.e. mirror processes in other parts of the Prefecture. However, the Nature Reserve is a space unique to Xishuangbanna, due to its position as a protected area. Thus, findings on the relations between institutions and the environment, particularly approaches and implementation of institutions for sustainable land management and protection need to be understood as best practice examples which might help to improve land management in other areas of Xishuangbanna and beyond. The concept of the rubber line and its impact on societies can be transferred to the whole of Xishuangbanna. Most significant is the widening of economic and social disparities. On the one hand, new, modern and relatively wealthy rural communities and centres have emerged. On the other hand, many communities are in danger of further marginalization, despite improvement of living conditions in absolute terms. Particularly the upland areas of Menghai County lag behind, as quantified in Figure 17, providing local people with less capabilities and capacities to improve their livelihoods. This in some respect mirrors one of the largest social challenges the PRC is currently faced with: huge (income) disparities which lead to social exclusion and threaten social stability. Despite attempts to improve the situation and the Government's objective to create a "harmonious society" no solution has been found to stop the process. Below the rubber line in Xishuangbanna, a living standard which is agreeable to the local population, has been achieved at the cost of loss of forests and biodiversity. For the upland areas, no such economically viable production systems are in sight. However, these communities are in possession of native forests and a comparably high degree of biodiversity which is highly valuable, even though (not yet) in economic terms. Institutions introduced by the Reserve Administration have, at least in some of the highland communities proved successful and are increasingly gaining acceptance. Research has shown that it is vital that institutions are socially embedded in order to achieve sustainability and effectiveness. Local communities which were assisted in creating their own local institutions for maintaining biological diversity were most successful in this respect, since they were able to increase agency and income diversity. As outlined above, and as stressed by FOX (2009), local depletion of local resources is mainly driven through supralocal forces, and only proximate by local farmers. Protection of biological diversity and remaining forests should thus be considered as an issue involving the whole of society and not just local actors. Further

research needs to be undertaken to find solutions regarding locally adapted institutions and mechanisms which will enable local people to create livelihoods and communities which are economically and ecologically sustainable.

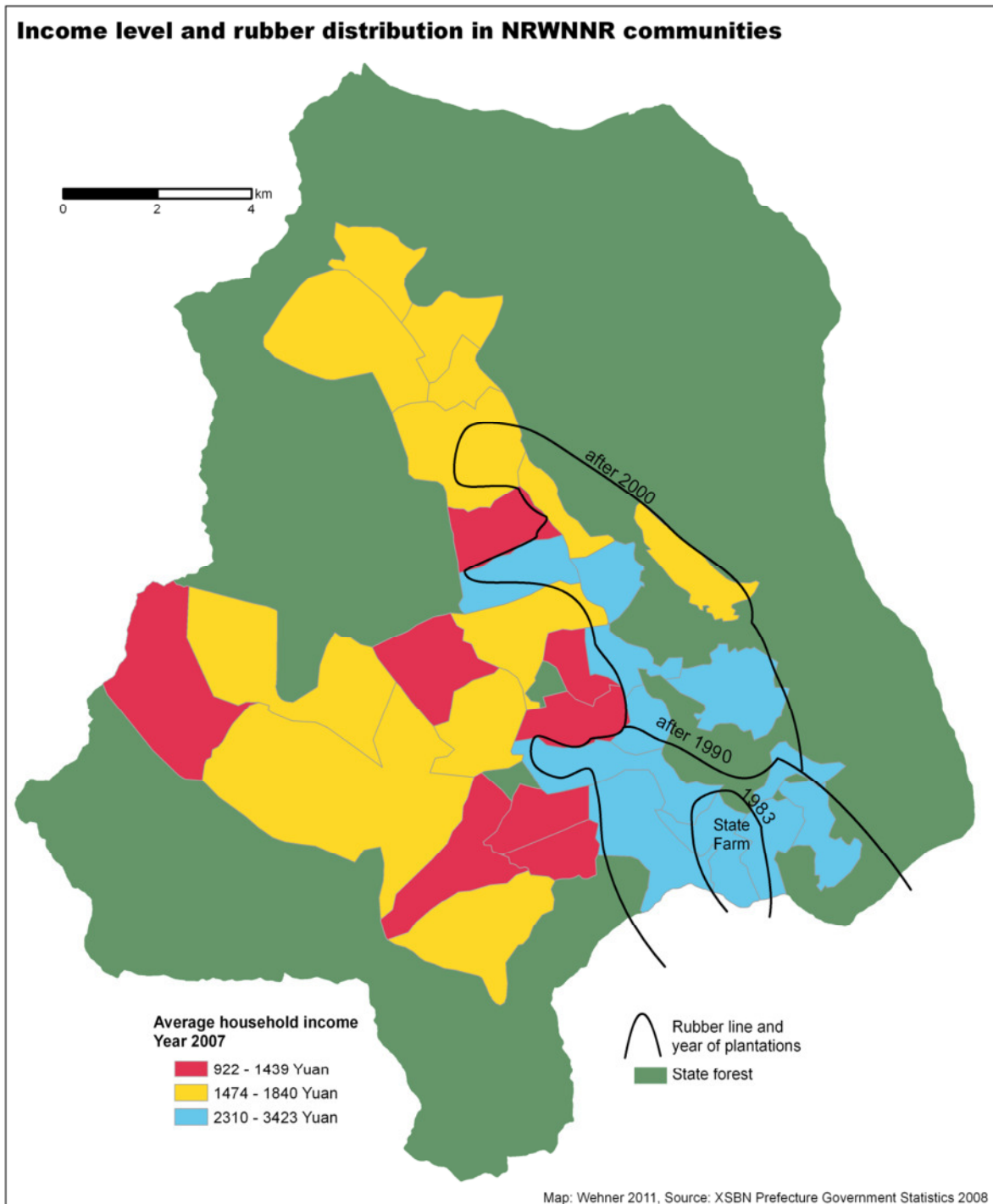


Figure 50: Income levels and the rubber line (adapted from PARTY COMMITTEE OF YUNNAN 2008, BERKHOFF & HERRMANN 2009)

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