

Shifting Landscapes - Shifting Cultures in Xishuangbanna, Southwest China

Stefanie Wehner (Passau)

Though relatively small in size, Xishuangbanna (Banna) displays an astonishingly high degree of cultural and biological diversity. This fact has always made Banna attractive and special, but also vulnerable to external attention, interests and interventions. Geographically and politically wedged between the powerful empires of Burma and China, the Buddhist kingdom struggled to keep its independence from the time of its founding in the 13th century. The Dai, the ruling class of the feudal state settled and dominated the lowlands while various ethnic groups followed relatively secluded and independent ways of life in the remote and topographically challenging uplands. From the 19th century, Banna came increasingly under the influence of 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). Soon, it became integrated into the national and global economy as a supplier of natural resources and was also the target of ambitious projects of civilization, modernization and development implemented by the Chinese state.

Over the last decades, the face, function and structures of the social and physical landscape of Banna have completely changed. Arguing on the premise that space is produced and transformed within and through social relations, I will discuss these changes along with the concept of the *paddy line* and the *rubber line* – socio-ecological boundaries defining and dividing the landscapes and local societies. This article is closely based on the author's dissertation (Wehner, 2011) and extensive fieldwork that was undertaken between 2006 and 2010.

Banna's Ecological Features

To comprehend the human and social landscape of Banna requires a basic understanding of its environmental and physical conditions. Over many centuries, livelihoods and land-use techniques have become highly adapted to the diverse local environment. In its physical geographical features and historical configurations, Banna can be regarded

as part of the mountainous mainland of Southeast Asia, and environmental factors still directly and indirectly influence recent economic and social development. 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 that supports a high degree of biological and cultural diversity. Annual mean temperatures range from 22°C in the lower areas to around 16°C in higher altitude areas of Western Banna. Average rainfall amounts to 1400 mm per year (with microclimatic variations). Between May and October, the south-western monsoon from the Bay of Bengal brings hot, moist air masses whereas the months from November throughout March are practically free of rainfall. However, annual precipitation is increased during the dry season by about 145 foggy days, which are crucial for the native tropical vegetation (Zhu, 1997). Banna's topography is diverse, with altitudes ranging from 450 m to 2500 m above sea level (asl). With the foothills of the Himalayas running from north to south, the landscape features rugged mountains and steep valleys. One of the most striking features is the Lancang Jiang or Mekong River, which winds through Banna from north to south and is fed by tributaries from twenty watersheds. The flat valley basins, which cover only 5% of the terrain, are limited in area but of outstanding importance for human settlement and agricultural development (Li et al., 2007: 1734).

The Banna region has the highest biodiversity in China; although it covers only 0.2% of the country's total landmass, it is home to 5000 species of higher plants (16% of those found in China), 102 species of mammals (22% of those found in China) and 427 species and subspecies of birds (36% of those found in China) (Zhang and Cao, 1995: 229). This diversity is owed to Banna's location as a transition zone for flora and fauna between tropical Southeast Asia and subtropical/temperate China. As an old cultural landscape with a long history of settlement, it also hosts a high degree of cultural and agricultural diversity.

Banna: Land of a Thousand Paddy Fields and Beyond

Chinese chronicles mention human settlements in the area about 200 BC. However, considering the settlement history of the wider region of Southeast Asia, it is likely that settlement dates back even earlier (Zhu, 1992: 3). The largest and so far most dominant group have been the Dai Lue, who came from the North to settle in the fertile valleys, driving other groups into less favourable environments in the hillsides. In 1181 AD, the Dai kingdom of Banna was founded, and the area became an autonomous political entity. Paddy rice cultivation that had flourished for centuries in the fertile valleys of Banna allowed surplus production and thus facilitated the development of social stratification and political organization. Besides the dominant people of the Dai Lue, many other ethnic groups settled in the mountains of Banna. These peoples, some semi-nomadic, were hunters and gatherers with little to no political organization beyond the village gate and little internal social stratification (Kunstadter, 1967).

From a socio-ecological perspective, the advent and expansion of the Dai saw the emergence of the *paddy line*. The concept of the *paddy line* helps us to understand how social and cultural processes interrelate closely with the physical environment (Weh-

ner et al., 2014). The *paddy line* can be described as a socio-ecological boundary that divided the kingdom of Banna into two spheres: the areas subject to paddy cultivation and the non-paddy cultivating areas. Determined mainly by environmental factors such as topography, water availability and temperature, 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. The consequent transformation of tropical rainforests and wetlands into permanent paddy fields resulted in a very strong impact on the natural environment. The first shift had taken place from an untamed and almost unused environment to a cultural landscape with the strong management institutions necessary for the complex task of wetland rice cultivation.

Above the *paddy line*, the mountainous areas were home to non-Dai groups, such as the Lahu, Akkha, Yi, and Bulang (Kunstadter, 1967), whose livelihoods depended less on permanent agriculture and more on hunting, gathering and shifting cultivation. Because these groups were spread over mountainous Southeast Asia and parts of Southwest China, their political and social stratification was limited to within the village community. Interaction beyond the village area was mainly limited either to marriage between people of the same ethnic group from different villages or to trade and exchange of goods (Walker, 1999). As in other areas of mountainous Southeast Asia, the terrain was rugged, difficult to access, heavily forested and extensively used. With a low population density, the area remained under forest cover, and although pristine forests were sometimes encroached on, long fallow periods allowed the regrowth of biologically diverse secondary forests.

Albeit to a much lesser extent than at present, Banna of the past was divided by the *paddy line* with the wild, untamed and not formally regulated landscapes of the mountainous areas on the one hand and the orderly and legible irrigation landscapes of the valleys under the direct control of the Dai.

The Emergence of the *Rubber Line*

The advent of Chinese rule over Banna brought a total change in political-economic terms; as one of the few subtropical areas in the PRC, Banna attained strategic importance as a rubber cultivating area. From the 1950s on, rubber plantations encroached on Banna's more or less pristine forests, facilitated by the collectivization of land throughout the republic. State farms were established, staffed mainly with deployed military and Han Chinese farmers, and later with young urban Han Chinese during the Cultural Revolution. About 200,000–300,000 young people – some forced, some highly ideologically motivated – were sent during the *Youth to the Countryside campaign* to labour on the plantations of rural, backward and uncivilized Banna (Jianchu et al., 2005).

Radiating out from the 11 state rubber farms of lowland Banna, rubber cultivation spread into Banna's lowland landscapes, building pockets of modernity. On the state rubber farms, technological knowledge was applied to create legible and productive landscapes for rubber cultivation, which was a resource of strategic importance in deve-

loping and modernizing industry and economy in the young PRC. The impact of these rubber colonies went far beyond land-use change.

Migrants brought their culture and lifestyles to the state rubber farms. The Han Chinese lifestyle was considered modern, in contrast to the backward and traditional culture of the local people from ethnic groups. As Sturgeon (2010: 323) points out, immigration and the introduction of the state rubber farms led to “a spatial manifestation of social hierarchy”, with Han people clearly on top. Those spaces of modernity soon reached beyond the gates of the rubber farms into the rural capital of Jinghong, where an influx of Han Chinese started to alter the formerly Dai-dominated urban structure.

In the early 1980s, a period of decollectivization and economic liberalization brought a completely new dynamic to land use in Banna. The local communes were dismantled and local farmers received land-use titles for small-scale farming. Hitherto mainly involved in farming food crops for subsistence, local smallholders were encouraged to diversify and invest in rubber trees. State-extension services propagated rubber expansion on the farms of private smallholders in areas below 700 m (asl) (Grötz, 2016). Driven by increasing national and international demand, a diffuse expansion of *hevea brasiliensis* started from the ever-growing pockets of the state farms.

In the 1990s and early 2000s, poverty alleviation programmes were implemented by the central government, such as the Slope Land Conversion Programme (Grain for Green) during the Go-West Campaign, which started in 2001. Local farmers converted land used for shifting cultivation into rubber plantations, pushing the elevation limit to well above 1000 m asl, which is beyond the ecological limits for *hevea brasiliensis* in these latitudes. By 2016, almost 100,000 households from over 1,000 villages were engaged in rubber cultivation (Xu and Yi, 2015: 803).

Sequences of aerial or satellite images clearly show that the 5-hectare rubber pockets of the state farms in the 1950s became a carpet of more than 300,000 hectares by 2014 (Min et al., 2017). Rubber now covers about 20–25% of Banna’s total land area. Banna, 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 three different cultural landscapes, each with its own ecological, social and economic morphology and characteristics. First, the “legible” landscapes of the lowlands (Scott, 2009), which have mainly turned rubber monocultures, have lost much in terms of biological, agro-biological and land-use diversity. Even under smallholder farming systems, perennial cash crop plantations have replaced shifting cultivation and forest systems. Cash crop cultivation has diminished the significance of rice cultivation and rice subsistence. Lowland landscapes have turned static and have little flexibility left for land-use change.

The second type of cultural landscape lies in the upland areas above the *rubber line*, which have also undergone far-reaching transformations. However, neither face nor functionality has changed completely in those upper, less accessible parts. Despite the intensification of land use and introduction of cash crops, the landscape has maintained some of its important features of dynamism and flexibility and still supports diverse farming practices and land-use patterns.

The third landscape type could be described as urban, and includes the city of Jinghong, followed by Mengla and Menghai, which all have a tendency to intensive ho-

horizontal and vertical expansion; from 1976 to 2015, those three cities multiplied their demand for space from about 15 km² to almost 200 km². From a remote and laid-back town on the banks of the Mekong River, Jinghong developed, or rather was developed into a sparkling and exotic tourist gateway to Southeast Asia. Hotels, restaurants and sights of interests, including Southeast Asia's largest Buddhist temple complex, were constructed. In 2013, Banna received more than 2.7 Mio. tourists (Neo and Pow, 2015). As part of the Go-West strategy, huge sums were invested in Jinghong from the late 1990s, with local and regional governments striving to increase and diversify tax revenues and generate employment. Not only the urban centres but also rural areas and infrastructure increased the demand on the landscape: in the case of townships and villages from about 6 km² to 115 km² in the same period (Cao et al., 2017: 8). Albeit not the focus of this article, it is worth mentioning that urbanization and the development of the tourism sector have repercussions on the surrounding rural areas; for example, urbanization increases demand for agricultural and non-timber forest products, and tourism acts as an employment motor and a magnet for the under-employed youth from rural areas.

Institutional Changes in Land-use Regulations and Practices

Having described changes on a physical level, this article will now focus on the underlying socio-political processes that triggered or facilitated change in land-use and landscape. These processes were driven by institutions, which can be best described using Scott's (2008: 48) definition:

"Institutions consist of cognitive, normative, and regulative structures and activities that provide stability and meaning to social behaviour. Institutions are transported by various carriers – culture, structure, and routine – and they operate at multiple levels of jurisdiction."

At the constitutional level, the area was subdued over the last seven decades by two major transformations, or rather institutional ruptures. During the Mao era, many institutions were abolished to make way for "modern" communist regulations and structures, the most prominent example of which was the introduction of the People's Commune. As Shapiro (2001: 67) points out "Ideas would unleash raw labour to conquer and remould nature", destroying institutions that ensured a certain level of efficiency and sustainability in economic and ecological terms.

Then, during the 1980s, responsibility for agricultural production returned to the household level and the flow of money, goods, ideas and people became increasingly liberalised. However, responsibility for land use in a wider sense remained beyond the individual or the local level. Rather, land-use regulations increasingly became an issue of strategic concern. Even more intensively than during the first decades of communist rule, space was turned into a commodity, and its produce – rubber and other cash crops or electricity from the hydro-electric plants – was fed into national and international markets (Korff and Wehner, 2009).

Landscapes and spaces in Banna are currently under an increasing amount of pressure, triggered by the advent of actors with a plethora of different interests and intentions. Land-use policies, rights and access to land are negotiated and influenced by an increasing number of actors, often with completely diverging interests, such as local individuals and administrators, business people and state agencies from different levels of administration. These diverging interests mostly stake their claim in a spatial sphere by claiming space and triggering a change in land use. Put simply, we can find three main groups with interests and aims that sometimes overlap but are more often contradictory: small- and large-scale investors, ranging from local business people to state-owned companies; government-driven poverty reduction schemes; and international- and state-driven environmental protection schemes (Wehner, 2011).

Institutional Change on an Operational Scale

The described integration of Banna into national and global networks had two simultaneous but rather contradictory effects on the development of land-use institutions: homogenisation and heterogenisation. We will look at the change in land use by focusing on two villages that lie on different sides of the *rubber line*. As a methodological framework, Ostrom's Institutions and Development Framework (IAD) helps to analyse and understand the structures, actors and activities that shaped landscapes and livelihoods in Banna (Ostrom, 2005; Wehner, 2011).

Mandian and Xiao Nuo You Shan Zhai: Only 25 Kilometers Distant, and yet Worlds Apart

Mandian (MD), an old Dai village, and Xiao Nuo You Shan Zhai (XNY) are located respectively at about 800 m asl and 1200 m asl. Whereas MD has had road access since a state rubber farm was established in the vicinity in the early 1960s, the all-weather road to XNY was still under construction in 2013.

Both villages were only a handful of bamboo and thatch houses in the 1960s, with limited cultivated land in their vicinity and surrounded by native forests (Grötz, 2016). The villages and their surroundings took different paths of development, despite similar institutional settings concerning land use. When land use is categorised according to Ostrom's IAD framework of human-environmental interactions as irrigated land, dryland and forest land, it becomes evident how livelihoods and landscapes developed.

The Heart of the Southeast Asian Cultural Landscape: Paddy Cultivation

Paddy fields in both the lowlands and the uplands have been subject to the *green revolution* propagated by state agencies. In the 1980s, hybrid varieties replaced a plethora of local rice varieties and required the input of chemical fertilizers and pesticides. Although some of the old varieties that had adapted to the highland climate survived in XNY, in MD only small patches of glutinous rice for consumption on festive days have been kept. Historically, paddy rice cultivation demanded a high level of cooperation wi-

thin the village, and the maintenance of the irrigation systems and transplanting and harvesting of rice were traditionally tasks shared between households working mutually. Mechanization of paddy cultivation, which occurred especially in the lowlands, led to higher labour efficiency but also to less need for mutual support, thus weakening the social fabric of the moral economy as a foundation of Southeast Asian societies (Scott, 1977).

The fact that animal husbandry, especially of buffaloes, went into a strong decline might appear negligible at first sight; however, the impact on the livelihoods of a certain part of the population is significant. Taking care of animals and herding buffaloes were the responsibility of senior villagers, so though being released of this responsibility might be a blessing for some, for others it represents a loss of value and meaning. More than just a farm animal, buffaloes provided fertilizer and fuel, gave financial safety as a tradable good and played an important role as a status symbol and in cultural practices and rituals (Rousseau and Sturgeon, 2019).

Despite the introduction of modern farming technologies, paddy cultivation is still a prevalent feature of the landscape. Under the nationwide Land Management Law revised in 1998, conversion from high-class agricultural land (such as irrigated paddy land), at least by individual leaseholders, is prohibited (Ding, 2003). Thus, the area of irrigated land has remained relatively stable, and remote sensing analysis suggests that paddy area in Banna did not decline between 1976 and 2015 (Cao et al., 2017).

The example of MD, however, shows how local interests are overruled from above. Farmers faced the expropriation of almost 15% of their fertile paddy areas because the land was reallocated to build a resettlement village to accommodate those whose village was flooded during the construction of the Jinghong hydro dam, one of the dams along the Mekong cascade, (Wehner, 2011).

Because the introduction of hybrid varieties allowed rice productivity to exceed the subsistence level, some of the paddy fields are leased to external producers. Investors from other counties, or even provinces, lease the land to cultivate fruit and vegetables on an individual and short-term basis. Though this practice certainly adds to income diversity, the long-term benefits are not clear. Considering that almost 20% of China's agricultural land is already polluted (Chen et al., 2014), farmers run high risks of losing control over the health of their soils since it is not easy to regulate the use of farm chemicals by contractors with short term interests.

Implementation of land-use regulation makes clear that irrigated land is a major factor in the food security of households in the community. The tenure for paddy fields is not as secure as tenure for other land use classes; to endow every villager with a local hukou (local resident-ship) that provides at least the minimum of paddy field for subsistence, tenure is rededicated from time to time (Grötz, 2016).

In XNY, exemplary of other highland areas, paddy cultivation remains a more substantial part of agriculture due to the higher degree of subsistence. Morphological and climatic conditions mean that paddy cultivation in the uplands has undergone less technological change than in the lowlands because small terraces in steep terrain limit mechanization, and vegetation growth is limited to 6 months between May and October. Because of a general lack of cash income, upland farmers cultivating fields in these environmentally less favourable conditions tend to apply fewer chemical fertilizers and

pesticides, and hence the margins of increased expense on farm chemicals remain relatively minimal. Another feature of paddy cultivation in the uplands is the distance between fields and settlement. While most paddy fields in MD surround the settlement in close proximity in the relatively wide valley bottom, many of the rice terraces in the highlands are located in steeper valley bottoms and at the lower reaches of the valley slopes to provide access to the water resources. This means long travelling distances (up to two hours walking) to the fields, which draws heavily on the time budget.

Shift and Shape: Dryland and Shifting Lands Disappearing

Also typical of the landscapes of mountainous Southeast Asia in the Mekong region are the mosaic patterns of dryland and shifting agriculture. The Chinese government made great efforts to put an end to shifting agriculture; both to end non-sedentary forms of livelihood and for environmental reasons. Shifting cultivation/swidden agriculture was made the scapegoat for the destruction of natural forests over the last decade but has found some rehabilitation lately (Alcorn and Royo, 2015; Cairns, 2015).

Nevertheless, this land-use type has been affected by conversion, both in the upland areas and even more so in the lowlands, leading to significant changes in livelihood and the environment. In MD, as in all other lowland areas of Banna, areas that were used for dryland agriculture of annual plants with or without fallow periods or grazing have been dedicated to another use, namely rubber plantations. Agricultural production since has been limited to rubber and rice. Production of corn as a food and fodder crop has ceased, and grazing land for livestock is no longer available.

Situated close to a state rubber farm, MD village was among the very first villages to come in contact with the rubber economy. After the household responsibility system was introduced, the government and the state farms massively propagated the expansion of rubber cultivation. In relatively favourable climatic conditions, the financial benefits of rubber became evident rather promptly, and after emanating from a trial area of about 3 ha in 1984, rubber plantations now cover all arable land except paddy fields. Even the tea plantations that villagers had cultivated for decades were transformed into rubber plantations (Wehner, 2010).

Since the transformation from subsistence to market economy, the village of MD has one of the highest cash incomes per capita, with a far-reaching socio-cultural impact. This includes a change in food habits, dependence on an external food supply, housing and altered workloads, working schedules and tasks.

In XNYZ, perennial rubber plantations have not encroached on the flexible dryland areas. However, as in other upland areas of Banna, the Sloping Land Conversion programme, the Grain for Green programme and the ban of slash and burn practices all led to the introduction of permanent or perennial cultivation practices (Xu, 2006). Tea plantations were recovered and expanded, including newly introduced mixed-cropping systems (Leshem et al., 2010). Bamboo plantations were introduced with the Menghai-based bamboo factory as a reliable buyer and processor of construction material. Furthermore, the area given over to tea plantations was expanded, both those owned by local villagers as well as those owned by external investors. In 2008, hemp was introdu-

ced as a new cash crop. Grown as a resource for fibre production, hemp is, like bamboo, purchased by the regional processing plant in Menghai. This state-owned enterprise manufactures fabrics for the national market, including fabrics for the People's Liberation Army. While receiving intensive technical and financial support from government extension services, individual households adopted the new crop quickly. To facilitate the transport of bamboo and hemp to the markets in Menghai, a former jungle path connecting XNY to the westward villages was upgraded to a gravel road, improving access to the villages and towns in Menghai County.

From the macro perspective, landscapes of the uplands have not changed as profoundly as landscapes of lowland Banna. Even though the uplands are still predominantly void of perennial cash crops, agricultural innovations nevertheless have had a significant impact on local socioeconomics and ecology. The cultivation of ecologically well-adapted upland rice and corn varieties, once the backbone of local grain subsistence, was cut back, with a loss in food sovereignty and agro-biodiversity. On the other hand, the structure of the local, monopolistic sales markets for hemp and bamboo and the demand for seeds and farm chemicals have increased the dependency of local farmers. Though XNY has a relatively large amount of land per inhabitant, pressure on ecological systems of the dryland areas has increased beyond the input of farm chemicals and exogenous seeds. As local farmers report, the swidden-cultivation circle has drastically altered, allowing for much shorter fallow periods, or even none at all, and the effect of this change on the biodiversity and subsistence opportunities that swidden landscapes normally provide has been detrimental. Swidden agriculture systems in Southeast Asia provide rich agro-ecosystems hosting hundreds of species of plants, fungi and animals, many of them collected by swidden cultivators to provide food, medicinal plants and other materials (Kunstadter, 1967; Rerkasem et al., 2009). In Banna, research found that villagers use more than 70 plant species from their fallow fields for direct use, diversification of their house gardens or for sale (Fu et al., 2003). Especially in the more remote areas of Banna, traditional medicinal plants and food supplement from wild plants still play a big role, as Ghorbani et al. (2012) point out.

From Holiness to Homogeneity: Forests in Banna

Seemingly untouched, native and wild forests are definitely a land cover of the past. Primary forests remain intact only in a few areas of Banna, like the core zones of nature reserves.

Food and Agricultural Organisation (FAO) statistics on forest cover in China do not show severe forest loss, but rather an increase of forest cover. However, because these statistics do not discriminate between natural forests and tree plantations. Thus they do not reflect the profound transformation in quality. This includes, for example, the severely diminished degree to which rubber plantations provide biological diversity, erosion control and carbon storage capacity, their negative impact on the macro and meso-climate and other declines in the eco-system services provided by natural forests (Hu et al., 2008). However, research shows that forest transformation is reaching new peaks. Between 1988 and 2003, "Rubber plantations in Xishuangbanna showed a linear increase, while at the same time, natural forests showed a linear decrease. From 1999 to

2010, expansion of rubber plantation and decline of natural forests accelerated dramatically" (Zhai et al., 2017: 151). Particularly, forested areas suitable for rubber plantations were converted to rubber, including areas within protection zones (Sarathchandra et al., 2018).

However, the forest areas around XNY close to the Naban Nature Reserves Core Zone were not converted. Quite the contrary, in the area of this highland village, natural regrowth of natural forest area occurred and, at least theoretically, the use of the forests is strictly regulated. Villagers are entitled to collect timber for construction and firewood and also to collect non-timber forest products. Especially bamboo-shoots and funghi, namely the Mu-Er mushroom, are marketable products sought after by tourists and inhabitants of Jinghong and other urban areas. Although, as Ghorbani et al. (2012) point out, this puts pressure on the remaining forest ecosystems, the appreciation of forests in XNY prevails, certainly also fostered by the support and educational efforts of the nature reserve extension staff.

In the lowlands, the picture is an entirely different one. In MD as well as in other Dai villages nearby, rubber plantations have completely replaced natural forests. Apart from the loss of natural forests as a base for material resources mentioned above, forests have lost their meaning as metaphysical spaces in every-day and ritual life, as has been manifested in the desecralization of the relationship between humans and the environment. Culturally intrinsic to all ethnic groups, the bond between people and nature went well beyond the environmental space as a base for food, medicines and housing. Within the last decades, propagated firstly by the ideological claims of the cultural revolution and later on by capitalistic market-driven ideologies, the environment has lost its former meaning and importance as a spiritual space, for example the Dai Holy Hill Forests as "the place where gods live, (...). Any violence and disturbance for plants and animals in the forest will be punished by the gods" (Hongmao et al., 2002: 707). While the Holy Hills of the Dai are the last remnants of conservation throughout Dai villages in Banna, there are none in MD village. Determined by the Land Management Law and the dictate of cash crops, monocultures shape the village-scape of MD, resulting in orderly rows of rubber trees and hybrid-rice terraces.

Shifting Landscapes: Shifting Cultures

Below the *rubber line*, everyday life has become better. Secure housing in concrete buildings, best described as Neo-Dai architecture, have replaced the quaint traditional timber-and-brick constructions. Cash income allows the purchase of modern household appliances and vehicles, at least a motorcycle if not a car. As pointed out before, food patterns have changed from subsistence to a market-based diet, with the exception of rice. Not only have consumption patterns of food changed, also an integration of consumerism has taken place. Dai lifestyle has become similar to everyday life in other parts of the PRC. After decades of poverty and shortages, consumerism has become a dominant force in Chinese popular culture (Jacka et al., 2013). Consumption patterns are only one side of the coin of economic prosperity, the other is the mode of production. Fossil fuel-free subsistence farming in an environment of agricultural diversity has been re-

placed by a monoculture cash crop for the world market. As Sturgeon (2012) points out, rubber is a completely generic product. There is no linkage along the supply chain, no attachment between producer, product and post-production or the consumer. In other words, the car mechanic in Shanghai will certainly not bear Banna's undulating rubber hills in mind while changing his tyres. This can be interpreted as a profound alienation from the production base. However, in the local discourse being a rubber farmer is seen as modern and progressive and the economic status that allows an improved standard of living is perceived as a positive development (Wehner, 2011).

Returning to the landscape level, rubber monoculture and despiritualization have profoundly reduced the potential for promoting tourism. A huge gap exists between the exoticized imaginary Dai landscapes consisting of pristine forests, lush paddy fields and historic Dai architecture and the reality of rubber plantations and Dai-ized concrete houses. For example, the Mandian waterfall, a popular site for individual tourists in the 1990s, has lost its attraction since the surrounding forests have disappeared and changes in meso-climate and hydrology have reduced the waterfall to a trickle during most months of the year. The modern Dai rubber landscape does not leave much opportunity to develop types of tourism, for example ethnic tourism that caters to individual tourists and travellers, which could have facilitated the re-introduction of traditional cultural practices (Chen, 2014).

In the case of the upland communities, development has been less rapid and less profound. Quality of housing and living standards have increased steadily on a less steep curve, as has the intensity of land-use transformation. Farming at the subsistence level is much more prevalent compared to the rubber-based village economies. Integration into the national and world market has only partly taken place, using a range of cash crops, which is less lucrative but also less volatile to external drivers. Since there is still little surplus income after meeting basic demands in farming supplies and basic household goods, consumerism has not yet become a reality. The glitzy world of middle- and upper-class urban China remains a dream (or nightmare) delivered into the households by Chinese soap operas on TV or on an infrequent trip to the urban centers of Banna.

The most important cash crop is tea, a plant endemic to the region, which has found worldwide appreciation over the last decades. The ancient tea horse road once linked Banna and Southern Yunnan to Tibet and other parts of Asia (Fuchs, 2008). Somewhat neglected during the Mao period, a long-standing tradition of tea cultivation was revived in the early 2000s when the first studies on its health benefits were published. Since 2008, the name Pu-Erh tea is protected and can only be used for fermented tea of *Camilla sinensis* var. *assamica* that is produced and processed in Yunnan. China-wide and increasingly on the international scale, Pu-Erh tea produced in the region offers wide opportunities for tourism and regional marketing. In Jinghong and Menghai, streets are lined with numerous tea shops, offering the whole range from cheap to high-end premium tea. Unlike rubber, tea has the potential to be an authentic product that includes the opportunity for an emotional connection: the producer of tea is proud of his traditional and esteemed product and the buyer is proud of an authentic and precious product, which might evoke images of bucolic Yunnanese landscapes during the process of buying and consuming (Sturgeon, 2012). Producing tea and other cash crops is not the only land-use activity that distinguishes this upland village from

the rubber areas: as mentioned earlier, forests around the village were saved and could recover. The villagers, living close to the core zone of the national nature reserve, have become aware of the multi-faceted value of their forests and have developed an attitude of stewardship.

Scott (1998) suggests a differentiation between the visual and functional order of a landscape. The order of the rubber landscapes has been changed both visually and functionally: rubber landscapes are homogenous, formalized and legible, and the village economies are tightly linked to international markets and influenced by Chinese culture. In contrast, the upland landscape retains some of its mosaic-like and unordered appearance, and in its functionality the upland landscape is more heterogeneous and flexible. Despite the intensification and expansion of monoculture, upland land-use systems allow much more flexibility and more room for local decision-making on land use. The combination of cash and subsistence production renders upland farmers less affluent but possibly more resilient to external influences.

References

- Alcorn JB and Royo AG (2015) Best REDD Scenario: Reducing Climate Change in Alliance with Swidden Communities and Indigenous Peoples in Southeast Asia. In: Cairns MF (ed) *Shifting Cultivation and Environmental Change. Indigenous People, Agriculture and Forest Conservation*. Hoboken: Taylor and Francis, pp.289-306.
- Cairns MF (ed) (2015) *Shifting Cultivation and Environmental Change. Indigenous People, Agriculture and Forest Conservation*. Hoboken: Taylor and Francis.
- Cao H et al. (2017) Urban Expansion and Its Impact on the Land Use Pattern in Xishuangbanna since the Reform and Opening up of China. *Remote Sensing* 9(2): 137.
- Chen L (2014) Cultural impact of modernization and tourism on Dai villages in Xishuangbanna, China. *Tourism Geographies* 16(5): 757-771.
- Chen R, De Sherbinin A, Ye C, and Shi G (2014) China's soil pollution: farms on the frontline. *Science* 344(6185): 691.
- Ding C (2003) Land Policy Reform in China: Assessment and Prospects. *Land Use Policy* 20: 109-120.
- Fu Y, Guo H, Chen A, Cui J, and Padoch C (2003): Relocating Plants from Swidden Fallows to Gardens in Southwestern China. *Economic Botany* 57(3): 389-402.
- Fuchs J (2008) *The Ancient Tea Horse Road. Travels With the Last of the Himalayan Muleteers*. Toronto: Viking Canada.
- Ghorbani A, Langenberger G, Liu, J, Wehner S, Sauerborn J (2012) Diversity of Medicinal and Food Plants as Non-timber Forest Products in Naban River Watershed National Nature Reserve (China): Implications for Livelihood Improvement and Biodiversity Conservation. *Economic Botany* 66(2): 178-191.
- Grötz, PA. (2016) *Rural innovations and their impact in Southeast Asian mountains*. Weikersheim: Margraf Publishers.

- Hongmao L, Zaifu X, Youkai X and Jinxiu W (2002). Practice of conserving plant diversity through traditional beliefs: a case study in Xishuangbanna, southwest China. *Biodiversity and Conservation* 11(4): 705-713.
- Hu H, Liu W and Cao M (2008) Impact of land use and land cover changes on ecosystem services in Menglun, Xishuangbanna, Southwest China. *Environmental Monitoring and Assessment* 146(1): 147-156.
- Jacka T, Kipnis A, and Sargeson S (2013) Modernity, Youth Identities and Popular Culture. In: Jacka T, Kipnis A, and Sargeson S (eds): *Contemporary China*. Cambridge: Cambridge University Press, pp 179-196.
- Jianchu X, Fox J, Vogler JB et al. (2005) Land-use and land-cover change and farmer vulnerability in Xishuangbanna prefecture in southwestern China. *Environmental Management* 36(3): 404-413.
- Korff R and Wehner S (2009) Transformation in der Mekong-Bergregion Landnutzungswandel, Marktwirtschaft, Enteignungsprozesse und staatlicher Einfluss. *Geographische Rundschau* 61(10): 32-38.
- Kunstadter P (1967) *Southeast Asian Tribes, Minorities, and Nations, Volume 1*. Princeton, New Jersey: Princeton University Press.
- Leshem A, Aenis T and Grötz PA (2010) Tea-Intercropping - A socio-environmental study in Xishuangbanna, Southwest China. In: 4th Green Week Scientific Conference, Berlin, Germany, 13 January 2010 (unpublished, available online at https://www.researchgate.net/publication/332072861_Tea-Intercropping_-_A_socio-environmental_study_in_Xishuangbanna_southwest_China. downloaded on 23 August 2019).
- Li H, Aide TM, Ma Y, Liu W and Cao M (2007) Demand for rubber is causing the loss of high diversity rain forest in SW China. *Biodiversity and Conservation* 16(6): 1731-1745.
- Min S, Huang J, Bai J and Waibel H (2017): Adoption of intercropping among smallholder rubber farmers in Xishuangbanna, China. *International Journal of Agricultural Sustainability* 15(3): 223-237.
- Neo H and Pow CP (2015) The Weight of Small Cities: Development and the Rural-Urban Nexus in Jinghong, Southwest China. *The Professional Geographer* 67(4): 555-563.
- Ostrom E (2005) Understanding institutional diversity. Princeton, New Jersey: Princeton University Press (Princeton paperbacks).
- Rerkasem K, Lawrence D, Padoch C et al. (2009) Consequences of Swidden Transitions for Crop and Fallow Biodiversity in Southeast Asia. *Human Ecology* 37(3): 347-360.
- Rousseau J-F and Sturgeon J (2019) The disappearance of water buffalo from agrarian landscapes in Western China. *Journal of Agrarian Change* 19(2): 319-336.
- Sarathchandra C, Dossa GGO, Ranjitkar NB et al. (2018) Effectiveness of protected areas in preventing rubber expansion and deforestation in Xishuangbanna, Southwest China. *Land Degradation & Development* 29(8): 2417-2427.
- Scott JC (1977) *The moral economy of the peasant. Rebellion and subsistence in Southeast Asia*. New Haven: Yale University Press.
- Scott JC (1998) *Seeing like a state. How certain schemes to improve the human condition have failed*. New Haven: Yale University Press (Yale ISPS series).
- Scott JC (2009) *The art of not being governed. An anarchist history of upland Southeast Asia*. New Haven, London: Yale University Press (Yale Agrarian Studies series).

- Scott WR (2008) *Institutions and Organizations. Ideas and Interests. 3rd Edition*. Thousand Oaks: Sage Publishers.
- Shapiro J (2001) *Mao's war against nature. Politics and the environment in Revolutionary China*. Cambridge: Cambridge University Press (Studies in Environment and History).
- Sturgeon JC (2010) Governing minorities and development in Xishuangbanna, China: Akha and Dai rubber farmers as entrepreneurs. *Geoforum* 41(2): 318-328.
- Sturgeon JC (2012) The Cultural Politics of Ethnic Identity in Xishuangbanna, China: Tea and Rubber as "Cash Crops" and "Commodities". *Journal of Current Chinese Affairs* 41(4): 109-131.
- Walker A (1999) *The legend of the golden boat. Regulation, trade and traders in the borderlands of Laos, Thailand, China, and Burma*. Honolulu: University of Hawaii Press (Anthropology of Asia series).
- Wehner S (2010) Socio-Economic Atlas of Naban River Watershed National Nature Reserve, Xishuangbanna, SW-China. Contemporary Southeast Asian Dynamics, Working Paper Series No. 2, University of Passau, Germany (unpublished, available online at https://www.phil.uni-passau.de/fileadmin/dokumente/lehrstuehle/korff/Working_Paper_Series_No._2.pdf, downloaded on 09 July 2019).
- Wehner S (2011) *Transformation of rural space from an institutional perspective. Socio-economic development and land use change in Xishuangbanna, Southwest China*. PhD Dissertation, University of Passau. Uelvesbüll: Der Andere Verlag.
- Wehner S, Herrmann S and Berkhoff K (2014) CLUENaban—A land use change model combining social factors with physical landscape factors for a mountainous area in Southwest China. *Ecological Indicators* 36: 757-765.
- Xu J (2006): The Political, Social, and Ecological Transformation of a Landscape: The Case of Rubber in Xishuangbanna, China. *Mountain Research and Development* 26(3): 254-262.
- Xu J and Yi Z (2015) SOCIALLY CONSTRUCTED RUBBER PLANTATIONS In the Swidden Landscape of Southwest China. In: Cairns MF (ed.) *Shifting Cultivation and Environmental Change. Indigenous People, Agriculture and Forest Conservation*. Hoboken: Taylor and Francis, pp.794-810.
- Zhai D, Xu J, Dai Z and Schmidt-Vogt D (2017) Lost in transition: Forest transition and natural forest loss in tropical China. *Plant Diversity* 39(3): 149-153.
- Zhang J and Cao M (1995) Tropical forest vegetation of Xishuangbanna, SW China and its secondary changes, with special reference to some problems in local nature conservation. *Biological Conservation* 73(3): 229-238.
- Zhu H (1997) Ecological and biogeographical studies on the tropical rain forest of south Yunnan, SW China with a special reference to its relation with rain forests of tropical Asia. *Journal of Biogeography* 24(5): 647-662.
- Zhu L (1992) *The Dai, or the Tai and their architecture & customs in South China*. Bangkok: D D Books.