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Where the Rubber Meets the Road

Shifting State-Society Relations and Emerging Resource Frontiers in China's Southwest Borderlands

In this article, we examine the modern Chinese state's efforts to consolidate control over land and people in its southwest borderlands via the development of rubber plantations. We examine these efforts via the lenses of the changes that ensued in the political, economic, and sociocultural life-worlds of certain indigenous Akha communities in post-1980s Yunnan, China, in conjunction with their transition from shifting rice to sedentary rubber cultivation. This livelihood shift, while initially a largely passive response on the part of Akha to the state, was, at later times, more actively driven by Akha as they sought to maintain some autonomy from the state. While this particular case is a fairly predictable outcome of broader sets of processes occurring in other resource frontiers in Asia and beyond, the Akha case is unique in highlighting the fact that resource frontiers are complex and dynamic spaces where one often encounters a diversity of distinct actors, objects, and practices at play that actively affect larger political systems and projects.

Keywords: Southwest China—Asian borderlands—state-society relations—
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In this article, we examine the modern Chinese state's efforts to consolidate control over land and people in its southwest borderlands via the development and expansion of large-scale rubber plantations. We examine these efforts via the lenses of the changes that occurred in the political, economic, and sociocultural life-worlds of certain indigenous Akha communities in post-1980s Yunnan, China, as they passively *and* actively responded to these state initiatives, all the while transitioning from shifting subsistence rice to sedentary cash-crop rubber cultivators.

On the one hand, this particular case is a fairly predictable outcome of broader sets of processes occurring in other resource frontiers in Asia and beyond as part of the last great state enclosure (Tsing 2005; Scott 2009; Peluso and Lund 2011; Li 2014). A key dynamic of these changes is the rapid growth and expansion of boom crops, including rubber (Hall, Hirsch, and Li 2011). Jefferson Fox and J. C. Castella predict that “by 2050, the area of land (in southwest China and Mainland Southeast Asia) dedicated to rubber trees could quadruple, largely replacing lands now occupied by evergreen broadleaf trees and swidden-related secondary vegetation” (2013, 155).

On the other hand, our findings reveal that resource frontiers, not unlike borders as discussed by Harlan Koff (2013, 11), are complex and dynamic spaces where one often encounters a diversity of distinct actors, objects, and practices at play that actively affect larger political systems and projects. Here we highlight the roles of certain Akha actors in shaping and reshaping new and emerging resource frontiers in ways that afford them some autonomy from the state while further entrapping them in new forms of state-, market-, and climate-driven controls and vulnerabilities (Chatterjee 2004; Appadurai 2013; Krupa and Nugent 2015).

As for the impacts of these livelihood transitions on Akha life-worlds, we stress that while rubber has introduced unprecedented increases in cash incomes, it has done so unevenly and brought about unprecedented levels of socioeconomic stratification. This increased cash income, however, generally improved the living standards of Akha farmers and helped elevate their social status in greater China. The elevated social status of Akha is indicated in a significant increase in the number of relatively more dominant ethnic Han and Dai marrying into Akha households in rural Xishuangbanna within the last two decades.

These increased cash incomes, however, brought about many new social problems, such as more conspicuous and competitive displays of consumption and feasting, widespread gambling, rising rates of alcoholism and other forms of drug

dependencies, rising intergenerational tensions, and prostitution. These changes also impacted traditional Akha religio-cultural systems or Ancestral practices in expected and unexpected ways.¹ Rising cash incomes along with these social problems all served, on the one hand, to further undermine Akha Ancestral practices that were already severely undermined by the state in pre-reform-era China while, on the other hand, providing an opportunity for certain Akha communities in post-reform-era China to selectively (re)vitalize some of those Ancestral practices, in part as a means of promoting their “survival through culture” (Comaroff and Comaroff 2009, 24).

BACKGROUND ON RESEARCH METHODS AND PRIMARY FIELD SITE

This article is based primarily on analyses of field data that Jianhua Wang collected via long-term intermittent fieldwork, household surveys, and semi-structured interviews in the rural, ethnic-Akha rubber-farming village of Arka in Xishuangbanna, Yunnan, China, between the early 2000s and the present.² Micah Morton has conducted intermittent periods of fieldwork in the same village between 2009 and the present. In addition, Wang is an indigenous Akha scholar who was born and raised in the vicinity of Arka village, while Morton is a foreigner that married into another Akha village in the area in 2011.

Arka village is located in Xishuangbanna Dai Autonomous Prefecture, which lies at the southern tip of Yunnan Province, China, and borders on Myanmar and Laos. Xishuangbanna is a predominantly mountainous area with small flat valleys and basins that comprise just 5 percent of its total land area. Historically, ethnic Dai (Tai Lue) settled in these basins, converting them into irrigated paddy fields, while the region's vast mountainous areas were occupied by other ethnic groups, such as the Akha, Lahu, Bulang, Yi, Jinuo, Yao (Mien), and others whose economy was mainly based on swidden agriculture.

Traditionally, there were forest buffer zones between the lowland Dai and the numerous highlanders surrounding the basins. It was in these very buffer zones that the Chinese state first began to establish state rubber farms in the 1950s. Since the flat lowlands were comprised of permanent paddy fields, the state's expansion of these early rubber farms was achieved by appropriating large amounts of the most cherished fallow lands of swidden fields below 800 meters above sea level.³ As a result, highland farmers were forced to farm on less desirable lands either at higher altitudes or on greater degrees of slope.

Another consequence of the state's establishment and expansion of rubber farms in Xishuangbanna was a major demographic shift in local ethnoscapes. In 1949, there were only 5,000 Han in Xishuangbanna. From roughly the 1950s onward, however, the local Han population progressively soared to 17,905 in 1956, 185,894 in 1982, and 340,431 in 2010, comprising 6.9 percent, 28.3 percent, and 30.03 percent of the total population respectively.⁴ Most of the early Han migrants were brought into Xishuangbanna from other parts of China to work on the state rubber farms. At present, Han are the largest ethnic group in Xishuangbanna. In contrast, the local Dai population, which used to be the majority, is now the sec-

ond largest ethnic group in the region, comprising 27.89 percent of the total population in 2010. Akha are currently the third largest ethnic group behind the Han and Dai, comprising 19 percent of the total population in 2010.

The Akha, a Tibeto-Burman-speaking group, are one of the largest upland groups in the Upper Mekong Region, with an estimated population of seven hundred thousand people (Wang, Rongsheng, and Sorchampa 2014).⁵ Until recently, Akha livelihoods in the larger region were based primarily in swidden agriculture, especially subsistence rice. Since the 1980s, however, Akha have experienced significant changes in their livelihoods as a result of the region's ongoing, albeit uneven and contested, transition from battlefields to markets (Li 2013; Morton 2013, 2015; Sturgeon 2005, 2010, 2012; Tooker 2004, 2012; Wang 2013). In Xishuangbanna, most Akha villagers are now rubber farmers. In addition, since the early 2000s some Akha from Xishuangbanna have played key roles in driving the current rubber booms in neighboring Laos, Myanmar, and Thailand from below (Shi 2008; Sturgeon 2010).

HISTORIES OF RUBBER IN CHINA AND XISHUANGBANNA

The large-scale development of rubber plantations in China first began in the 1950s when the newly established People's Republic of China (PRC) started to promote domestic rubber cultivation in the intertwined interests of national security, defense building, and industrial growth (Yunnan Agricultural Reclamation Cooperation Ltd. and Yunnan Association of Tropical Crops 2005).⁶ The state focused its efforts to develop self-sufficiency in rubber production in its two largest tropical frontiers of Hainan Island and Xishuangbanna, Yunnan, where it established numerous state rubber farms in the 1950s.⁷

In this article, we focus on Xishuangbanna, a mountainous frontier region in far southwest China that has long been dominated by non-Han ethnic groups whose livelihoods, with the exception of lowland Dai rice cultivators, were largely based on upland swidden cultivation until roughly the 1980s. These non-Han ethnic groups only recently became "ethnic minorities" in this area as a result of two intertwined factors—the heightened direct presence of the central Chinese state and the large-scale influx of Han migrants from other parts of China. In this context, state officials saw rubber trees as the perfect crop to consolidate control over local natural resources and people.

In order to achieve these grand directives, however, state officials had to transform what was apperceived as the "primitive," "illegible," and "unproductive" practice of swidden cultivation into the "modern," "legible," and "productive" practice of sedentary rubber cultivation (Scott 1998; Xu 2006). State officials further sought to gradually transform what were apperceived as "backward" and "unaccountable" local non-Han ethnics into "modern" and "accountable" laborers of the state. It would take the state nearly half a century to effectively eliminate swidden cultivation via numerous top-down policies and initiatives, including an outright ban on swidden cultivation in 1998. As a result, many non-Han ethnic

farmers in Xishuangbanna were transformed into “modern” rubber-producing subjects of the state.

These non-Han farmers, however, were eventually so successful in developing private rubber plantations, especially post-1984, that the total area of their holdings surpassed that of the state farms in 2004 (Xishuangbanna Statistics Bureau 2004). Some of these smallholders, particularly certain ethnic Dai (Tai-Lue) and Akha residing along China's borders with northwest Laos and east Myanmar, have successfully outsourced the development of rubber plantations to Laos and Myanmar since China joined the World Trade Organization (WTO) in 2001 (Shi 2008; Sturgeon 2010). Janet Sturgeon argues that the proliferation of these smallholder rubber plantations within and beyond Xishuangbanna led to the creation of “chaotic landscapes” neither expected by states nor under their direct control (2012, 123–25).

RENEGOTIATED RUBBER FRONTIERS: FROM STATE TO PEOPLE PLANTATIONS

During the period when the state established rubber plantations in Xishuangbanna (1950s to early 1960s), most of the farm managers and workers were either transferred Han soldiers or Han farmers from other parts of China, especially Hunan province. Local ethnic minorities were excluded from such work as they were deemed “backward” and of “low quality” for more “advanced” kinds of labor such as rubber cultivation (Xu 2006; Sturgeon 2010). At the same time, however, the state required these ethnic minorities to produce the food necessary to sustain the mostly ethnic Han workforce in not only rubber but also steel production.

Eventually, however, the state found that its rubber farms were not able to supply enough rubber to meet the nation's rising demand. The state further realized that it could not continue to endlessly expand its rubber plantations due to both a lack of “advanced” Han labor and also the fact that most of the suitable land was being used, albeit from the state's perspective “underutilized” or “wasted,” by “uncivilized” ethnic-minority shifting cultivators. From the vantage of state officials, the best way to solve these problems was to replace swidden lands with rubber plantations and thereby transform local minorities into rubber farmers. This strategy, it was envisioned, would allow the state to not only consolidate control over local natural resources and people but to also produce more rubber with no direct cost to the state.

As a result, in 1964 the Ministry of Agricultural Reclamation ordered state farms in Yunnan to assist local governments in developing *min ying xiang jiao* or “peoples' rubber plantations.” In the same year, the first collective rubber plantation was established at Jinglan village near Jinghong City. These initial efforts to develop and expand “peoples' rubber plantations,” however, were halted amid the turmoil and upheaval of the Great Cultural Revolution (1966–1976). Thereafter, in 1980, the central government sent another order to continue rubber expansion in Yunnan. The Yunnan Provincial Government responded by requesting that state farms either incorporate local villagers and their lands into their operations or allocate 6 percent of their total profits to the development of more “peoples' rub-

ber plantations,” especially by giving interest-free loans to local farmers to develop such plantations (Li 1988).

This new policy promoted the development of two kinds of “peoples’ rubber plantations” in Jinghong City that were either collectively or jointly operated. In the meantime, many local Akha villagers and their lands were directly incorporated into previously established state farms in Mengla County. Collective plantations were developed with interest-free loans and technical support from the state farms. In actuality, however, while these collective plantations were officially categorized as “peoples’ rubber plantations,” they were in fact run by local county or township-level governments and thus functioned as an extension of the state farms. The key difference between these collective plantations and the state farms was that the latter were run by higher levels of government at provincial and national levels.

The state farms were further mandated to develop jointly operating (*lian ying*) rubber plantations with local villages. These joint-enterprises involved state farms providing rubber tree seedlings and technical support to villagers, with the latter providing their land and labor. The profits were then shared by the state farm and villagers according to either a 30/70 or 40/60 scheme.

Finally, in 1984 another type of “peoples’ rubber plantation” came into being, that of the privately owned rubber plantation. Earlier, in 1982–1983, the state began to contract out what was recategorized as “agricultural land” to individual households according to the central policy of the Household Contract Responsibility System (HCRS, *jiating lianchan chengbao zherenzhi*). It was on these lands that the earliest “true” private plantations came into being.

State officials perceived these “legible” and “productive” plantations as a much more desirable alternative to the “illegible” and “unproductive” swidden lands of ethnic minorities (Huang et al. 2005; Xu 2006). As in the case of jointly operated plantations, the state provided interest-free loans to individual households to develop private plantations.

State officials, however, never intended for small-holder rubber farmers to outperform state farms in rubber production. The central government intended rather that state farms would play the dominant role in rubber production with supplemental input from smallholders’ plantations beyond state farms (Li 1998). The central government similarly never expected to lose direct control over these smallholders and their rubber ventures within and beyond China. Notwithstanding these intentions and expectations, the total area of “peoples’ rubber plantations” in Xishuangbanna eventually surpassed that of the state farms in 2004. In addition, by the 2000s, nearly all of the “peoples’ rubber plantations” initially developed under collective enterprise and jointly operated schemes were privatized and distributed among individual households.

SEEING LIKE A STATE: STATE EFFORTS TO ERADICATE SHIFTING CULTIVATION IN XISHUANGBANNA

A key part of state efforts to transform Xishuangbanna into a rubber-producing frontier involved concerted efforts by state officials to eradicate shifting cultivation

and relocate highland communities from higher to lower elevations deemed ideal for rubber cultivation. State strategies to achieve these intertwined goals went through several stages.

First, during the communal period (1958 to the early 1980s) many highland villages were forcibly relocated from higher to lower slopes. In 1967, Arka village—the main case study highlighted in this article—was relocated to a lower slope and merged with another relocated Akha village to form a “production team” near its current location. The villagers were then relocated again to their present location in 1971 due to the state’s decision to construct a reservoir at the previous location.

The purpose of these resettlements was to force highlanders to adopt sedentary agriculture, particularly irrigated paddy fields. These paddy fields were established in the form of either terraces on lower slopes or paddy fields in small yet-to-be-cultivated valleys. Irrigation networks were further established in the form of reservoirs and irrigation ditches.

There were limitations, however, on the amount of available land that could be converted to paddy fields. As a result, many relocated villages initially continued practicing shifting agriculture at higher slopes as a means of subsistence. Nevertheless, the resettlement process effectively established the physical and economic basis for villagers’ subsequent development and expansion of rubber plantations. Villagers were now situated at slopes ideal for rubber cultivation. They were further able to produce more rice per unit of land in irrigated paddy fields than in higher slope areas that were now made available for other purposes.

The second major strategy pursued by state officials to eradicate shifting cultivation involved the establishment and expansion of state rubber farms, and, later, collective and jointly operated “peoples’ rubber plantations” beyond state farms as discussed earlier. Importantly, these plantations were largely established on the fallow swidden lands of local ethnic minorities via a process of land encroachment and dispossession. For example, one of the state’s largest rubber plantations—Dongfeng State Farm, which was established in 1958—encroached on Arka village’s traditional territory and swallowed up its closest and most fertile swidden lands. Arka village elders informed Wang that during the 1960s and early 1970s, whichever land they had turned to fallow in that area was seized by the state and planted with rubber trees.

As a result, Arka villagers were forced to move their swidden agriculture to more marginal lands at higher elevations and with deeper degrees of slope. Much of these lands, however, were now located some two to three hours by foot, then the main means of transportation, from the village’s new location. Later, in the early 1980s, the state appropriated more of Arka’s traditional swidden lands to establish a collective plantation called Xiaojie Plantation Farm. In addition, from 1982 to 1984 roughly 300 mu (20 ha) of rubber plantations were developed on Arka’s swidden lands as part of a jointly operating “peoples’ rubber plantation” established by Arka villagers with assistance from Dongfeng State Farm. In short, all of these initiatives greatly reduced the amount of Arka’s swidden lands.

The state’s final grand strategies to eliminate shifting cultivation took shape in the domains of policy and law, namely the Household Contract Responsibility Sys-

tem (HCRS) introduced in the early 1980s, and a 1998 ban on logging and shifting cultivation. Under the HCRS all agrarian households in China were allocated certain amounts of land recategorized as “agricultural land.” The HCRS indirectly worked to curtail or contain shifting cultivation by constraining it to these very limited areas of land recategorized as agricultural lands.

According to the HCRS, as instituted in Xishuangbanna in the early 1980s, the total amount of land allocated for swidden agriculture was 1,447,800 mu (96,520 hectares), comprising just 5 percent of the total land area (Xishuangbanna Forestry Bureau 2000). In 1982, the total population of non-Han and non-Dai minorities in Xishuangbanna was 245,946 people. If we assume that 90 percent of these minorities were practicing swidden agriculture in the highlands, then the average size of allocated swidden lands was 6.5 mu (.43 ha) per capita, which is far less than the amount required to maintain a healthy rotation of swidden agriculture.⁸ In addition, these lands were far from evenly distributed among and within villages. As expected, most villagers at this time lacked access to adequate land for shifting cultivation and responded by gradually transitioning to various cash crops, such as rubber, to make ends meet.

In the case of Arka village, the transition from swidden rice to more sedentary cash-crops, especially rubber, occurred primarily in response to the implementation of the HCRS, long before the 1998 logging ban.⁹ In 1983, each Arka villager was allocated 11 mu (.73 ha) of swidden lands according to the HCRS. This land was dispersed in four plots, which were allowed for rice cultivation with a rotational period of six years. This only allowed for five fallow years, however, which is not a healthy rotational period and thus unsustainable. As a result, Arka villagers were compelled to find alternatives to shifting cultivation. The villagers largely found these alternatives in rubber, which they gradually, albeit reluctantly, adopted with early assistance from the same state farm that had earlier encroached on much of their most cherished swidden lands.

NEGOTIATING RUBBER FRONTIERS IN ARKA VILLAGE

As mentioned earlier, the first rubber plantation in Arka village was a collective one developed at Bano in the early 1980s under the government’s joint-operation scheme and with assistance from Dongfeng State Farm.¹⁰ Later, in 1985 and 1986 the state encouraged individual households in Arka to grow privately owned rubber trees on a small plot of redistributed collective land (see figure 1). This initial attempt to encourage private rubber planting, however, was not very successful for several reasons. First, the villagers lacked confidence in what was for them a new crop. Second, they had not yet acquired technical expertise in rubber cultivation. Last, the plot they received for planting was too small to be given enough input.

It wasn’t until the late 1980s that the villagers first began to earnestly develop private rubber plantations due to two factors. First, they had exhausted their first cycle of swidden lands, and their prior fallow lands were not yet ready for a second crop of rice. Second, the villagers had started tapping the rubber trees in their pioneer collective plantation and were seeing the potential profits from rubber. This

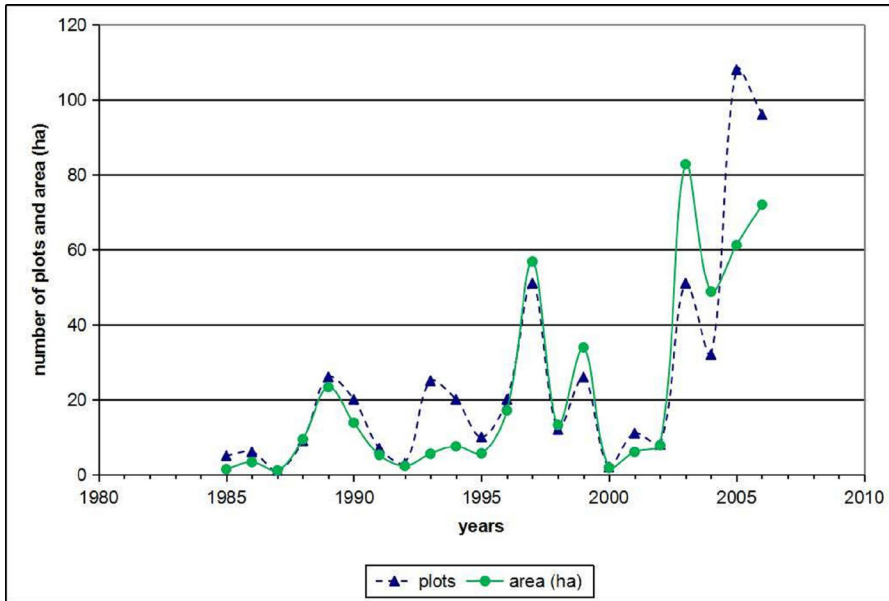


Figure 1. Smallholders' rubber plantations in Arka.

particular wave of plantation development lasted the longest (1987–1992) as most households needed time to acquire the technical skills and financial resources necessary to develop their own plantations.

The second wave of rubber plantation development in Arka occurred between 1993 and 1995 in another area of collective lands referred to as Gawjaw. Gawjaw was initially a protected communal forest that the state later designated as a *fengjing lin* or “scenic forest” in the early 1980s. In 1993, however, the villagers collectively cleared the forest, and individual households received land plots to cultivate rubber. It took the villagers until 1996, however, to acquire enough financial resources to begin earnestly planting rubber trees on these lands. It was in 1996 that villagers first began tapping their privately owned rubber plantations.

In 1999, the villagers used the cash income from their private plantations to plant rubber trees on a third plot of former swidden lands that was cleared prior to the 1998 logging ban. This period of planting, however, was interrupted by the logging ban, which was enforced in 2000, and then continued under the Land Conversion Project in 2001 and 2002, although none of Arka's rubber plantations were subsidized by that project.

With increasing capital from their earlier established plantations, villagers were able to quickly plant rubber trees on a fourth plot of prior swidden lands from 2003 to 2004. As a result, all of the village's swidden lands were planted with rubber trees by 2004. Later, in 2005, the first collective rubber plantation at Bano was cleared and its land was distributed among individual households that quickly went about replanting rubber trees on their now privately owned lands.

The final wave of rubber plantation development in Arka occurred in 2006 at a site called Bada. Bada was traditionally a part of Arka's swidden lands. In the early 1980s, however, the state declared Bada a “state forest.” Later, however, a neigh-

boring Dai village applied for state permission to use Bada for rubber cultivation, claiming that they had far fewer rubber holdings when compared to other local villages. In order to prevent this from happening, however, Arka's village leaders submitted a counter-request to claim Bada, asserting that Bada was *their* traditional swidden land. In order to avoid any unwanted inter-village and ethnic conflicts over land, the local government approved both of the applications and split the total land area between the two villages.

EVERYDAY FORMS OF PEASANT RESISTANCE?

During fieldwork we learned that many of the local farmers in Arka and beyond engage in a range of everyday practices via which they strive to not merely evade the state (Scott 1985) but also engage the state and, to a certain degree, see and act like the state in ways that afford them some autonomy over their lands and livelihoods, albeit by working within and around newly imposed state regimes of regulation and control (Scott 1998; Trouillot 2001, 132; Chatterjee 2004; Appadurai 2013; Krupa and Nugent 2015). The three areas we discuss in the following paragraphs focus on the varied agencies of villagers in response to state initiatives to reshape agrarian landscapes and communities in a more “legible,” “controllable,” and “taxable” fashion.

First, since 1999 the central government had worked to curb the “uncontrolled” development of private rubber plantations, partly due to rising environmental concerns. Local officials, however, largely failed to prevent villagers from expanding their private plantations on not only their own contracted lands but also on state “forests” or “wastelands.” Collectively, villagers were generally effective in employing various state discourses to justify their applications for permission to cultivate rubber on state-appropriated lands. This was the case of Bada, as mentioned. Individual households were also able to use their personal connections or *guanxi* with local officials to obtain permission to grow rubber in state forests.

Many other villagers, however, circumvented the local authorities altogether and, in the eyes of the state, “encroached” on “state forests” in expanding their rubber holdings. In the case of Arka, since nearly all of the village's cultivable lands were planted with rubber trees by 2006, any household wanting to expand its rubber holdings had to do so on state-appropriated lands, whether licitly or illicitly. Ironically, rubber trees, a new crop that the state intentionally employed to consolidate control over local resources and people, were eventually used by those local actors to maintain some autonomy from the state.

Second, Arka villagers engaged in outright acts of “theft” from the state farms and their workers until the mid-1990s. Akha and other indigenous communities generally disliked the state farms in their early stages of development as they had encroached on and appropriated large amounts of their Ancestral lands. In retaliation, villagers often stole various items, especially chickens, vegetables, and rubber from the state farms, leading to conflicts with state farmers that occasionally led to violence. These acts of theft subsided in the late 1990s as local rubber farmers began tapping their rubber trees for the first time. Prior to that time, the local

farmers were struggling to survive and pay for rising costs of food, education, and healthcare.

Another area of state-society praxis that is more akin to state evasion is that of the general tendency for local farmers in Xishuangbanna to underreport their rubber holdings and profits as well as their profits from other economic activities to the local government (and scholars such as ourselves) in order to reduce or avoid real or potential state taxation. For example, in 2006 Wang conducted a survey of smallholder's rubber holdings in Arka. The villagers reported a total of 7,180 mu (479 ha) of rubber plantations. The village headman later informed Wang, however, that in actuality the villagers collectively owned at least 10,000 mu (667 ha) of rubber plantations. If the village headman is correct, then the villagers underreported their rubber holdings to Wang by about 30 percent. These practices of "state evasion" can be seen as "everyday forms of peasant resistance" (Scott 1985, 298).

"WHERE THE RUBBER MEETS THE ROAD": ECOLOGICAL AND SOCIOCULTURAL IMPACTS OF RUBBER

In the remainder of this article we discuss some of the many sociocultural changes that occurred in Arka village in conjunction with the political and economic transformations discussed earlier, namely the heightened presence of the state and a transition from shifting agriculture centered on subsistence rice to more sedentary agriculture centered on cash-crop rubber. In brief, rubber plantations dramatically transformed not only the local ecology but also the entire social fabric of rubber-producing villages in Xishuangbanna.

From rice to rubber

Until the 1980s, Akha livelihoods and Ancestral practices throughout the Upper Mekong Region largely centered on the cultivation of upland rice for subsistence. As a staple food, rice was, and for some Akha still is, a core crop cultivated in upland swiddens. Indeed, when Akha from Arka village in Xishuangbanna first began planting rubber trees in the mid-1980s, they intercropped those trees with rice on their swiddens. Intercropping in this manner, however, negatively impacted their rice harvests, leading the villagers to experience their first food shortage following the implementation of the HCRS in the late 1980s.

As a result, in 1990 and 1991, and with the local government's approval, the villagers decided to clear their remaining communal forests in order to cultivate more upland rice. In the long term, however, this failed to produce enough rice. A more adequate solution was then found by intensifying rice cultivation in their irrigated paddy fields, which, up until that time, had received minimal input and labor from the villagers. In the mid-1990s, the villagers began to double-crop their paddy fields and adopt high-yielding hybrid rice varieties that further required the application of chemical pesticides, herbicides, and fertilizers. As a result, swidden agriculture along with the colorful, tasty, and nutritional upland rice that it produced as well as many other traditional crops gradually disappeared. Village elders often complained of the poor taste of their newly cultivated hybrid rice varieties.

In the end, however, the intensified cultivation of rice in irrigated paddy fields did not compensate for the villagers' inadequate production of rice as they continued to transform their rice swiddens into rubber plantations. In 2006, twenty-two out of 109 surveyed households reported that they were no longer able to produce enough rice for their own subsistence. Another eighteen households reported that they had to either buy or borrow rice for household consumption in 2005.

In earlier times, it would have been very shameful for Akha, as expert rice cultivators, to fail to produce enough rice for their households. In the age of rubber, however, this earlier moral economy centered on rice was transformed into one centered on rubber and its cash profits, which permitted households to buy not only rice but also other newly available goods in local markets. By 2010, the villagers of Arka had stopped cultivating rice altogether, deciding rather to not only concentrate their labor on rubber but also lease their paddy fields to an outside Han businessman who converted them into a banana plantation.

From hogs to the hearth: The many uses of rubber trees

Apart from rubber, pig husbandry is currently the second major source of income for Arka villagers (see table 1). In 2005, villagers made roughly 75,000 Chinese yuan (RMB) from the sale of hogs, which contributed to 3.9 percent of their annual household incomes. In that year, the villagers slaughtered another 130 hogs for their own household consumption and feasting.¹¹ Recent trends show that pig husbandry is becoming an increasingly significant part of the economy in Arka in terms of both incomes and also household consumption and feasting.

As a reflection of their pragmatism and resourcefulness, the villagers have found a way to connect rubber and hogs. The oil-rich seeds produced annually by rubber trees are now the primary fodder for hogs in Arka and surrounding areas. This is yet another reason that local farmers now look to rubber trees as their preferred cash crop. In 2007 alone, Arka villagers fed a total of 77,160 kg of rubber seeds to their hogs, amounting to roughly 46,296 yuan.¹² Importantly, rubber seeds are an important byproduct of rubber trees that anyone can freely gather. Lastly, rubber farmers in Xishuangbanna found two additional uses for rubber trees. First, they use the dead branches for firewood in cooking. Second, they sell the hardwood of older trees that can no longer be tapped to local timber and furniture industries.

Table 1. Major sources of household income in Arka village in 2005

Income source	Rubber	Hogs	Tea	Others*	Total
Absolute value (yuan)	1,770,300	75,478	13,040	57,100	1,902,878
Percent of total income	92.4%	3.9%	0.7%	3.0%	100%

*Note: Other cash incomes were derived from wage labor, small business ventures, and the sale of medicinal plants (i.e., Amomum) and bamboo handicrafts.

Of rubber and sacred forests: "Money can make ghosts turn millstones"

During the Mao era, the state overtly suppressed many of the Ancestral practices of Akha and other ethnic minorities in Xishuangbanna. These state-sponsored acts of religio-cultural suppression extended to Akha religio-cultural ecologies, accord-

ing to which certain forests were designated as sacred (in Akha *yawhawrr*) and thus taboo to encroach on. Akha generally believed that those who dared to encroach on these sacred sites would bring upon themselves and their households the wrath of the “invisible spirits” or *naevq* dwelling therein.

In spite of this suppression, however, some of these sacred sites were preserved as such until the arrival of the rubber boom in the 1980s. Since that time, many Akha villagers in the region, especially younger generations, have encroached on these sacred forests, clearing them to expand their rubber holdings. When we asked younger villagers in Arka why they dared to encroach on these sacred lands, they told us that, unlike the older generations, they do not believe in *naevq*.

These younger generations believe rather that “money is all-powerful,” in line with the popular Chinese idiom *qian neng shi gui tui mo*, literally meaning “money can make ghosts turn millstones.” In spite of these beliefs in the omnipotence of money, however, there were several cases where individuals or households that dared to encroach on sacred forests experienced an unexplained illness or calamity shortly thereafter. In contrast to younger generations, elders generally attribute these misfortunes to the wrath of the angry *naevq* whose sanctity was violated.

Rubber's ecological impacts

Amid their dramatic transition to a rubber-based economy, Arka villagers managed to preserve about 3000 mu (200 ha) of communal forests in a mountainous area located adjacent to state forests. Although these lands were once cleared for swidden rice cultivation in 1990 and 1991 in response to a food shortage, the forests have since been allowed to fully regenerate. In spite of their constant efforts to encroach on state forests, not a single villager ever encroached on these communal forests without first gaining permission to do so from the village authorities.

When asked about their willingness to encroach on “state forests,” villagers informed us that these so-called “state forests” were actually “our forests for many generations before the state came and claimed them” in the early 1980s. From this perspective, they were simply using land that was rightfully theirs to begin with. In a similar vein, the villagers stressed that they were able to preserve what remained of their communal forests as these remained under their direct control and ownership.

According to the villagers, many local plant species can still be found in these communal forests. Yet the forests are not only fragmented, like small islands of biodiversity in a sea of rubber plantations, but also too small to adequately support any large animals. Thus, nearly all large animals and many birds have disappeared from the forests surrounding Arka village, which are now monoculture rubber plantations.

The application of chemical pesticides and herbicides in rubber plantations has also killed many of the fish and crabs in local streams. Some local fish species, especially larger ones, such as *ngaqbawlaw* (in Akha), completely disappeared. In addition, many important and highly cherished traditional non-timber forest products (NTFPs), such as bamboo shoots, bamboo worms, and mushrooms, are becoming increasingly difficult to find in the transformed rubber-scapes surrounding the vil-

lage. Swidden crop biodiversity was also greatly diminished as a direct result of the village's transition to a rubber-based economy.

On a positive note, the dramatic loss of local forests and resources has encouraged many Arka villagers to preserve a number of important and highly cherished plants in their home gardens. At present, 170 different plant species can be found in these home gardens, of which nearly half were introduced from local forests. If managed correctly, these home gardens might offer an effective means of conserving these plants *ex situ*.

Cashing in on rubber: Unprecedented wealth and social stratification

Rubber plantations along with the region's rubber boom brought unprecedented cash incomes into Arka and other rubber-producing villages in the region. This is the primary reason that villagers in the region now look to rubber trees as their preferred cash crop. Between the early 1990s and 2005, reported per capita annual income from rubber in Arka rose from just a few hundred yuan to 3,801 yuan. In 2005, rubber contributed to roughly 92.4 percent of total cash incomes in Arka. In actuality, however, these figures were probably higher as the villagers tended to underreport their rubber incomes. According to the village head, in 2006 per capita rubber income rose to 6,000 yuan.

These increases in cash income, however, are unevenly distributed among households. For example, in 2005, 83.5 percent of the households in Arka (91 out of 109) earned less than 30,000 yuan. Another 15.6 percent of the households (17 out of 109) earned between 30,000 and 50,000 yuan. Finally, just one household, that of the village head, had a cash income of over 120,000 yuan.

In 2005, the average household income was 17,577 yuan, while the median household income was 60,600 yuan. The large difference between the average and median household income signifies the uneven distribution of wealth among households with respect to rubber holdings and profits, and it indicates rising socioeconomic stratification within the village. Earlier studies on Akha rubber farmers in Xishuangbanna do not adequately address these intra-village differentiations in terms of rubber holdings and cash income (e.g., Sturgeon 2010).

Two key factors explain the uneven possession of rubber holdings among households in Arka. First, in spite of official policy in the early 1980s, namely the HCRS, calling for equitable land distribution on the basis of household size, in actuality households with more political power and connections were able to obtain much larger land holdings than less powerful households. In particular, local commune/village leaders and their relatives manipulated these policies and grabbed much larger plots of land than other households in the village, laying the foundation for the emergence of a high degree of socioeconomic differentiation under the market economy that gradually took shape post-2000. Other studies confirm that this pattern of uneven land possession and resource access was found more widely throughout the Xishuangbanna highlands following implementation of the HRCS in the early 1980s (Sturgeon 2005).

A second factor behind the emergence of these inequities was a result of governmental land reforms in the early 1980s. For various reasons, these reforms,

which led to the appropriation and distribution of upland areas recategorized as either “state forests” or “agricultural land,” excluded large tracts of upland areas that were left unidentified, unmanageable, and thus “illegible” from the state’s vantage point. In Arka, the new village leadership that emerged in the post-commune period abused its authority and took advantage of these land reform gaps to claim these “unidentified” lands as their own private property.

The village leaders further arranged to contract out some of these lands “on behalf of the village,” while keeping most of the profits derived from such ventures for themselves and their relatives. The leaders and their relatives then used this private capital to expand their private rubber holdings. In contrast, most villagers, especially the poorest, lacked sufficient capital to develop rubber plantations and were compelled to contract out some of their lands, often to the village leadership and their relatives, in order to acquire the capital to begin planting rubber trees on their remaining lands. All of these factors have further contributed to a rising gap between “the haves” and “the have-nots” with respect to rubber holdings and profits.

Rubber, rising standards of living, and new social problems and chronic disease

Increased cash income from rubber has generally helped to raise the standard of living for villagers in Arka and other rubber-farming communities in Xishuangbanna. Villagers’ elevated standard of living can be seen in the new homes springing up across the countryside, in improved road and telecommunication networks, and in new means of transportation, such as motorcycles, and, in some instances, cars and trucks. In Arka village, a growing number of households built new villa-style homes within the last decade.

Nearly all households in Arka have acquired several motorcycles in addition to a tractor, cable television, and telephone lines. Most, if not all, teenagers and adult villagers have mobile phones. In addition, gravity-fed potable water is now piped to each household. Rice cultivation is also mechanized. In 2010, however, the villagers decided to stop cultivating rice altogether and lease their paddy fields to an outside Han agribusiness that converted those fields into a banana plantation.

At the same time, however, a rising trend of competitive consumption is developing in the village. For example, with their increased cash incomes from rubber, villagers have either (re)vitalized or initiated various communal celebrations on grander and more elaborate scales than in the past. These events include more traditional celebrations, such as weddings and new house celebrations, and newly invented or borrowed celebrations, such as birthdays, especially those marking children’s first and tenth year of life.

Generally speaking, these celebrations are becoming increasingly lavish and competitive as villagers now regard them as the most direct and conspicuous way for a household to display their relative wealth and status. It is now expected that a water buffalo and/or a hog will be slaughtered for these celebrations. In many instances, it is further expected that the household will hire a professional company to video record the event and produce a DVD.

Anywhere from a few hundred to a thousand guests might be invited for these celebrations. It is now commonplace for guests to give a “money gift” (*gua li* in

Chinese) to the sponsoring household. The amount of the money gift generally ranges from fifty to several hundred yuan. It is held that the more you give, the more “face” you gain. Sponsoring households keep a written record of each household in attendance and the amount of money given. It is expected that money gifts will later be repaid in kind when another household hosts a celebration. This new custom of giving money gifts, however, is an economic burden for many households in Arka, especially poorer households.¹³

While these celebrations can cost upward of tens of thousands of yuan, the cost is often compensated by the receipt of money gifts. It is generally believed that the more a household spends on these celebratory feasts, the more prestige they acquire. The high cost of these feasts, however, means that poorer households tend to hold fewer and less elaborate feasts when compared to wealthier households. As a result, wealthier households, in comparison to poorer ones, benefit more from these revitalized feasting practices and the roles they play in redistributing wealth and endowing households with prestige.

In addition, as Arka moved to an economy largely based on cash-crop rubber, the village began to experience a variety of new and emerging chronic health problems, such as diabetes, hypertension, and hyperlipidemia, that are directly and indirectly related to rubber and its profits. Several doctors from local clinics informed Wang that, in comparison to a neighboring Akha village, Arka villagers tend to exhibit poorer overall health. These doctors attribute Arka villagers’ poorer health conditions to their main source of potable water, which, until recently, was being contaminated by chemical pesticides and herbicides used in rubber cultivation on their main watershed. Prior to the early 1990s, the watershed was reserved as a communal forest. In contrast, the neighboring village draws its potable water directly from preserved state forests that serve as the watershed for a local reservoir. In recent years, four deformed infants were born in Arka. These deformities might be due to the contaminated water source.

Another potentially negative impact of rubber on public health that has yet to be adequately addressed by local officials is the strong and repulsive stench of rubber waste that engulfs the village each night during the rubber tapping season, which runs from roughly March through November. This rubber waste originates in a nearby rubber factory that opened in 2011 on land leased from Arka under the direction of the former headman. Each night the factory releases its rubber waste into a small stream that runs adjacent to and just below the village before passing several lowland Han and Dai villages. Reflecting their growing dependence on rubber, however, some Arka villagers joke that “we can’t sleep at night without the smell of rubber,” which they further equate with their livelihoods.

The village’s transition to a rubber economy has further impacted the perceived value of a formal education in a negative manner. Local teachers often complain that it is becoming increasingly difficult to discipline their students in post-rubber-boom Xishuangbanna. They partly attribute these difficulties to rubber as villagers now tend to perceive of rubber tapping, which requires little or no formal education, as more valuable than a formal education. In addition, households that continue to value and invest in their children’s higher education are finding that

their children, even those that complete a baccalaureate degree, struggle to find off-farm work in near and distant urban centers in greater China.

Finally, Arka's transition to a rubber-based economy has dramatically transformed villagers' lifestyles and overall work ethic. While requiring intensive labor when tapping, rubber cultivation, in comparison to swidden rice cultivation, provides villagers with large amounts of down time during which a growing number of individuals are engaging in unhealthy activities, such as gambling, drinking, and conspicuous feasting.¹⁴ These patterns are more widely observable among younger generations of rubber tappers who tend to see little or no value in other forms of household production besides rubber farming, which directly translates into cash income.

Some individuals have incurred large debts as a result of their gambling addictions and lost many of their rubber holdings. Rising rates of alcoholism are further attributing directly and indirectly to poor health and even deaths in the village. In addition, the region's rubber boom brought with it a rising pattern of prostitution, resulting in the spread of new and emerging STDs among local communities. In recent years, a respected herbalist from Arka village treated over twenty patients with STDs, including HIV/AIDS.

Of rubber, shifting marriage patterns, and cultural revitalizations

In spite of its many downsides, rubber has helped to both elevate the social status of Akha in Xishuangbanna and greater China (Sturgeon 2010), and also facilitate an Akha cultural (re)vitalization movement (Li 2013; Morton 2013, 2015). The elevated social status of Akha is indicated in the increased ratio and pattern of inter-marriage between Akha and Han since the 1980s. The general pattern of marriage in Akha society is for brides to marry into their husband's households.

Prior to the 1980s, Akha generally considered a woman's marriage into a local Han household as signifying a move up the social ladder. At that time, the status of state farmers, which were predominantly Han, was considered higher than that of peasant farmers, such as the Akha. In that time period, five women from Arka married into the nearby Han village of state farm workers. In contrast, there was not a single case of a Han marrying into Arka.

Since that time, however, the pattern has reversed and intensified as some ten Han men and six Han women have married into Arka. The main period of transition in these trends was the late 1990s when Arka villagers began tapping their private rubber trees and cashing in on the regional rubber boom. Since that time, not a single Arka villager has married into the nearby state farm. Peasant farmers with private rubber holdings are now considered wealthier and of higher status than state farmers (Sturgeon 2010).

The unprecedented wealth that Akha are experiencing as a result of their transition to rubber and the rubber boom is further facilitating a broader effort by certain Akha communities in the region to (re)vitalize some of their Ancestral practices, such as the "Akha New Year Ancestral Celebration" or *Kartanrpar*, on a grander and more elaborate scale. In addition, in the past few years Arka villagers collectively decided to (re)vitalize a section of communal forest located in the main watershed above the village from which they obtain potable water in the

intertwined interests of cultural (re)vitalization, public health, ecological sustainability, and economic development. These cultural (re)vitalization efforts can in part be seen as part of a global shift from “cultural survival” to “survival through culture,” a process entailing the incorporation of ethnicity that, while essentializing, can potentially empower communities as they creatively rework their cultural heritages (Comaroff and Comaroff 2009, 24).

Improved living standards are also freeing many Akha women from their prior responsibilities to gather water and firewood, thus allowing them more time to focus on making modern-traditional-style Akha clothes for their (re)vitalized communal celebrations. A growing number of women in Arka are also (re)vitalizing earlier practices of hand-weaving cotton cloth. In 2005, Arka women wove 247 *yar* of cotton cloth.¹⁵

Rubber’s vulnerabilities: Environmental, climatic, and market factors

Rubber has brought both unprecedented wealth and also new vulnerabilities to local rubber farmers in Xishuangbanna as they shifted their livelihoods from swidden rice cultivation to more sedentary monoculture rubber plantations. First and foremost, rubber trees are highly vulnerable to climate change, pests, and disease. For example, many rubber trees in Xishuangbanna died in 1973–1974 and 1975–1976, when the winter temperature dropped just a few degrees lower than average (Cold Injury Investigation Office of Agricultural Reclamation Bureau of Yunnan Province 2005).

In addition, pests and disease can not only kill rubber trees but also jeopardize rubber production. For example, in early 2008 all of Xishuangbanna’s rubber trees were infected by powdery mildew. It was estimated that this particular infection decreased local rubber production by 15,000 tons of dry rubber, amounting to a loss of over 300 million yuan (Dai 2008). In that year, Arka villagers reported a loss of 1.3 million yuan due to the infection.

In addition, the market price of dried rubber tends to fluctuate dramatically. For example, for a few days in May 2008 the price soared to 26 yuan/kg and thereafter rapidly dropped to just 7 yuan/kg for the remainder of the year.¹⁶ That dramatic slump can be partially attributed to the 2008 Wall Street crisis, which negatively affected global rubber prices. After accounting for their income loss due to the powdery mildew infection, in 2008 Arka villagers lost roughly one-third of their prior year’s income due to the global economic depression.

More importantly, however, Arka villagers are generally not yet fully aware of just how vulnerable they are as a result of their growing economic dependence on the monoculture of rubber trees. Based on a 2008 survey, Wang found that most villagers did not see a connection between the rise of the powdery mildew infection and the large-scale monoculture of rubber trees. Only three of thirty survey respondents connected the infection to the dramatic loss of local forests and worried that with time the epidemic would only get worse. The majority of respondents, however, attributed the infection to either climate change or the use of inadequate or “fake” pesticides to control the epidemic. A few villagers even

believed that the infection was part of a malicious biological attack on China by the West in order to disrupt the 2008 Olympic Games in Beijing.

When asked what they might do if another epidemic occurred the following year, most of the respondents replied that they were unsure what they would do and simply hoped that it would not happen again. Many believed that the local government would take some measure to prevent the epidemic from happening again as “the state farms have many more rubber plantations than us.” These comments reveal that local farmers are not yet aware of the fact that collectively they now have more rubber holdings than the state. Some villagers suggested that if the epidemic happened again, they would search for non-farming work in towns and cities. Finally, two households noted that they would try and make up for their rubber losses by focusing on other forms of household production, such as pig husbandry.

CONCLUSIONS

Rubber was a key technology via which the modern Chinese state sought to consolidate control over what were apperceived as “primitive,” “unproductive,” and “illegible” land and people in its southwestern borderlands. In this article, we examined this grand project of the state from below, via the lenses of certain Akha communities in post-1980s Yunnan, China, that experienced a dramatic shift in their livelihoods from shifting to more sedentary agriculture—from subsistence rice to cash-crop rubber—in response to the heightened local presence of the central Chinese state. We argued that this livelihood shift, while initially a largely passive response on the part of Akha to the state, was, at later times, more actively driven by Akha from below as they sought to maintain some autonomy from the state by working within and around a range of newly imposed state regimes of regulation and control.

This particular case is a fairly predictable outcome of broader sets of processes occurring in other resource frontiers in Asia and beyond as a part of the last great state enclosure (Tsing 2005; Scott 2009; Peluso and Lund 2011; Li 2014). A key dynamic of these changes is the rapid growth and expansion of boom crops, including rubber (Hall, Hirsch, and Li 2011). At the same time, however, the Akha case brings attention to the fact that resource frontiers, not unlike borders as described by Koff (2013, 11), are complex and dynamic spaces where one often encounters a diversity of distinct actors, objects, and practices at play that actively affect larger political systems and projects.

In this vein, we highlighted the agencies of local Akha actors in shaping and reshaping new and emerging rubber/resource frontiers in a manner that variably affords them some autonomy while entangling them in new forms of state-, market-, and climate-driven controls and vulnerabilities (Chatterjee 2004; Appadurai 2013; Krupa and Nugent 2015). We also examined the impacts of these political and economic transformations, namely the heightened presence of the state and a shift from subsistence rice to cash-crop rubber, on local ecologies and the sociocultural life-worlds of peasant rubber farmers in southwest China. In

conclusion, this particular case generally supports the argument that in places, such as southwest China, where the state provides some “land rights and support services” to smallholders, “rubber cultivation is viable and profitable” (Fox and Castella 2013, 157), even as it tends to bring about new and emerging forms of external control and vulnerabilities.

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NOTES

1. We intentionally capitalize the term “Ancestral” throughout the article in order to accord the term dignity and recognition as a proper noun.
2. Arka is an anonymous name for the village.
3. Rubber tree cultivation is generally not recommended on slopes higher than 800 meters above sea level, although in practice rubber trees are planted on slopes up to 1,000 meters above sea level. On a side note, the central government promoted tea plantations as the main alternative to swidden agriculture at slopes higher than 1,000 meters above sea level in Xishuangbanna.
4. These population statistics are taken from China’s first, third, and sixth national censuses as well as a report issued by the Yunnan Provincial Government (1990).
5. In China, Akha are officially identified as a branch of the Hani Ethno-Nationality.
6. In 1950, the US and its capitalist allies embargoed rubber to China as a direct result of Chinese involvement in the American-Korean War.

7. At this time the state also took control over a number of private rubber plantations that were established earlier between 1904 and 1950 by certain local elite.
8. In Xishuangbanna, the minimum amount of land required for a healthy swidden rotation is roughly 15 *mu* (1 ha) per capita. 3 *mu* per capita is generally required to produce enough food annually, and 15 *mu* of land can be divided into five plots. If each plot is cultivated for two years, 15 *mu* of land permits a rotation of ten years with eight fallow years.
9. In other parts of Xishuangbanna with more abundant highland areas, shifting cultivation continued until the 1998 logging ban, after which swidden lands were converted to cash-crop plantations, such as tea, with state subsidies via the Land Conversion Program (2001–2002).
10. This pioneer collective plantation was later replanted in 2005.
11. If 800 yuan is used as the average price of an adult hog, then these 130 hogs would amount to roughly 104,000 yuan, comprising 5.4 percent of their total income in 2005.
12. In 2007, the market price of rubber seeds was 0.6 yuan per kilogram.
13. In 2007, Arka villagers spent an estimated 416,000 yuan on “money gifts.”
14. Depending on their work ethic and skill, a couple could tap anywhere from six hundred to one thousand rubber trees per day. Tapping is generally started in the late evening and completed by the early morning. The tide of latex production for rubber trees is greatest from 2–3 am.
15. *Yar* is an indigenous Akha unit of length for cloth. One *yar* of cloth is considered enough to make a full outfit for an adult.
16. These are the actual prices at which Arka villagers were able to sell their dried rubber in the local market.

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