

# Ways of seeing environmental change: Participatory research engagement in Yunnan, China, with ethnic minority Hani participants

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**Abstract:** *In this article, I reflect on a participatory learning and action (PLA) and participatory geographic information system (PGIS) project undertaken in two adjacent Hani villages in southern Yunnan, China. After a lengthy process to gain research authorisations, Hani villagers worked with a group of visiting researchers (Hani, Han Chinese and New Zealanders) to articulate local visions of land-use change and environmental challenges. PLA exercises produced a diverse range of hand-made and PGIS products over a 10-week period. As villagers became more accustomed to the 'outsider team', methods – both designed and spontaneous – diversified. Afterwards, based on the results and acting on their own initiative, local leaders backed by popular support moved quickly to reassert traditional and ritually prescribed Hani conservation measures. Nevertheless, these endogenously driven solutions were not necessarily universally beneficial. In describing the complexities encountered in implementing a participatory framework and the ambiguities of the outcomes engendered, I argue that privileging local coherence and celebrating such participatory approaches should not be done at the expense of ignoring the intricacies of on-going contradictory behaviours in a rapidly changing arena. Yet, in China, where authorities often remain suspicious of those seeking to undertake long-term fieldwork, especially among ethnic minorities, PLA offers a potential route forward.*

**Keywords:** *China, fieldwork, Hani, participatory geographic information systems (PGIS), participatory learning and action (PLA), Yunnan*

## **Introduction: A project in search of a partner**

Until the 1990s, the state, the Party,<sup>1</sup> international development agencies, overseas academics and so forth, set their own agendas that impinged on ethnic minorities' lives in China in ways that were quickly normalised. Intervention was (and often continues to be) asserted within a modernisation framework that prioritised either what was 'best' for the greatest number or, more likely, what national power elites saw as being in the best interests of the state. Under socialist agendas, although ethnic minorities were given the full legal rights of citizens, they were still likely to find themselves categorised as outsiders, either as a political and environmental threat to the nation, or treated like primitive, exotic objects whose principal talent

was to entertain by dancing in circles holding hands, and whose destiny was to be patronised (Harrell, 2001).

During the 1990s, with the help of international support, ethnic minorities in China found it easier to claim a place on the international stage. Through a rise in the number of lobby groups, conferences, documents such as the Declaration on the Rights of Indigenous Peoples (2007), UN agencies (International Labour Organization) and development banks such as the Asian Development Bank, the rights, positions and prospects of indigenous peoples received increased attention and legitimacy. This access was accompanied by the growing use of participatory research techniques designed to engage local people in development planning. These approaches emerged as a

strategy to navigate old bipolar arrangements in ways that might enable ethnic minority and indigenous communities to exercise some influence over the outcomes of 'development' and over their own identities. With the help of the Ford Foundation, agencies such as the Yunnan Institute of Geography were able to experiment with Participatory Rural Appraisal (PRA); in this case, establishing a specialised Rural Development Research Center. In turn, this centre provided PRA training for government and NGOs organisations, mentored their progress and set up a PRA network to exchange information and share experiences.

In the early 1990s, in consultation with Graeme Aggett, a geographic information specialist (GIS), I developed an integrated approach to participatory learning and action (PLA) which we called mobile interactive GIS (MIGIS) in a field which is now better known as participatory GIS (PGIS). We took MIGIS to Thailand where we worked with the Highland Inter Mountain People's Education and Culture in Thailand Association (IMPECT) to research the interactions of members of an ethnic minority group, the Karen, with their local environment and to what degree they were engaged in the broader political and cultural life of the region. Through participatory techniques of engagement, supplemented by the use of maps and digital photographs (McKinnon, 2003: 64–84; McKinnon, 2005: 217–232), it became clear that communities were aware of the challenges of coping with intrusive forces in the dominant societies around them – such as urbanisation, and the increasing sophistication and seductive power of markets and globalisation. Moreover, communities were keen to adopt some new forms through which to express their identities and concerns (see Williams, 1975; Bourdieu, 1977; Li, 1996; Ganjanapan, 2000). The positive response of the Karen to this participatory research opportunity gave me the confidence to propose a similar undertaking in a relatively isolated highland community in the People's Republic of China.

It was in pursuit of an upland, ethnic minority field site, in which to extend exploration of the usefulness of the PLA and PGIS tools used during the Karen project, that in May 1996 I presented a paper subtitled 'A Project in Search of a Partner' to the Second International Hani/Akha Conference, held in Chiang Mai and

Chiang Rai. At that meeting, I met two people who would play a critical role in establishing a China project: Ms Cai Kui from the Rural Development Research Center (RDRC) based in the Yunnan Institute of Geography, who attended the conference as a translator; and Mr Li Qibo, the Hani director of the Hani-Lisu Honghe Institute for Minority Studies, who offered to host a joint field exercise. His conference paper, which offered a critique of how traditional Hani rice production patterns had been replaced by other forms in China, echoed aspects of the Karen experience in Thailand (Li, 1996).

Li Qibo contended that contemporary resource management ignored old practices and he was displeased by what he saw occurring in Hani villages. He reported 'big changes' including rapid increases in population, felling of forest, increased erosion and increasing water shortages. Although Hani consciously protected the 'sacred forest' in which trees would never be deliberately harmed, these special groves represented only a remnant of the protective up-slope forest; thus, Hani cultural belief systems no longer played a significant role in overall natural resource management. To Li Qibo, these changes indicated the detrimental extent to which past conservation and tenure arrangements had been undermined.

I was sceptical. The judgement appeared to come too easily. The work that I had carried out over seven years in north Thailand between 1975 and 1990 had taught me that on scientific grounds (Lee, 1980; Cassells *et al.*, 1987) the charge of misuse of land was frequently misleading and based on misinformation recycled again and again by the Thai establishment as part of a deeply ingrained habit to diminish the credibility of highlanders (McKinnon, 1977, 1989). As such, Li Qibo and I set out on a participatory project to explore local experiences of the changing environment in southern Yunnan; not to specifically explore Li Qibo's hypothesis, but to see what emerged from an open agenda.

I next briefly explore and critique PLA methods before outlining PGIS, which at the time of our project, we called MIGIS. I then detail the two Hani village field sites where our PLA/PGIS research was undertaken. I introduce the research teams involved and the methods – both planned and those that evolved spontaneously – used in our PLA/PGIS exercise that

aimed to better understand local perspectives regarding land use, environmental challenges and water management in light of recent market opportunities such as lemongrass cultivation. I conclude by critiquing the PLA process, as well as the endogenously driven solutions that arose as a consequence of the project.

## PLA

The overarching approach used for this project is known in development practice as PLA. Although contemporary scholarship has been critical of participation as more rhetoric than substance (Cook and Kothari, 2001), a wide range of exercises in Cambodia, India and the South Pacific illustrate that there cause to be optimistic about such approaches (Hickey and Mohan, 2004).

The emergence of participatory methods for rural development research was inspired by the shortcomings of Rapid Rural Appraisal (RRA) approaches, which outside experts used to assess the primarily socio-economic development needs of impoverished communities (Chambers, 2007a). Participatory Rural Appraisal (PRA) emerged as a counterpoint, emphasising the value of local knowledge and the need to empower local beneficiaries of research and development (Robinson, 2002). This change of approach entailed an epistemological shift, which realised the potential for participants to create the knowledge needed (Campbell, 2001). This constituted a reversal of power dynamics, with PRA researchers functioning as facilitators (Chambers, 2007a) or 'change agents' (Wetmore and Theron, 1998; Chambers, 2007b). These agents had to develop a professional level of humility and respect (Terry and Khatri, 2009), as well as 'self-critical epistemological awareness' in order to critically analyse PRA data (Chambers, 1997: 32).

Throughout the 1980s, the benefits of participation were advocated for all fields of social science research, and PLA was coined as an overarching, trans-disciplinary category (Chambers, 2007a). Within agricultural research, PLA methodologies have been applied to research on soil fertility (Defoer, 2002; Nederlof and Constant, 2007), integrated pest management (Bentley, 2009) and land management (Arévalo and Ljung, 2006). Importantly, PLA research

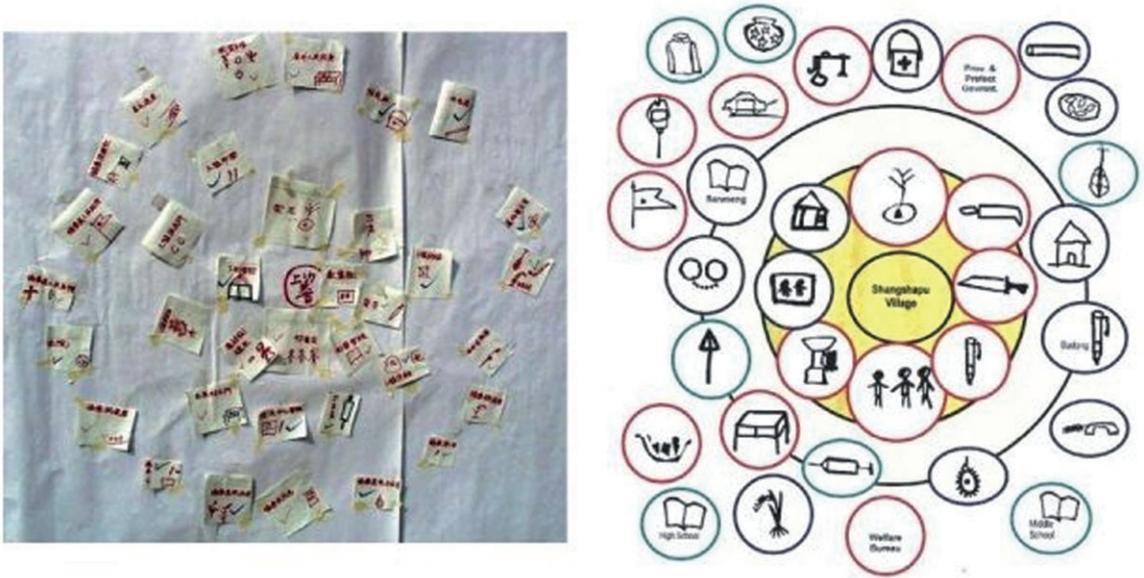
design allows for evaluation and adaptation *during* the research process (Wetmore and Theron, 1998; Defoer, 2002). The techniques recommended for PLA research are visual, tangible and group-based, often involving participatory mapping, ranking exercises, interviews and focus groups (Kumar, 2002; Mukherjee, 2002; Terry and Khatri, 2009).

Critics have noted that PLA researchers have often failed to focus on the significance of sampling and selection processes, as well as the impact of the researcher, given the skills needed to either contribute or facilitate participatory methods (Campbell, 2001). Furthermore, participation may be limited by cultural, gender and power dynamics, leading to biased data (Chambers, 2007a). Such critiques suggest that ethnographic analysis and interaction with research participants allow researchers to better understand the importance of local participation and employ stratified sampling techniques (Campbell, 2001; Ruggeri Laderchi, 2001). This corresponds with calls for PLA research design to incorporate elements of repetition and allow for triangulation with insights from participant observation. Furthermore, in representing research results, the process must be documented for transparency and critically considered during analysis to enhance rigour (Campbell, 2001).

### *Participatory GIS*

As I had learnt over a decade of research with ethnic minorities in northern Thailand and with the example of the way Karen had responded to the augmentation of their knowledge with digital technology, I argued that if the value of indigenous knowledge was to be properly appreciated, it would gain a great deal from being more closely linked to advanced technology. I wanted to experiment with using PGIS or MIGIS. I aimed to take the results from PLA tools and enhance them with the use of digitised maps and graphics to provide feedback to the community and to provide results in a manner that enabled officials to better focus on content rather than images produced by inexperienced hands (see Bocco and Toledo, 1997; McKinnon and Aggett, 1998). Although early on the use of GIS was subject to sceptical comment (Abbot *et al.*, 1998), such an approach has since

## Institutional Relationships



**Figure 1.** Shangshapu Venn diagram

The diagram shows institutional relationships for one of our research villages, Shangshapu. The diagram is centred on the shaded heart of the village with a symbol for the 'dragon tree' immediately above, with other signs representing institutional practices close to villagers' lives in the inner circle. The results submitted by the Hani research team are on the left and the computer-generated enhanced version is on the right.

become increasingly acceptable and adds considerably to the credibility of, and confidence in results.<sup>2</sup> For example, using sparse baseline maps showing streams and ridges to scale would make it possible to calculate land use changes from information provided by Hani villagers. Results could be processed quickly, incorporated into computer-formatted graphics, projected by a digital projector onto a screen for comment, and some of it (such as trend lines, Venn diagrams) altered live in front of the people to whom the information belonged. This would add to the interactive nature of the research and improve transparency. By recording, digitising and processing information on a computer, results could be triangulated, information from sketch maps adjusted to match information included on published maps, the actual size of holdings calculated and future trends projected.

The most serious criticism of the MIGIS or PGIS extension of PLA is that it imposes a degree of separation between indigenously generated results and outsider computer-generated

representations, leading to a form of expropriation. In our study, we proposed to avoid this fundamental error by sharing results as they came in from day to day, consulting fully with villagers to check the results of Hani research teams (explained below), and responding immediately to queries as they arose. Furthermore, we showed all the images at open meetings with the community and incorporated criticism and altered results as more precise information became available. The PGIS computer-driven graphic capability was to be treated as a vehicle for hire, a 'taxi' that would be driven to destinations designated by the passengers not the driver. We intended to present information in graphic form, in projected digital photos, scanned images and eventually bring results together in PowerPoint presentations, an example of which appears in Figure 1.

### Field sites

Located in southern Yunnan, near the border with northwest Vietnam, the two study villages

for our PLA/MIGIS research were Xiashapu and Shangshapu (see Fig. 1, number 3, in Turner's introduction to this special issue). These villages are located in the Badong catchment, at the headwaters of the Amo Jiang River, which, in Vietnam, becomes the Song Da (Black River) and eventually joins the Song Hong (Honghe or Red River). Today, the two villages are circumscribed within Sanmeng Township, approximately 18 kilometres from Daxing, the administrative centre of Luchun County, Honghe Prefecture. The two study villages sit below a ridge that runs along a northeast-southwest diagonal. At the time of our initial research in 1999, the upper village, Shangshapu, had a population of 178 people divided between 79 households. The lower village, Xiashapu, was slightly smaller with a population of 140 living in 70 households.

Over centuries, the local landscape has been transformed from steep forested slopes to a classical Hani landscape of irrigated rice terraces, although corn remains the main upland food crop. In a bad year, a summer drought of four to five months followed by a poor rainy season may place all rain-fed upland crops at risk. Starting in late April or May, and even after the start of the monsoon, heavy hail can also damage crops. This environmental variability poses serious challenges for local livelihoods and well-being (Bouchery, 1996).

In the complex ethno-linguistic mosaic of China, the Hani belong to the Tibeto-Burman language group and are closely related to the Akha in Sipsongpanna, northern Thailand and Burma. In 2000, they numbered 1 439 673 people, largely concentrated in the Honghe Hani-Yi Autonomous Prefecture of southeast Yunnan (Michaud, 2006: 100). Like many other Hani communities in Luchun County, the people of Xiashapu and Shangshapu are relatively poor. According to official Luchun County Statistics in 1998, the average annual per capita net income was 388 RMB (US\$44) for Shangshapu and 422 RMB (US\$48) for Xiashapu, below the county-wide average of 434 RMB. The county itself was ranked one of the 50 poorest in China.

Kinship is important to the Hani, and they contribute to extended family welfare while making the most of their limited resources. One could argue that they remain resilient, prag-

matic and optimistic when faced with numerous obstacles to improving their livelihoods. Yet resilience alone does not guarantee a secure future. There are single-parent households that find it difficult to make ends meet and a few houses are in danger of collapse. Mice and rats eat grain reserves, making food insecurity a constant threat. Property is not entirely secure and, although residents had no complaints about antisocial behaviour in their own village, they did not necessarily trust the honesty of all residents in neighbouring communities. Livestock occasionally go missing; neighbours poach eels from flooded paddy fields and fish from ponds. Furthermore, it is difficult for young people who do not speak standard Chinese to gain decent employment in nearby towns. Indeed, employment through state agencies favour Han over ethnic minority people.

### **Fieldwork: Getting approval to undertake PLA**

After having met Li Qibo, the Hani Director of the Hani-Lisu Honghe Institute for Minority Studies in Thailand in 1996, it took a further three years to get approval to undertake fieldwork in Yunnan. Although Li Qibo was instrumental in securing local support and interest from Hani, he did not have the administrative or political leverage to get us permission to carry out fieldwork. Instead, over this three-year period, other personal contacts played a major part in negotiations (c.f. Cornet; Gros; Michaud, this issue). A sense of trust developed over several visits, establishing and conveying a seriousness of purpose and genuine interest, and building a *guanxi* relationship of mutual respect. This set a firm foundation on which to construct a project. Mr Yin Yonglin, whom I had briefly taught at the Mekong Institute at Khon Kaen University, Thailand (June-July 1997), was a Programme Officer in the Foreign Technical-Economic Cooperation Division of what was then the Provincial Bureau of Foreign Trade and Economic Cooperation, (BOFTEC). He helped steer the project through the provincial bureaucracy. Dr Hermann J. Tillmann, an EU advisor to the EU-Yunnan-Honghe Environmental Protection and Poverty Alleviation Project based in Kunming, also helped by linking our proposed research to his Chinese counterpart agency the Environmental Protection Bureau and

recommending the names of specific individuals whom he considered to be particularly capable and committed to their jobs. Mr Lu Xing the experienced team leader of the RDRC was extremely welcoming and accompanied me on my first visit to BOFTEC. His colleague Ms Cai Kui then made several journeys to Jianshui to talk with Li Qibo and negotiate access to a suitable Hani field site.

The Hani-Lisu Honghe Institute of Minority Studies provided a research assistant who could speak Hani, Chinese and some English; while the Environmental Protection Bureau provided two Hani-Chinese speakers to live with us in the villages. Although Li Qibo then played a major part in selecting and negotiating entry to study villages, the results emerged from observations volunteered by Hani farmers and were not framed ahead of time by Li Qibo's opinions. Finally, through all these contacts outlined above, at the end of 1998, the project was given approval. It was proposed that the work would culminate in a series of action plans that would be followed up by our counterpart agency, the Environmental Protection Bureau.

### Fieldwork: Setting up the PLA

The team was committed to a very demanding schedule as the research agreement permitted only two months research in Yunnan. Nearly half of this was to be spent in preparation, visiting the agencies that had given us support, reporting to them before we left the country, and wrapping up the whole exercise with final reports in English, Chinese and Hani. Although it may not be considered part of the methodology, meeting demands on our time was part of our obligation and necessary to maintaining a good relationship with our hosts.

Initially, eight days were spent in Kunming preparing fieldwork with Cai Kui and Dr Ma at the RDRC, and making presentations on what we intended to do to people at BOFTEC, the Yunnan Institute of Geography and the NGO Center for Biodiversity and Indigenous Knowledge. On the road, we made similar presentations to the Hani-Lisu Honghe Institute of Minority Studies and the staff of the Honghe Hani-Yi Autonomous Prefecture administration. At that stage, much of what we did had to be made up as we went along.



**Figure 2.** Hani village artist

A 'vocabulary' of some 80 images was prepared, scanned and incorporated into computer versions of diagrams prepared by the Hani village research teams.

### PLA 'outsider team'

When we arrived at the field villages, the visiting or 'outsider' PLA team consisted of eight researchers: three New Zealanders, two Han Chinese, and three Hani.<sup>3</sup> Our team included two GIS and computer graphic specialists with participatory research experience: Dr Ma, a 40-year-old male, Han Chinese academic soil scientist and forester from the Southwest College of Forestry; and Jack McConchie, a 40-year-old geo-hydrologist from Victoria University of Wellington, New Zealand.<sup>4</sup> Ms Cai Kui, a 30-year-old Han researcher with a masters in Agricultural Systems from Chiang Mai University was the principal PLA specialist. Jean McKinnon, a 57-year-old gender and graphics specialist had the role of finding and fostering the participation of village artists (one of whom is shown in Fig. 2). She also assembled the Hani visual glossary used to replace written language in graphic representations of plants, animals, artefacts and infrastructure as much as possible. She also managed financial matters,

monitored interactions for gender, age and status bias, watched how various stakeholders were treated, and drew the attention of 'offending' team members to less than satisfactory attitudes and behaviour. I, as the near 60-year-old team leader, geographer and development studies specialist with training experience in PLA took overall responsibility for running things. I worked at developing and maintaining good relationships within the facilitating 'outsider' PLA team, and between our team and the two Hani village teams (described below) and the community. I ran feedback exercises held each morning; and made sure the briefings for the evening exercises were clear and precise. I was also responsible for writing the field reports and taking a lead role in the presentation of results.

The three Hani team members of our 'outsider team' acted principally as facilitators and translators. Each spoke a different Hani dialect and their fluency in Hani was in reverse proportion to their formal educational qualifications. Miqli, the only one to hold a bachelor's degree, was less confident in Hani but spoke a reasonable level of English, while Mr Bai claimed 60% fluency in Hani, and Mr Heng 80%. In the village, conversations and discussions with elders could be conducted in standard Mandarin Chinese (*putonghua*) which supported a 'natural' bias that privileged high-status older men. To counteract this, a conscious effort was made to create opportunities in which women and younger people could comfortably have their say in Hani. Conversations and briefings within the team also presented a challenge and when the whole team was assembled everything was translated from Chinese into English and vice versa. Within the village, three-way translations were sometimes required and communication through sign language, graphic images and maps required constant checking and a good sense of humour.

To a large degree, the success (or failure) of the team in this venture was shaped by our positionalities, including who we were as individuals, our gender, training, and role in the team. I think it is fair to say that the 'outsider team' strived to conduct our work openly and transparently. Though it sounds naïve, we sincerely attempted to establish a symmetrical

relationship. This, we hoped, would enable us to go beyond profiling indigenous knowledge and community tradition to truly grasping local points of view. Whether we ever understood local perspectives completely can only be critically reflected upon in subjective terms.

Although members of the 'outsider team' emphasised that we were not directly affiliated with a project that could guarantee material assistance, we could see that villagers found it difficult to separate us from the Environmental Protection Bureau, particularly as two Hani members on our team were part of that organisation. Just by their presence visiting officials such as the director of the Luchun Environmental Protection Bureau and his colleagues seemed to confirm this assumption. Despite our protestations and although we were not subject to restraints on how we conducted research, villagers knew we could not be there without government support and we could not avoid but be treated as an extension of government. This connection must have introduced a bias into our dealings and influenced what we were told, yet it did not appear to significantly or adversely affect our results. When they did visit, bureau officials appeared to be more interested in drinking our hosts' whiskey and eating their food than in our research results. There must, however, have been tensions that we remained unaware of.

#### *PLA village teams*

Two village teams undertook the PLA exercises (explained below), one from each village. To ensure representation across each settlement, the 'outsider team' established participation criteria relating to family, age and gender. We asked elders who took responsibility for choosing the teams not to appoint more than two members from the same extended family. Three age groups were identified so that young people, active farmers in their prime and parents, and elders, would have a direct voice. Overall, we aimed for equal gender representation. Although we asked the elders in each village to choose just six members, some team members felt more comfortable having friends accompany them. The 'outsider team' accepted this without question and, initially, there were as many as 20 people gathered, making it rather

impossible to distinguish between participants, observers and ‘hangers-on’.

Although these criteria cut across customary lines of separation (by which the voices of younger people and females are muted in favour of older male voices), participants did not complain (to us). However, groups still tended to divide along customary lines such that women would cluster together and ‘do their own thing’. The discussions over differences in perspective were often more revealing than a single finished product, and a multiplicity of results was welcomed. Differing returns were used to spawn further discussion at open forums.

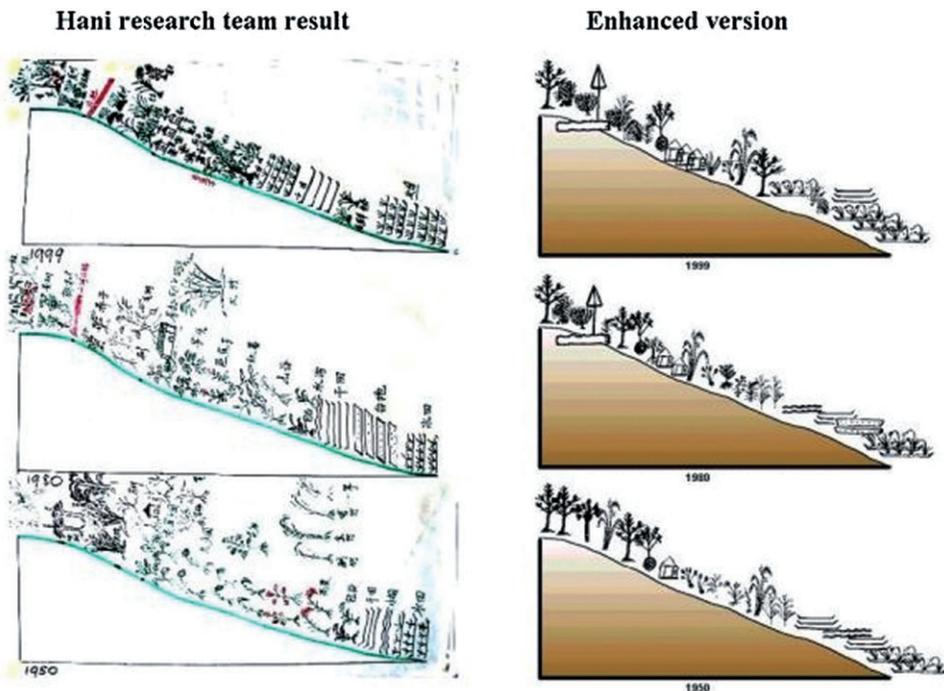
*PLA exercises*

To meet the aim of our project to uncover and document environmental challenges and changes in the communities, the ‘outsider team’ researchers facilitated standard PLA exercises over a 40-day period, in which the two Hani village teams completed tasks such as creating:

- social maps<sup>5</sup> of their village. These were initially constructed on the ground with a stick

and various features of interest shown with materials at hand such as stones, fruit, seed, and vegetation. This was then recorded on paper by members of the Hani teams, digitally photographed and transferred to the computer;

- chronological time lines recording important historical events and historical transects reaching as far back as the memory of elders permitted (Fig. 3);
- a detailed land use map, one for each village, on a base map drawn to scale;
- seasonal calendars, one for each village that summarised the annual round of agricultural, ritual, and social activities including periods of food shortage, poor health and so forth;
- gender and age breakdowns of time allocation over a typical 24-h period over the period of our visit, the season immediately before the rains came, when farmers were preparing their land for planting;
- Venn diagrams constructed to configure institutional village relationships in which participants placed family, the headman and the religious leader (see Fig. 1);



**Figure 3.** Historical transect of Shangshapu village 1950, 1980, 1999

The symbols represent different types of landforms or vegetation. As for Figure 1, the results submitted by the Hani research team are on the left and the computer generated enhanced version is on the right.

- graphs illustrating trends of different phenomena over the past two or three decades, identified by the participants themselves, such as frequency of religious ceremonies, veterinary services, fertiliser supply, forested area, incidence of disease, supply of teachers, and different sources of income;
- list and rank problems/challenges facing the community in order of importance;
- use-diagrams and problem trees to analyse principal issues identified by the community that impact negatively on the sustainability of their livelihoods and increase their vulnerability (i.e. basic needs such as water, shelter, food, health, etc.);
- and, lastly, a series of action plans to address the issues identified in earlier steps in the sequence of PLA exercises detailing who will do what and when, and what inputs are required.

Meetings were scheduled in the evenings and conducted in Hani either at the local school or in village homes. In addition, an open 'office', a lean-to resting against the main school building, was constantly staffed by team members who recorded and processed information as it arrived from dawn to dusk. Villagers who had queries could visit at any time and be sure of finding somebody there who understood their language. Every morning, the 'outsider team' would meet at the 'office' and compare notes made during the village teams' efforts the day before, review what had been said and recorded, and follow up on issues arising out of participant observation. We were often joined by locals curious to know what we were doing. When relevant, graphic representations and GIS versions of information were prepared as soon as possible and shown to each village for comment and criticism before being accepted as finished. Verification typically involved, for example, trying to locate a stream shown on official maps that villagers stated did not exist, a count of eels in a flooded paddy field that seemed to be exaggerated and so forth. As fieldwork proceeded and as villagers – not necessarily those on their village research team – became increasingly aware of emerging issues, they would come by the work 'office' to volunteer information and take us to see things of interest to them that we may have overlooked.

Following a form of snowball sampling, a large number of places of significance were explored, ranging from ceremonial sites, areas of cultural interest, to water sources. Village estate boundaries were traversed and characteristics marked on land use maps. The 'outsider team' visited fish ponds, talked to their owners, listened to accounts of accidents, visited houses in various states of repair, and took photographs of every family in each village. These photographs allowed us to first, give something back to the villagers and second, make a visual record of the number of people in a household, the state of their dwelling and condition of their clothes. Film and digital images were sent into Daxing for developing and printing so that photographs could be returned to households before we left.

Exercise results were digitally photographed and transcribed from hand-drawn and hand-written accounts to computer, and feedback sessions prioritised maps and graphics. All villagers were invited to these open forums that were held frequently, with results explained by Hani speakers (as shown in Fig. 4). So as to verify translation, digital photographs of originals were shown alongside graphically enhanced, computer-generated images (Figs 1,3). The forums were well-attended and generated interest, noise and excitement. They showed what both field teams were doing and opened the work to questions, furthering the open participation made available to villagers through the field 'office'.

### **Participatory fieldwork: Adaptation, negotiation, understanding**

The interpretations of members from the 'outsider team' of environmental challenges and changes in the communities gradually emerged from the information that Hani villagers volunteered in the course of PLA exercises, snowball interviews and casual conversations. Although we had set out to work with Hani 'village teams', our sources of information became broader. In the course of taking family photographs, members of the 'outside team' would sometimes interview householders, especially if the family concerned did not have somebody on a village team, did not attend open forum meetings and were known, often because of



**Figure 4.** Open forum

Open forums were held at night using a digital projector. At first, they were difficult to run in an orderly interactive manner because they generated too much excitement. As the novelty wore off, two-way communication became easier.

poverty and low status, to be shy. No questionnaires were used, but in the first week or so checklists were kept at hand.<sup>6</sup>

Members of the 'outsider team' were often spontaneously taken into peoples' confidence. Most of the time, these occasions were taken as an opportunity to tell one of us about problems faced by the household or the village. For example, the Xiashapu ritual head (*milguq* or *milguq guqma*), who ran the *tubhe* Spirit Stone ceremony and looked after the sacred grove and its centre piece, the 'dragon tree', lived next door to the household where I was staying and in close proximity to the 'office'. He frequently sat smoking, watching and, from time to time, commenting on what we were doing, raising concerns about teacher absences, the lack of a good water supply, and what life was going to be like for his children. An older farmer, who was distilling lemongrass oil when we first met him and whose terraces close to the river had been covered by the rising level of shingle and boulders caused by deforestation upstream, had plenty to say about his perceived injustices, but only in private. Moreover, there was the eldest son of a large household who, with his brothers, had dug a fishpond, but with fish being stolen faster than he could harvest them he despairingly accepted that he would never make a profit from the venture. A young man who had left the village in search of paid employment

and found work on a construction site had laboured on the promise of payment at the end of a contract period, but was never paid. Returning home with nothing, he bemoaned his bad fortune. The *moqipil* or *beima* (spirit practitioner/priest), whom I met on several occasions, told me how, over the socialist period, spirit practitioner skills had been lost. He was trying to reintroduce these, buying ritual texts from a Yi ethnic minority healer in a nearby town. These ongoing and accidental private and sometimes surprisingly intimate encounters provided poignant examples of shared and individual lived experiences.

As villagers became accustomed to our presence, they also became more confident and comfortable speaking to us as individuals, even to those of us whom were known to speak only English. Once a conversation was initiated, anybody within reach who spoke either Hani or standard Chinese would join in. There was a lot of banter, joking and touching, but nothing too close: the rules of cross-gender communication and restraint remained in place. These were relaxed circumstances and, over time, we became able to ask informed questions which also tended to enhance our credibility. As people began to understand what we found interesting, they responded by telling us more.

One day, the old headman of Shangshapu asked me to visit him. I visited with Miqli as

translator. Despite the language difficulties, he was able to share his thoughts on what had or had not worked in efforts to earn money to compensate for village shortfalls, the impact this had on the environment, and how the village committee was reluctant to intervene. Given the 'inherently hierarchical' (English, 1994: 86) nature of our relationship, I, as the 'outside' team leader and a man of a certain age, was expected to know more about the world and what might provide a path to prosperity. Given I am not an agriculturalist, in this case, as in many others, the flattering nature of this expectation had to be disappointed. Again, I had to explain that I was here as a student, not a professor. The visit became a three-way exploration of land, water and crop management to which each of us contributed in our own way. I was not an agricultural expert, and as an urban resident, Miqli was learning about matters that were entirely new to her, while the headman spoke freely about how land use practices in the old days were no longer followed.

Near the end of the PLA work, a special open forum meeting was called to bring all the people in both villages together and present the joint research results of the village teams and 'outsider team'. The collection of maps and digital images redrawn from the images provided by the Hani village teams using PLA tools was reviewed and a selection assembled in a PowerPoint presentation. The presentation included digital photos of the landscape and land use, mostly taken by the 'outside team' in consultation with the village teams. These showed the dynamic processes at work; 'three dimensional' images of the landscape were constructed from a contour map; and 1990 and 1999 land use maps were placed side by side. The latter was created as part of a PLA exercise and showed the marked decrease in the amount of forested land from 58% of the combined village areas in 1990 to 22% in 1999.

The digital photographs and graphics elicited a continual stream of sighs and audible remarks. Although invited to do so, nobody challenged the representations of either current land use or the graphic portrayal of the expected shortfall in food production for the three different socio-economic groups within the village. It was clear that there was a strong underlying sense of agreement. A diagram showing the allocation

of time by age and gender drew laughter, as people realised how much longer the working day was for women; this was not a matter that would change in the near future. The sound of conversation rose as people began to realise the scale of changes in the landscape, particularly when a number of remnant terraces close to the aggraded Badong river were pointed out. A buried streambed immediately below a small sub-catchment cleared and planted in lemongrass encouraged an elder to remind everybody that he remembered when it flowed on the surface. It was the economic opportunity to earn 'good money' from selling lemongrass oil that had largely created the transformation when forest was first cleared to plant the grass and then again to provide fuel to distil the oil.<sup>7</sup>

The meeting was particularly lively and, as it ended, those who had tried to point out what was happening to the land around them and the consequences of turning a blind eye to the transformations appeared relieved that at last their story had been told. The old headman of Shangshapu was positively joyful, raised his hands above his head and, with a broad smile, exclaimed what could be translated as 'yes, yes, yes!' over and over again. 'Now they must see!' When Li Qibo, who had joined the research team for the last few days realised that his own research had been triangulated in a positive way he was also pleased. In unexpected ways, the interpretations and discussions appeared to strengthen people's sense of community and their identity as Hani by reminding them of what they already knew, but what they had been reluctant to acknowledge collectively in public.

True reform, however, requires more than a rush of blood to the head. Nine action plans<sup>8</sup> had been drawn up by the village teams as part of the last exercise on the list, facilitated by the visiting 'outsider team', and completed before the final presentation was made but only one addressed the issue of unwise land use. It was a first step and although the Environmental Protection Bureau promised to provide follow up assistance with infrastructure such as upgrading the water supply or installing latrines, the more substantial issue of deforestation was left in the hands of the village leaders of Xiashapu and Shangshapu.

The journey from Xiashapu and Shangshapu back to Kunming was busier than the journey in. Within 12 days of leaving the villages, the team

made seven presentations of findings, the final report was written in English, translated into Mandarin and Hani, printed and at least one copy either given or sent to each of the principal partners.

### Participatory knowledge . . . to action?

Six months later, I returned to see what had happened, but could not complete the journey to the villages. Heavy late rain had caused whole mountainsides of Hani irrigated terraces to collapse and block the only road access. It was not until June 2000 that I was able to return and find out what had happened in Xiashapu and Shangshapu. What I saw was initially reassuring. The Environmental Protection Bureau had come to help with villager-initiated projects. What was even more gratifying was that further action plans had been organised by locals. The headman of Shangshapu village, along with 14 other elders, had formed a watershed protection committee. Seemingly empowered by what they had been able to articulate during the shared PLA project, they had reclaimed unstable collective land considered too steep for cultivation and placed it under protection. All remaining forest, regardless of who had been issued with rights of usufruct, had been declared part of a village reserve. A forest reserve agreement had also been negotiated, and each household tasked with making sure everybody understood what was involved. This agreement superseded the rights of individual tenure granted under the 1984–1985 land reform exercise. Household heads had confirmed their commitment to abide by the agreement by signing with a fingerprint.

The small amount of land claimed back, 10 *mu* (1.65 acres or .66 ha.), was planted with Chinese fir seedlings (*Cunninghamia lanceolata*) in conservation clusters on steep riparian land.<sup>9</sup> Hani leaders told me that it was ‘the first act, for this generation and the next’, following a half-year ceremony which included an offering to the Mountain Spirit and called back the spirits of the forest and the land. Four days later, this was followed by a symbolic affirmation from each household in which a chicken was sacrificed to ensure good fortune. Environmental action was once again linked to religious practice and Hani ways.

As opposed to local development actions, state-sponsored options appeared to be seen in less of a positive light. Hence, projects that were accepted or opposed by the villagers were now rooted in locally grounded, ethnically informed processes, thereby mobilising local Hani agency. The presence of our research team and the participatory research exercise had seemingly contributed to setting up a series of interactions between villagers and local officials; some involved cooperation, others triggered dissent.

We were hopeful that, through this project, the links between indigenous knowledge and environmental awareness would be strengthened or, at least, that these links would be brought to the forefront of Hani consciousness. An entirely independent evaluation of the project carried out in 2003 confirms that in this aspect, the engagement was successful. Over successive drastic changes of state regimes the region had known, the customary connections between indigenous knowledge and environmental management in the villages had been severely challenged, but not lost. The symbols of ritual were muted by several decades of concealment, but oral histories of land management resurfaced when people felt they could once again be asserted. These discussions were crowded with spiritual references to the environment, reminding people of what it meant to be Hani. As people saw an opportunity to become actively involved in the decision-making processes concerning what was happening around them, they were also reminded that their survival in both a physical and spiritual domain – their culture – meant that they must activate their own agency and exercise their collective will, rather than wait and see what happened.

It appeared, therefore, that the PLA work enabled people to acknowledge and carefully consider the consequences of what was happening around them. Acting on their own initiative, although not immune to outside influences from local elites, state representatives, and powerful neighbours, elders with popular support in both communities moved to introduce conservation measures in a uniquely Hani way. The whole community-driven exercise appeared to help people cultivate the confidence to assert their identity and determine

their own future in the 'politics of alternative development' (Friedman, 1992).

### **Concluding thoughts: Reconciling participatory objectives and outcomes**

What 'developers' consider best may not be what local people for whom the assistance is intended really want (Li, 2007). Participatory grassroots approaches such as PLA are designed to address this concern, but they are frequently compromised. Outside agencies seldom fund participatory exercises that allow villagers to plan their own future. Sometimes, the objectives of participatory exercises have been organised in advance. Oftentimes, villagers successfully uncover what the development agency has in mind, and, to ensure they become beneficiaries, massage results to fit the expectation (see Sahlins, 1999).

The specific participatory action research reported on here was kept as open as possible in aims and direction. The 'outsider' research team was not looking for an opportunity to tell Hani villagers about the precarious status of their environment; the insiders, the Hani villagers, did not particularly want to see, let alone articulate what was happening. For the latter, it was easier to leave it all in the 'too-hard basket'. Yet as work progressed, everybody – the outsider research team and local Hani villagers alike – became acutely aware of the unfolding potential for disaster.

Still, there is no fairy tale ending. While this particular participatory research exercise raised peoples' consciousness and stimulated an independent community decision to take action relating to land use, how long this cultural renaissance lasted or how far it extended into daily life was not established. By 2003, growing socio-economic differentiation between households was beginning to replicate the inequalities of old. Individual households continued their efforts to enhance their livelihoods, and well-off families were clearly better poised to take advantage of improved links between town and country. For example, on the back of relationships set up during the research exercise, better-off leaders in Xiashapu brokered a deal with staff from the Environmental Protection Bureau to set up an industrial-sized piggery that both increased demand on the local water

supply and discharged high rates of faecal coliform waste into the Badong river. Moreover, the leaders of Shangshapu and Xiashapu may have led the fight for reforestation, but they ignored the environmental risk of getting the Environmental Bureau to bulldoze vehicular access down a steep shingle slope. The zigzag track was washed out within six months.

In sum, the participatory research provided important insights but had only just begun to reveal the complexity of the underlying social and economic processes at work. Vested interests, economic gain, individual actions, asymmetrical relationships and interactions, macropolicy and so on, constantly (re)make reality. Participatory methodologies are a social mapping system that help researchers navigate diverse contexts and reach minority communities, and provide at least a relatively positive manner in which to engage with people and help participants learn about each other. Yet when working with ethnic minority groups, I would argue, as have critiques of PLA in general, this approach is still a fragile, short-term substitute for long periods in the field, repeated visits, and learning the language(s). Pursuing complex research questions in a sustained manner is the only way to keep on learning; there is no completely adequate short cut. Nevertheless, despite the drawbacks, in a context such as the People's Republic of China, where authorities are often still suspicious of those who wish to undertake long-term fieldwork, especially among ethnic minorities, PLA does offer a potential way forward.

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## Notes

- 1 Throughout this article, 'Party' refers to the Communist Party of China (CPC).
- 2 See the online: Open Forum on Participatory Geographic Information Systems and Technologies at <http://www.ppgis.net/>
- 3 Li Qibo was not available for the whole period and joined the team in the last week of fieldwork.
- 4 While both had experience with participatory research, I would argue that they tended to privilege their own academic perspectives. The Hani role is subordinated to the hydrologist's concern in the McConchie authored papers that emerged from this project. See McConchie and McKinnon (2002); McConchie and McKinnon (2004); and McConchie and Ma (2003).
- 5 A social map provides people with the opportunity to show the following: important physical and social features of their community; location, wealth and other characteristics of households; and, may also include other features such as roads, streams, wells, public buildings and so on. The tool enables people to show their own surrounding as they see it and is rarely if ever drawn to scale.
- 6 The social map provided a ranked socio-economic position for each household in the village. This was checked in the course of the visit using criteria built up by the Hani research teams after households were subjectively ranked into three groups. The criteria itself was triangulated and the position assigned intuitively to the household checked.
- 7 This issue is discussed in detail elsewhere. See McConchie and McKinnon (2004).
- 8 Altogether nine action plans were drawn up but only one targeted a restricted area for reforestation in the vicinity of Xiashapu. Shangshapu developed its own forestry initiative in the following months completely on their own. Among the first action plans drawn up were the following: for Xiahapu, an upgrade of the irrigation system, construction of a tractor road, toilets and water supply; for Shangshapu, the upgrade of the irrigation system, paving the principal path through the village, constructing toilets, improving water supply, and acquiring higher yielding varieties of rice.
- 9 It should be noted that this is a very small scale initiative. To talk in more general terms, many academics and critical observers quite properly harbour strong reservations about monoculture plantation forestry for increasing water demand, diminishing biodiversity, and reducing agricultural land (Walker, 2003). For these reasons, the 'Go West' programme in Yunnan, which particularly uses the strategy of coniferous monoculture replanting, has deservedly been criticised.

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