World Agroforestry Centre China Programme

A review of activities, 2002-2007

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Transforming lives and landscapes through agroforestry science

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China Programme

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Since its inception in August 2002, the World Agroforestry Centre's China Programme (ICRAF-China) has grown from a staff of two and a scoping budget to a legally registered office with more than 15 full-time and a number of part-time staff, a broad set of programme activities, and a diverse group of donors. This report reviews ICRAF-China's activities over the past five years. It is not intended to be a formal review, but rather an informative and readable account of ICRAF's experience in China.

The report is organized into three sections. The first section provides an overview of the context and scope of ICRAF's activities in China. Section two focuses on three specific ICRAF-China projects, describing their background and activities in greater detail. The final section offers a critical perspective, based on conversations with ICRAF-China staff and partners, on the strengths and weaknesses of ICRAF's approach in China over the past 5 years and, more broadly, on the roles played by international and local non-government organizations in rural China.

Context and scope of ICRAF-China activities

Rural China is currently in the midst of fundamental economic and environmental changes. Economically, modernization and market-oriented reforms in the agricultural sector have contributed to a more than five-fold increase in real rural incomes since 1980.[1] The benefits of rural economic growth, however, have been very uneven and many parts of rural China, particularly mountainous areas in the country's western region, remain below the World Bank's threshold for extreme poverty. In many of the villages in and surrounding ICRAF-China project areas, annual per capita incomes are less than 1500 RMB (200 USD). Environmentally, natural disasters in the late 1990s that were officially linked to deforestation prompted the central government to reorient the State Forestry Administration towards a more conservation-oriented strategy, creating six large-scale programmes intended to restore forest ecosystem functions in critical upstream

1 Unless otherwise noted data used in this report are from China's main statistical yearbook.

watersheds. Given that a large portion of China's land is collectively owned and contracted out to individual households, these programmes have inevitably created friction between national conservation priorities and farmers' livelihoods.

Much of the tension mentioned above derives from shortcomings in China's administrative system and traditional line agency attitudes toward farmers rather than more intrinsic incompatibilities between development and conservation. Local line agencies in China are implementers in a chain of command that extends from a central to a township level. Particularly in China's western provinces, line agencies' work is evaluated on the basis of rigid quantitative targets (e.g., forest cover) that become ends in themselves and discourage new approaches to solving local problems. The top-down nature of this policy implementation system does allow for some scale efficiencies, but its lack of flexibility and inclusiveness leads to chronic problems in implementation. To the extent that farmers are reticent to participate in central government programmes they become obstacles for local line agencies. In China, large-scale central government programmes have often been abandoned because they failed to take root with local residents.

Yunnan Province, ICRAF's project area in China, is an example of many of the problems facing upland areas of rural China. More than 80% of Yunnan is classified as 'mountainous,' and the province is home to upstream portions of major national and international rivers, including the Yangtze, Mekong, Salween, Irrawaddy, and Red. Yunnan is also one of China's poorest provinces, with the third lowest per capita rural income (2042 RMB / 269 USD) among Chinese provinces in 2005. With the central government's shift toward forest protection, Yunnan is caught between national-level conservation programmes and the need to deal with sustained rural poverty. Most local line agencies in Yunnan lack the capacity, coordination, and status to integrate the two imperatives properly by transitioning rural production from upland agriculture toward forestry and agroforestry.

ICRAF-China's approach within this context has been to focus on capacity building and technical support in two prefectural-level areas in northwest Yunnan — Baoshan Municipality and Nujiang Prefecture — while working with policy makers and researchers from both Yunnan and Beijing to scale up its activities. ICRAF's activities in China over the past 5 years can be clustered into three overarching categories: policy research, technical support, and capacity building, and facilitation. Under these headings, ICRAF-China's work has included a broad range of substantive topics. While not covering all ICRAF-China project activities, the next three sub-sections attempt to capture some of this diversity.

Policy research

Much of ICRAF-China's national-level policy research has focused on the conflicts between rural livelihoods and national forest conservation programmes; and on the Sloping Land Conversion Programme (SLCP) and Natural Forest Protection Programme (NFPP) in particular. These two programmes have their origins in the Chinese central government's new focus on forest conservation in response to severe draught and flooding along the Yangtze and Song rivers in 1998. The SLCP is essentially an environmental benefit scheme, paying farmers to convert fields to forest (please see references for an in-depth explanation of different land (tree) cover conversion schemes within the SLCP) on sloped lands). The NFPP aims to protect China's remaining natural forests and has a logging ban in place in 18 provinces.

The SLCP and NFPP have both had unintended impacts on rural livelihoods and the environment. Research by ICRAF-China and partners on SLCP implementation in two watersheds in northwest Yunnan (Lu and Zhao 2003; Weyerhaeuser *et al.* 2005)[2] revealed that, while farmers are generally receptive to SLCP objectives, their exclusion from almost all stages of planning and implementation has led to farmers' more open and discrete resistance to SLCP implementation. Forestry bureaux, for their part, lack the resources and skills to provide farmers with the genetic stock and technical support needed to ensure that forestry is economically beneficial for farmers. On a national level, better evaluation matrices for SLCP-like programmes are needed to ensure that programme objectives are met, particularly when programmes face potentially competing objectives (i.e., rural development and forest rehabilitation) as in the SLCP.

Research by ICRAF-China and partners also explored the economic and environmental impacts of NFPP implementation in Yunnan (Su 2004; Weyerhaeuser *et al.* 2005). While the NFPP was intended to focus on state-owned forests, the logging ban was extended to collectively-owned forests as well. Even in regions which were not included in the NFPP, many rural areas, including ICRAF-China's project site in Baoshan, had their logging quotas tightened after 1998. The inability to harvest timber has caused some communities dependent upon the forests to relapse into poverty and, perversely, has removed incentives for forest stewardship by village collectives.

2 See Annex 1 for a full list of references and ICRAF-China publications.

A second unintended consequence of the NFPP, beginning in 1998, has been a significant increase in China's timber imports. ICRAF-China participated in a series of Forest Trends-supported studies (Katsigris *et al.* 2004) on China's timber trade with the Asia Pacific region, focusing on the environmental and livelihood aspects of Yunnan's trade with Myanmar. Based on field research along the border, the first (Kahrl *et al.* 2004) of two studies concluded that nearly 90% of China's timber imports from Myanmar were shipped across the Yunnan border in the early 2000s; border timber trade is officially illegal under Myanmar law. Logging in border areas has been carried out with little concern for forest regeneration, and the resulting long-term degradation threatens China's own ecological security across the border.

A second study (Kahrl *et al.* 2005) used a commodity chain approach to examine the socioeconomics of the timber supply chains that extend from the Myanmar border to China's eastern seaboard and abroad. On a wide scale, the research revealed that the boom in China's timber imports from Myanmar was only partially related to China's logging ban, coinciding with the rapid emergence of a downstream industry in timber processing in China. Nevertheless, this boom fuelled a wave of migration from across China to Yunnan's border with Myanmar; logging in Myanmar to supply to China-Myanmar timber trade is carried out primarily by Chinese companies using migrant labour from other parts of China. In many areas of both Yunnan and Myanmar the benefits of logging and processing are extremely uneven.

In addition to its focus on the SLCP and NFPP, ICRAF's policy research in China has also examined governance issues in forest production and management. ICRAF-China participated in regional studies organized by the International Institute for Environment and Development (IIED) on the environmental and livelihood implications of forest associations (Weyerhaeuser et al. 2006). Based on a review of Chinese policies on producer associations and an examination of incipient rural associations in Yunnan, the study concluded that small- and medium-sized forest enterprise associations have the potential to play an important role in mediating between China's need to maintain international competitiveness and its need to create jobs on a massive scale to absorb rural labour. Particularly at a village level, however, government support and facilitation — outside of the network of state-owned enterprises and industry associations — is needed to catalyze their formation.

ICRAF-China also contributed to a cluster of studies supported by Ford Foundation looking at the effects of village elections and village committee autonomy on natural resource management (Su and Kahrl 2006). The study found that, despite nominal provisions for village committee autonomy, in some areas township governments continue to exert a strong degree of influence on decision making by village committees. Based on the experience of two rounds of elections, however, village-level democracy has introduced a new measure of accountability into decision-making at village committee level. While village committee institutions still need time to mature, they have the potential to allow for a more transparent and inclusive process in natural resource decision making in rural China.

A more recent area of policy research for ICRAF-China has been in the field of biofuels. China's central government is promoting non-grain-based biofuel development as a national strategy for reducing dependence on imported oil. Provincial governments in many areas of China, including Yunnan, have developed aggressive strategies for rapidly expanding energy crop acreage. An ICRAF-China study of the opportunities and challenges for Jatropha curcas as a biodiesel feedstock in Southwest China (Weyerhaeuser *et al.* 2007, forthcoming) argued that a rapid expansion of Jatropha acreage without the necessary silvicultural infrastructure to support it will likely leave governments with high subsidy costs and jeopardize the long-term viability of China's biofuel industry. A more rational, longer-term strategy for implementing large-scale biofuel projects would be to follow the step by step general advice of Premier Wen Jiabao: "First understand, first take initial steps, first see results" and only expand when with each step a project proves to be successful!

Technical support and capacity building

Policy research alone is in most cases not an effective means of promoting policy change in China. In a country where the opportunity costs of waiting, good planning, and evaluation are high, often the most persuasive argument for a change in policy design or implementation is actual, on-the-ground results that offer alternatives. Based on this principle, a significant portion of ICRAF-China's work has consisted of action-oriented, field-based technical support to build the capacity of communities and government line agencies in northwest Yunnan.

ICRAF-China's technical support has focused on three overarching areas: GIS-based assessments of land and resource use and planning; silvicultural and agroforestry support; and educational activities. Given the ICRAF-China office's

limited human resources, in many cases its technical support has consisted of providing funding, exposure to new methods, and access to resources and people, with the majority of the planning and implementation being undertaken by local partners. As these relationships have matured, technical support and capacity building have been increasingly partner driven. While ICRAF-China has worked with several line agencies in northwest Yunnan, Baoshan Forestry Bureau has been ICRAF's principal local partner in China.

ICRAF-China projects with local partners have taken time to evolve. Initially, much of ICRAF-China's on-the-ground work in northwest Yunnan focused on GIS-based assessments of land and resource use to support policy implementation, and on using GIS tools to support participatory land-use planning. ICRAF-China supported forest assessments in Baoshan's Yangliu Watershed[3] (Luo *et al.* 2004) and in Nujiang's Dulongjiang Watershed.[4] In both cases, research teams worked with local communities and forestry bureaux to make inventories of existing forest resources and explore suitable species for reforestation programmes and agroforestry; in particular, teams worked with villagers to identify indigenous tree species often overlooked by forestry bureaux.

A second portion of the map-based work of ICRAF-China has focused on supporting forestry bureau projects. ICRAF-China maps and map-based analyses were used by the Baoshan Forestry Bureau in its planning for and implementation of the SLCP. For instance, using topographic maps, ICRAF-China staff analyzed the relationship between tree seedling survival rates and slope, elevation, and aspect. The research showed that slope has had the most significant effect on survival rates, and that those areas that are more steeply sloped than average need additional measures to ensure that seedlings survive. Given that a significant portion of the land targeted by the SLCP is on steep hillsides, this finding has had particular relevance for the Baoshan Forestry Bureau's allocation of SLCP resources.

Using a combination of remote sensing, GIS, and landscape ecology methods, ICRAF-China staff also conducted an analysis of historical land-use change (1989-2001) in Yangliu Township and Shuizhai Township (Chen and Ediger 2005), looking specifically at the transition from farming to forestry. In Yangliu Township, national-scale reforestation programmes have dramatically reduced farmland in the last 10 years. The reduction in farmland has fostered Yangliu's integration into

3 The Yangliu River is a tributary of the Salween River.
4 The Dulong River is a tributary of the Irrawaddy River.

the regional cash economy in two ways. First, farmers are no longer self-reliant and need access to cash to sustain their livelihoods. Second, households' shift from farming to forestry has increased their surplus labour, which has meant increased opportunities for earning off-farm income. The conversion of arable land to forest, however, has also put farmers at increased risk to factors beyond their control by reducing their income buffer in agriculture. In poor harvests like 2004, household savings were depleted to buy rice and many households chose not to send their children to school.

As ICRAF-China relationships with partners have matured, projects have become more involved and partner driven. An early project with the Baoshan Forestry Bureau has focused on promoting agroforestry as a means to facilitate transition of households from agriculture to forestry. While intercropping with annuals is prohibited on SLCP land, ICRAF has worked with the Baoshan Forestry Bureau to carry out on-farm trials with medicinal plants and Sichuan pepper on SLCP land (see Medicinal Plants and the SLCP, below). A second project within the SLCP context has focused on participatory technology development for walnut tree planting and maintenance. Both projects have seen impressive results. The walnut project was sufficiently successful that the Yangliu Township Party Secretary, originally hostile to the participatory approach used in ICRAF-China projects, has become an ardent supporter.

As part of its efforts to support livelihood transitions, ICRAF-China has also worked with Heifer Project International (HPI) to develop a project with the Baoshan Animal Husbandry Bureau that combines training with HPI's "passing the gift" approach to household livestock development. Animal husbandry often provides an important means of diversifying income for households during their transition time from agriculture to forestry and agroforestry. Through the project, 43 households in Baoshan have received livestock gifts, and will pass these gifts on to 43 more households in 3 years. The project has also provided training to households to enable them to deal with common diseases and has included a specific gender component to encourage increased participation of women in the project.

In cooperation with Wildlife Landscapes, Chiang Mai University, the Gaoligongshan Nature Reserve, and the Yunnan Forestry Vocational School, ICRAF-China has introduced and promoted a new concept for buffer zone management in China using a 'framework species' approach. Described in greater detail below (see 'Framework Species in the Buffer Zone'), the framework species'

approach is a method for reforestation that uses indigenous tree species to restore forest diversity around nature reserves. With financial and technical support from ICRAF-China, Gaoligongshan Nature Reserve staff members have prepared the basic infrastructure to support implementation of framework species. With proactive efforts on the part of nature reserve staff, the project has received attention and support at both provincial and national levels in China.

A complementary component of ICRAF's technical support in China has focused on education, for both farmers and their children, as well as for line agency staff. For the former, ICRAF-China has worked with Yunnan University to improve teachers' training and tailor an environmental curriculum to fit the needs of rural students, environmental monitoring and data collection initiated by students and teachers. The project has also distributed educational materials at regular markets in Baoshan on, for instance, pesticide safety. Other ICRAF-China education efforts have focused on developing manuals and technical curricula. As part of its work with the Gaoligongshan Nature Reserve, for example, ICRAF-China supported curriculum development on forest rehabilitation for the Yunnan Forestry Vocational College (YFVC) to be used as part of an applied course for foresters.

A relatively promising area of technical support for ICRAF-China will be in biofuel development. As noted above, Chinese provincial governments are in the middle of a major push to expand energy crop acreage rapidly; the Yunnan provincial government, for instance, hopes to mould the biofuel business into a pillar industry. These plans, however, are based on a limited understanding of yields and farm input and subsidy requirements, largely non-existent supply chain linkages, and no plan for how to integrate the hundreds of thousands of smallholder farmers that would transform biofuel producers into viable markets. ICRAF-China's mandate for agroforestry research and its experience in working with government foresters, businesses, and farmers place it in a good position to play a role in supporting energy crop development in China in an economically and environmentally sustainable manner.

Facilitation

As an international organization working locally in China, facilitating the introduction of new ideas, technical support from international experts, and dialogue and exchange between both international and domestic organizations and between different levels of government have been core to ICRAF-China activities. These kinds of facilitating activities have been pervasive throughout ICRAF-China projects. In two particular cases, however, they have constituted major activities in

themselves: ICRAF's work on payment for environmental services and its facilitation of certification and markets for non-timber forest products (NTFPs).

In collaboration with ICRAF's RUPES (Rewarding the Upland Poor for Ecosystem Services) project, in 2003 ICRAF organized a conference on payments for environmental services (PES) in Kunming that proved to be instrumental in furthering debate on PES schemes in Yunnan Province and within the State Forest Administration (SFA) in Beijing. Although the idea of paying for conservation was certainly not new to China in 2003 (the SLCP is, to some extent, a PES scheme), many of the development and conservation links and issues inherent in PES had yet to be fleshed out in a rural Chinese context. To bring Chinese partners up to speed on the scope of debate abroad, ICRAF-China translated the IIED publication, 'Silver Bullet or Fool's Gold?', which provides a balanced look at global experience with PES schemes and their impact on the poor.

As a follow up to these activities, ICRAF-China and RUPES supported a series of case studies detailing the history of, potential for, and challenges to valuing and compensating environmental service provision in different regions of China. The studies conclude that farmers are not aware that opportunities for generating revenue exist for environmental service provision; that identifying environmental service providers and beneficiaries is often difficult in a Chinese context; that practical methods for valuing environmental services do not exist in China; and that government facilitation will likely be necessary for matching and ensuring fair negotiations between environmental service providers and beneficiaries. One of these case studies, which focuses on negotiating payments from a hydropower company to upstream communities for protecting forests, is ongoing.

A second major area of facilitation has been in matching producers of non-timber forest products (NFTP) in Baoshan with high-value markets in China and abroad (see 'NTFP Certification and Marketing'). Much of the NTFP production in Baoshan is organic, not because farmers feel they can earn more from organic produce, but because more chemical-intensive production techniques are not economic. Farmers in Baoshan, however, are not paid premiums for organic production because they lack access to certification and markets. ICRAF-China has been working with the Organic Food Development Centre of China (OFDC) and the BioFach-China project to research organic certification models for NTFPs in Baoshan, as well as potential channels to organic markets in the EU and Asia.

Simply because products are produced organically does not mean they are produced sustainably. As a means to encourage both organic and sustainable production, ICRAF-China has teamed up with the Forest Stewardship Council to explore the possibility of a joint certification programme for organic and sustainably produced forest products. As China currently lacks the infrastructure to facilitate trade in certified products between rural smallholders and high-value markets, ICRAF-China work in this area has been stepwise, but remains promising because of its potential for wider benefits both outside of Yunnan and outside of China.

A closer look at three ICRAF-China projects

This next section provides a more in-depth look at three of the ICRAF-China projects mentioned above: 1) agroforestry with medicinal plants to support SLCP implementation in Baoshan; 2) introducing and implementing a framework species' approach in managing buffer zones around the Gaoligongshan Nature Reserve; and 3) facilitating certification and the development of markets for organic and fair trade products in Baoshan.

Medicinal plants and the SLCP

With much of the province covered by mountains, agricultural productivity in Yunnan Province is generally low and farmers have historically often been forced to cultivate marginal lands in order to make ends meet. As a result, soil erosion in many of Yunnan's upland watersheds has become increasingly severe, and Yunnan has thus been a key area for implementation of the Sloping Land Conversion Programme (SLCP). In its original design, the SLCP intended to restore the ecosystem services provided by forests by paying farmers to convert agricultural land to forest on sloping land exceeding 25 degrees. Nominal compensation took the form of tree seedlings and grain and cash subsidies.

Implementation of the SLCP has been particularly problematic in Yunnan because of the province's low agricultural productivity and ecological and cultural diversity. In many instances in Yunnan, farmers have received only grain and seedling subsidies and often only seedling subsidies. The SLCP explicitly does not allow for intercropping with annual crops and does not leave sufficient room for local adaptation, limiting farmers' options for alternative income generation. In addition, the breadth of the programme is much greater than its depth: local forestry bureaux were given inadequate financial and training support to prepare them to meet SLCP objectives. As a result, many of the areas planted as part of the

SLCP use a limited number of tree species with poor quality seedlings. In many cases, farmers lack the technical support that would improve seedling survival rates and links to markets that would make forestry more profitable. Problems in SLCP implementation reflect fundamental issues in the transition from agriculture to forestry. If farmers convert land to forest they are essentially making a long-term investment that may eventually raise their incomes. If they are to voluntarily make the transition to forestry, however, two conditions must hold. First, they must be able to support themselves financially during the period when they wait for their trees to mature. Second, their incomes from forestry must exceed the opportunity costs of agriculture. The first condition requires either that farmers' remaining production is sufficiently high value to support them through the gestation period, or that they have alternative ways of making money such as direct cash payments, intercropping, or livestock rearing. The second condition requires that farmers use genetic stock of high quality so they can ensure that forest products will be relatively high value.

Agroforestry could provide a promising alternative and help to transition because it allows farmers to continue to generate some income from forest lands while their trees are still growing. Although intercropping with annual crops is not permitted as part of the SLCP, other forms of agroforestry are. ICRAF-China has worked with the Baoshan Forestry Bureau to carry out domestication and demonstration of medicinal plants as a means of sustaining and raising incomes while farmers wait for pear and walnut trees to bear fruit. In addition to its benefits within the SLCP, the project has also contributed to the sustainable use of wild medicinal plants through their domestication.

Five households and 11.5 mu (0.8 ha) were initially involved in a round of on-farm demonstrations with more than ten different wild medicinal plants. As a result of these trials, one species that proved to be high value and particularly suited to growing in the region was selected for subsequent plantings. In a second round, the project was scaled up to 20 households; currently the project covers four natural villages and more than 80 mu (5.3 ha). Expanding acreage to more than 300 mu has led to the establishment of a producers' association for medicinal plants. Five more suitable species were identified through this participatory research process. The highest financial return for individual farmers reached nearly 4,000 US$ / ha (N.B., individual plots are quite small, but overall this is a much higher return per land unit than any other crop would provide!).

The project has marked a significant departure from the Baoshan Forestry Bureau's traditional modus operandi for two primary reasons. First, the project is participatory, meaning that participating households have been involved in nearly all stages of planning and implementation. The forestry bureau has traditionally given more attention to finishing tasks assigned to it from higher levels of government than working jointly with farmers on projects: candidly, bureau staff doubted farmers' intelligence. Since the beginning of the project, however, there has been a shift in Baoshan Forestry Bureau thinking from "how many mu" to "how many hu (households)."

Second, the project is considerably more methodical and science-based than typical forestry bureau projects. Throughout Yunnan, local forestry bureau projects are notorious for seeking silver bullets by rapidly expanding acreage for trees before much is known about how the trees will perform in different landscapes and before stable markets for them have emerged. The predictable result is that tree survival rates and quality are typically uneven, and the sudden rush of supply drives prices down. In contrast, this project has started on a small scale, scaled up slowly, and ensured that there were adequate markets for products at each stage.

While increasing incomes for farm households in Baoshan is certainly an achievement, perhaps the greatest success of ICRAF-China's SLCP agroforestry project has been in bringing the Baoshan Forestry Bureau around to both the participatory and science-based methods used in the project, and the notion of agroforestry as a means to support the SLCP. In doing so, ICRAF-China has created a catalyst at the local level. Much of the project's scaling up has been at the initiative of the Baoshan Forestry Bureau. Moreover, the Baoshan Forestry Bureau is applying for the Yunnan Science and Technology Department's science and technology innovation prize for the project, which would provide more recognition nationally within China for both the project's methods and agroforestry approach.

Framework species in the buffer zone

The Gaoligong Mountains in western Yunnan harbour a significant portion of Yunnan's biodiversity. Recognized as a high-value ecological area by China's central government, the national-level Gaoligongshan Nature Reserve covers more than 400,000 acres and cuts through two prefectures (Baoshan and Nujiang). Much of the area surrounding the nature reserve, however, is covered by monoculture plantations, which increase the risk of fire, disease, and pest outbreak within the reserve. Buffer zones are used throughout the world to protect against threats like these, but buffer zones have not used widely in China.

Both to increase biodiversity around the Gaoligongshan Nature Reserve and to improve options for forestry and agroforestry on farms in northwest Yunnan, ICRAF-China has worked with nature reserve staff to implement a 'framework species' approach to reforestation in the Gaoligongshan buffer zone. Framework trees are indigenous, non-domesticated, forest tree species. The framework species' method involves selecting and planting 20 to 30 such species and cultivating them for one or two more years. The planted trees 'recapture' the site by shading out herbaceous weeds and reestablish forest structure by developing a multilayered canopy. They also restore ecosystem processes, such as nutrient cycles, and improve conditions for seed germination and seedling growth of additional (non-planted) tree species (termed 'recruits'), by creating a cooler, more humid microclimate and reducing weed competition.

Biodiversity recovery relies on wildlife attracted to the planted trees. Twenty to thirty tree species are only a small fraction of the total number of tree species that grow in most tropical forest ecosystems. To restore the forest's original tree species' composition, wildlife must be employed. Once planted trees have created conditions conducive to tree seedling recruitment, they must then produce resources (e.g., nectar-rich flowers, fleshy fruits, and so on) that attract seed-dispersing birds or mammals. These animals transport seeds of a wide variety of additional tree species from the nearest intact forest into the planted sites. It is the 'second generation' of naturally established trees, germinating from these seeds, which ultimately restores the forest to its original condition. While this approach has more obvious benefits for restoring forests to a 'natural' state, it also provides local forestry bureaux with more extensive options for reforestation programmes and local communities with increased options for forestry and agroforestry.

With technical and financial support from ICRAF-China, the Yunnan Forestry Vocational School (YFVS) has established much of the basic infrastructure to support the project — including a nursery, reference herbarium, and cold storage for germination trials. Trials with framework species are currently ongoing in Baoshan's Tengchong County, and the resulting technical capacity is being shared with local residents. With the YFVS, ICRAF-China has also developed a curriculum entitled 'How to Plant a Forest', which, as highlighted previously, is being used as the primary textbook in a course on reforestation at YFVS.

The framework species' project is carried out in international collaboration with Wildlife International and Chiang Mai University under a Darwin Initiative grant. Partners in the network come from Cambodia, Laos, and Thailand. Providing the

space for prefectural-level forestry bureau, nature reserve, and university partners to participate directly in an international project has been one of the project's most significant benefits, as it has given participants first hand exposure to new ways of thinking and given them greater confidence in their work both internationally and at home.

NTFP certification and marketing

Yunnan Province is renowned for its wealth of non-timber forest products (NTFPs) which include pine nuts, mushrooms, walnuts, and an array of medicinal plants. Forest products play an important role in household economies in Yunnan, particularly in areas where intensive agriculture is not feasible. With the implementation of the SLCP and NFPP, many households lost significant sources of income from agriculture and timber and have compensated by intensifying their collection of NTFPs from natural and planted forests. Intensification has led to a severe decline in the natural stocks of some products, posing a threat to biodiversity. Part of the driving force behind the increased intensification of NTFPs is the low per unit prices producers are paid for them, which in turn derives from the fact that producers do not have access to high- value markets.

Most of these high-value markets are not in Yunnan. On the Chinese eastern seaboard, rising incomes over the past decade have spurred a revolution in food marketing, with premium prices paid by a growing middle class for organic and environmentally-friendly foods. Even high-value markets for organic and fair trade food products exist in countries in the Organisation for Economic Cooperation and Development (OECD), and particularly in Japan, the EU, and the U.S. For farmers in rural Yunnan who often produce organically by necessity rather than by choice, these markets are out of reach. For one, entering these markets as an organic product typically requires a complex and costly certification process. Additionally, farmers lack the organization, marketing channels, and distribution networks to place their products in high-value markets.

Beginning in its early days in Yunnan, ICRAF-China worked in partnership with line agencies in Baoshan and Nujiang and local research institutes to identify and catalogue high value NTFPs, recognize potential environmental issues associated with their commercialization, and provide post-harvest and marketing support. Research efforts sought to overcome two major constraints to NTFP production. First, farmers are often simply not aware of the market potential of or how to cultivate certain NTFPs. Second, for many NTFPs that are not easily domesticated, such as Matsutake mushroom and truffles, there are significant conservation issues

associated with intensive commercialization and management regimes need to be established to ensure sustainable harvesting. On the basis of this work, ICRAF-China has begun to explore high-value markets for organic NTFPs from northwest Yunnan, but this is still a relatively new area in China and progress remains incremental. An August 2005 seminar, jointly organized by ICRAF, the Organic Food Development Centre of China (OFDC), and the BioFach-China project, provided an initial forum for a wide range of stakeholders and interested parties to discuss the potential and constraints of fair trade and organic farming in Southwest China. This first meeting has led to a follow up discussion on potential models for certifying farmers in Baoshan and supporting their access to markets on China's eastern seaboard or in OECD countries. Organic production is not synonymous with sustainable production. To bridge potential gaps between the two certification schemes, ICRAF-China is also exploring models and benefits and costs for joint certification through which farmers are certified as both organic and sustainable producers. In particular, ICRAF-China is looking into the potential for joint organic and Forest Stewardship Certification for Small and Low Intensity Managed Forests (FSC-SLIMF).

ICRAF-China's work in facilitating access to certification and markets for farmers in Baoshan has necessarily been incremental because models for certifying producers at the community level do not yet exist in China, or, for that matter, in many parts of Asia. The potential benefits of ICRAF-China's work on NTFP certification and marketing extend far beyond Yunnan's borders, and certification and marketing are thus important components of ICRAF-China's future project portfolio.

A critical perspective on ICRAF-China

This final section provides a more critical perspective on ICRAF-China's approach and activities in China over the past five years. The narrative below is based on interviews with six ICRAF-China staff and partners, but, given the diversity of opinions, does not attempt to recreate these conversations verbatim. It is intended to provide coherent, balanced, and constructive feedback, on ICRAF's work in China specifically and, more broadly, on the roles played by international and domestic organizations in rural China.

For an office operating on a modest budget with limited staff resources, ICRAF has had a remarkably wide range of successful projects in China over the past 5 years. As its activities continue to expand and evolve, ICRAF-China will be challenged to

deal with some of the more salient tensions that have emerged in its work. Most important among these are scale issues in relationships, projects, and administration. In addition, ICRAF-China will be confronted with the need to adapt to — and most likely to help shape — a changing context for international and domestic organizations working in rural Yunnan. The remainder of this section discusses these two challenges in greater detail.

Addressing scale issues

It is difficult to overemphasize the importance of building domestic relationships in ICRAF's achievements in China. ICRAF has established strong working relationships with prefectural-level line agencies in northwest Yunnan, project partnerships with universities in Kunming and Beijing, a formal partnership with the Kunming Institute of Botany and the Chinese Academy of Sciences through the Centre for Mountain Ecosystem Studies, and personal relationships with the State Forestry Administration in Beijing. ICRAF-China's formal registration as an international organization — which many international organizations working in China do not have — has helped to strengthen and legitimize these connections. Relationships have been particularly important in the context of ICRAF-China's decision to largely bypass the Yunnan provincial government in its work, focusing instead on two ends of the administrative spectrum — prefectural and central government.

This decision to go around the provincial government is emblematic of a series of opportunistic decisions taken by ICRAF-China that were often necessary and, in many cases, effective, but that need greater strategic consideration as ICRAF goes forward. By bypassing the Yunnan provincial government, for instance, ICRAF was likely able to avoid the bureaucratic requirements for project approval and save the scarce financial resources that might have otherwise reduced its scope for achieving on-the-ground results. Provincial governments in China have also been relatively unreceptive to criticism, and ICRAF-China likely avoided potential conflicts by focusing its policy research at central government level. Although ICRAF most likely legally required provincial permission for its project activities in Yunnan, in China there remains a gap between what is tacitly permissible and what is legal: unless major rules are broken lesser rules are malleable, particularly with the support of strong relationships.

Although the lack of relationships with provincial government line agencies has meant a potential loss of an opportunity for policy influence and a foregone channel for scaling up project activities, without results at prefectural level it is unclear

whether ICRAF-China would have been able to have significant influence at provincial level. With tangible achievements at prefectural level, establishing relationships with Yunnan provincial government agencies should now be part of ICRAF-China's strategic considerations in scaling up its activities in China. In addition, there is ample scope for including provincial government agencies in ICRAF's capacity building and exchange activities.

Project scale is a second scale issue in ICRAF projects. ICRAF's most tangibly successful projects in China have been at prefectural level in Baoshan Municipality; this more geographically focused approach runs counter to conventional conceptions of the more extensive scale on which international organizations with a development research mandate should work. The choice of scale has had both positive and negative implications. On the one hand, with limited resources ICRAF-China has been able to concentrate its efforts on fostering local support for change in the way line agencies think and work in China, and this has been a qualified success. On the other hand, this more moderately paced, site-specific focus has often restricted ICRAF's reach in China, and ICRAF-China has yet to improve its approach — both logistically and institutionally — for scaling up its activities from project sites in Baoshan to greater Yunnan and greater China.

A third area where issues of scale have presented tensions in ICRAF's work in China has been in discrepancies between its mandate for agroforestry and a more integrated approach to landscape management and the funding and project opportunities that have arisen in the international donor community and with Chinese partners. ICRAF-China projects have at times gone beyond strict interpretation of agroforestry: ICRAF-China's FCDSD project, for instance, is an integrated development project, with sub-projects that range from improving irrigation systems, to research on rice and maize seeds, to microcredit and handicraft programmes, and to on-farm agroforestry demonstrations. On the other hand, to the extent that these projects have been successful they have raised the profile of ICRAF's work in China and granted it access to greater financial and institutional resources.

ICRAF-China's decision to focus its partnerships on the forestry side of agroforestry has also limited its ability to promote more integrated landscape management. At one point, ICRAF-China attempted to bring staff from the Baoshan Agricultural Bureau into its SLCP-related work; this attempt lasted for one meeting, and interagency teams have not yet proved feasible on a more sustained basis. The difficulty in matching a mandate for integrated resource management

with a more diverse set of partners stems to a great extent from the Chinese administrative system in which interagency cooperation is virtually nonexistent and agencies often compete for resources. While it is unreasonable to expect individual organizations to change this situation, creative approaches to encouraging interagency cooperation in Yunnan will at some point be necessary if integrated landscape management is to continue to be part of ICRAF's agenda in China.

A fourth and final scale issue relates to the intellectual and operational coordination of ICRAF offices. ICRAF has its global headquarters in Nairobi, a regional office in Bogor, a project office in Kunming, and a liaison office in Beijing. While its regional and Beijing offices in particular have offered ICRAF-China greater access to financial and institutional resources, disparate office locations have served to create two problems: China's role in ICRAF's regional and global programmes remains unclear, and harmonizing ICRAF systems from headquarters in Nairobi to its office in Kunming remains a challenge. For the former, China clearly needs to be a greater focus of ICRAF's regional strategy in Asia, and ICRAF's regional and China offices need to jointly devise ways for China to contribute to the ICRAF regional programme in a way that reflects China's importance in the region.

With the establishment of ICRAF-China's Beijing office in 2004, the only staff member who fully understood ICRAF's intellectual, human resources, and accounting systems moved to Beijing. The resulting difficulties for staff at ICRAF's Kunming office in managing day-to-day operations reflect continued challenges in harmonizing administrative systems among ICRAF offices. As ICRAF's office in China grows, and particularly with forthcoming staff transitions, ensuring that staff in China are well connected to ICRAF's regional and global offices will be important for placing the ICRAF-China office on a more sustainable footing by, for instance, providing it with the support to overcome institutional memory loss. The burden for systems' harmonization and maintaining fora for regular exchange among staff members in different regions lies with ICRAF's regional and global offices.

Many of the scale issues listed here have their roots in a trade-off between opportunistic and strategic decision-making that is likely inevitable for a young local office with limited funding available from its regional and global offices. As ICRAF-China grows and further shapes its identity, however, there is a pressing need to consolidate its present and future activities into a more strategic framework. A key step in such a strategic planning exercise would include

identifying a core set of issues that ICRAF-China is well positioned to work on over the next 5 years, and fundraising and developing projects and partnerships based on those issues. The upcoming transition in ICRAF-China leadership provides a window of opportunity for this kind of strategic planning.

Confronting a changing context for domestic and international organizations

Three trends are shaping the context for non-government organizations (including both international organizations and NGOs) working in rural China.

First, provincial governments have limited domestic NGO activity to some extent and oversight of international organizations has become more regular over the past three years. Second, policy makers in Beijing continue to be receptive to the emergence of domestic NGOs and the presence of international organizations in rural China, despite national security concerns in the wake of events in Eastern Europe. Third, considering China's economic growth and prosperity and its emergence as a force on the world economic stage, there are bound to be considerations concerning whether or not it needs continuing development assistance.

As of 2007, it is unclear whether and how these trends will resolve. Will provincial government policies and approaches become more in tune with national policies and approaches over the next 5 years, for example? Hopefully China's central government will continue to be receptive to non-government organizations working in rural China and OECD governments will continue to provide funding for projects in rural China. All this will have important ramifications for ICRAF's activities in China, along with how non-government donors with an interest in rural China plan and allocate resources. Provincial governments' have a certain amount of scepticism about non-government organizations in China. In Yunnan, domestic NGO activity had reached a high point in the early 2000s, with plans for an NGO alliance to help consolidate and strengthen the activities of Yunnan-based NGOs, but failure to engage the provincial government's trust has led to stagnation or collapse of several Yunnan-based NGOs. It is not a problem confined to China. The post 1990s saw and exponential rise in NGOs accompanying increase of cash flow to them throughout Asia. Not only governments but the public across Asia have lobbied for regularisation of the donor-NGO nexus: source of funding being an obvious concern. It is difficult to for legislative authorities to know where to draw the line and, in turn, this can prove problematical for efforts to shape China's (or any other Asian nation's) domestic NGOs into a more institutionalized and

competent civil society by improving their organizational capacities. The majority of NGOs in Yunnan are small, grassroots' organizations that lack basic project management skills such as reporting and accounting, and these skills are important if NGOs are to be answerable to both donors and clients.

Domestic NGOs' near-term potential, in terms of both their external and internal constraints, has implications for the scope and nature of the activities of international organizations in China. As China's own civil society matures, a gradual passing of the baton from international organizations to domestic NGOs would seem a natural transition. Competition between domestic and international non-government organizations for financial and human resources, in which international organizations are gaining the upper hand, mean that transition has been delayed. International organisations may argue that the environment is more favourable for them than for NGOs but serious discussion on appropriate, long-term roles for international and domestic non-governmental organizations in rural China is overdue.

For ICRAF, this discussion will involve strategic thinking about its own role in China over the next 5 years. In scaling up its activities, should ICRAF continue to focus downstream in providing technical support at the grass roots' level, or should it increasingly focus its activities upstream in capacity building and facilitation and support grass roots' technical support through partnerships with domestic NGOs and research institutes? To what extent should ICRAF's work include an emphasis on strengthening civil society in Yunnan, and to what extent should it be more focused on building capacity in government line agencies? Given ICRAF-China's accumulated experience over the past 5 years, it is well positioned to play a role in offering training and support to domestic NGOs, but it is not clear whether this is the most appropriate role for ICRAF in China.

Questions about ICRAF's role in China in the near-term future also have implications for how ICRAF-China uses the Centre for Mountain Ecosystem Studies (CMES). CMES remains a relatively amorphous entity without formal linkages to ICRAF, but without a separate identity as well. Although its development may ultimately be opportunistic, some consideration of the role of CMES should be part of ICRAF-China's strategic planning. For instance, will CMES act as a gateway for international staff to carry out projects in rural Yunnan, as originally envisioned? Should it be a primarily research-oriented entity, or should it be concerned more with facilitating exchange between international and Yunnan-based organizations? In what ways will it be complementary to and distinct from ICRAF-China?

A final, and largely unrelated, trend that will have long-term implications for ICRAF's work in China is the wave of recent critiques on the need for continued development assistance in China. Beginning with China's launching of a manned spaceflight in 2003, some donors have questioned the need to continue granting development aid to now the world's third largest economy (N.B. in July 2007, after a review of rural development support projects [including the Misereor funded ICRAF-China project], the German government stated that it is necessary to continue support to China!) In reality, continued international assistance in China is perhaps more important to the country's sustainable development than it was a decade ago. The speed of China's economic development has strained the central government's ability to steer the course of the country's development. As a result, many of the tensions that have accompanied China's economic growth, such as environmental degradation, have become more rather than less acute.

In this context, there remains ample scope for international organizations to take on more arms' length advisory and more intimately political roles in China's sustainable development. Funding is only one function performed by international organizations in China, and, in the long run, perhaps not the most important function: many of the emerging contradictions in China's economic growth are not caused by lack of funds. A more significant role played by international organizations in China, for instance, is their capacity to introduce new ideas and lay the seeds for long-term, systemic change by engaging with provincial and local governments. For ICRAF and other international organizations with activities in China, ensuring that this message is more widely heard will be important for ensuring long-term intellectual, financial, and political support for their work.

Annex 1: List of ICRAF-China Publications and Papers

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