



# Platform brief

## Towards a Scaling-Up Strategy for Green Rubber in Xishuangbanna

### Introduction

This briefing document presents the summarised findings from a study conducted in early 2015, investigating how to achieve progress in the transition from current rubber management practices towards greener rubber management in Xishuangbanna. This study was in response to needs identified through the Humidtropics Platform Process in Xishuangbanna, and through the GIZ funded project Green Rubber.

The study took an integrated approach, considering the full range of drivers involved in scaling up new practices, including social, economic, political and technological factors. The study was based on literature review, eighteen semi structured expert interviews, and a one-day participatory discussion workshop with twelve experts present. Experts were from government, research, business, NGO and small holder sectors. The findings here are presented in summary form, a full academic article is also in preparation.

The main questions addressed were:

- What is 'Green Rubber'? How is the term 'green rubber' being interpreted by different stakeholders? What is the objective, and what milestones?
- Why is rubber cultivated the way it predominantly is (monoculture), what are the lock-in factors which keep it this way, and what potential change factors could provide opportunities for transition towards green rubber?

Who and what would have to change, and in what ways, to tip the balance in favour of green rubber, and what might cause, encourage or incentivise these changes?

### What is Green Rubber?

Green rubber is conceptualised as either primarily about environmental protection (typically by western scientists), or primarily about diversifying and improving economic performance (typically by Chinese scientists and local farmers). However, there is general agreement that green rubber practices would lead to multiple benefits, and that a balance must be struck between environmental benefits and economic benefits. There is also agreement that a transition towards greater decentralised decision making by smallholder farmers is a necessary part of this process.

Green rubber can therefore be conceptualised as altering the management of land which contains rubber crops, so that the environmental impact is reduced, the economic performance (including risk profile) is improved; and contributing toward the wider facilitating environment so that these sustainable practices can be practiced. It was useful, therefore, to break down the concept of green rubber to better understand the various aspects involved. It is useful to consider the geographical level where certain changes might take place: i.e. changes which occur in a single field, changes which occur across an entire village jurisdiction, and changes which occur across a whole district. These levels relate loosely to the different types of changes which can be expected: technical changes, such as cropping practices; organisational changes, such as how smallholders debate their local land use planning decisions; institutional changes, such as how the relevant government offices structure their extension programs'; and paradigmatic changes, such as how the concept of land stewardship is framed in public discourse. Finally it is useful to conceptualise the degree of change expected along a spectrum of 'light green', 'medium green', and 'dark green'.

Stakeholders discussed and debated the various aspects of 'green rubber'. The process of collaborative discussion was in itself useful first step in harmonising stakeholder views, plans and building networks. A summary of the discussions is shown in Table 1. The changes proposed at farm or field level mostly relate to technical innovations in crop and soil management. The changes at village level relate more to improved access to knowledge and information, and some improvement in village level land use planning activities. The changes at district level relate more towards economic development of agricultural and non-agricultural market opportunities, and a related zoning plan for Xishuangbanna taking account of both market and environmental needs.

	Light green	Medium green	Dark green
<b>Plot / farm level</b>	<ul style="list-style-type: none"> <li>• Reduction of herbicide/pesticide use</li> <li>• Build disease observation and prevention system.</li> <li>• Reduce fertiliser use</li> <li>• Improved soil management, including measures to reduce erosion.</li> <li>• Improved rubber hybrids.</li> <li>• Improved farmer awareness about environmental protection.</li> <li>• Improved home gardens.</li> </ul>	<ul style="list-style-type: none"> <li>• Herbicide/pesticide use reduced by 50%.</li> <li>• Start implementing disease observation and prevention system.</li> <li>• Cessation of fertiliser applications</li> <li>• Improved soil management, through introduce of mixed intercropping to enhance soil fertility and reduce erosion</li> <li>• Mixed planting or zoning of rubber and other trees (e.g. fruits, timber).</li> <li>• Positive attitude towards environmental protection starting to lead to behaviour change.</li> </ul>	<ul style="list-style-type: none"> <li>• -Herbicide/pesticide use reduced by 80%.</li> <li>• -Precise prediction for disease prevention and reduction of chemical use.</li> <li>• -Cessation of fertiliser applications</li> <li>• -Integrated soil management through diverse intercropping and natural regeneration.</li> <li>• -Widespread natural regeneration of understorey, including after closing of canopy.</li> <li>• -Buffer zones.</li> <li>• -Farmers decision-making based on principles of environmental protection.</li> </ul>
<b>Village level</b>	<ul style="list-style-type: none"> <li>• Improved system to expand literacy.</li> <li>• Improving knowledge about production techniques and core values.</li> <li>• Open-minded village leadership.</li> <li>• Limited understory plantation.</li> <li>• Improved village regulations (rubber zoning plan, water resource forest, altitude of planting, steepness of slope, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>• Further improving literacy rates.</li> <li>• Further improving knowledge about production techniques and core values.</li> <li>• Village leadership accepts vision for green rubber.</li> <li>• Expanding understory plantation.</li> <li>• Village regulations starting to bear fruit in relation to water source protection and reduced plantation on high elevation/steep slopes.</li> </ul>	<ul style="list-style-type: none"> <li>• High-level literacy supports environmental awareness.</li> <li>• High-level knowledge about production techniques and core values.</li> <li>• Village leadership actively supporting vision for green rubber.</li> <li>• Most rubber plantations have at least functional undergrowth (reducing soil erosion).</li> <li>• Village regulations effectively implemented.</li> </ul>
<b>District / prefecture level</b>	<ul style="list-style-type: none"> <li>• Recovery of original zoning plan for rubber in Xishuangbanna.</li> <li>• New markets found.</li> <li>• Initial compensation for ecological planting.</li> <li>• Limited eco-tourism as alternative income.</li> <li>• Beautiful Xishuangbanna as general idea.</li> <li>• Distinguishing between economic and uneconomic areas for rubber.</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of original zoning plan.</li> <li>• Expanding new (incl. niche) markets for alternatives to rubber.</li> <li>• Further compensation for ecological planting.</li> <li>• Diversification between economic and uneconomic areas for rubber.</li> <li>• Eco-tourism as alternative income.</li> <li>• Integrated sustainable land use plans.</li> <li>• Beautiful Xishuangbanna as an active vision.</li> </ul>	<ul style="list-style-type: none"> <li>• Landscape level diversification with local specialisation (incl. rubber).</li> <li>• Ecological corridors to maintain biodiversity and migration/exchange of species.</li> <li>• Integrated sustainable land use plans being implemented.</li> <li>• Beautiful Xishuangbanna as guiding principle in decision-making.</li> <li>• Corporate social responsibility schemes support green landscape.</li> </ul>

Table 1: Collaborative definition of green rubber practices and objectives, by different levels and degrees of green

# Lock-in Factors and Change Factors

Collaborative definition of green rubber practices is a useful exercise for objective setting, but is in itself not enough to move towards the most strategic and beneficial actions. It is helpful to consider the various inhibiting factors which prevent the changes proposed in Table 1 from occurring, and it is also helpful to consider the factors which stimulate or encourage those changes to occur.

Following guided discussion in the semi-structured interviews and workshop, we asked respondents to rate the importance of various dimensions in terms of stimulating or inhibiting transition towards green rubber. This is summarised in Figure 1. All dimensions were considered to be important, showing that the challenge needs to be addressed from an integrated perspective. Ensuring the financial viability of any green rubber program for small holders was repeatedly stressed by respondents, along with the observations that smallholders now have responsibility for their own land use decisions, but often lack access to high quality information about crop management or alternative crops. It was commonly considered that provision of such information is the responsibility of the government, but that effective mechanisms are lacking. Finally, it is important to note that whilst environmental protection may be high on the agenda as an objective of green rubber practice, it is considered to be the least important driver of change, suggesting that any green rubber program would have to stress heavily benefits beyond the environmental.

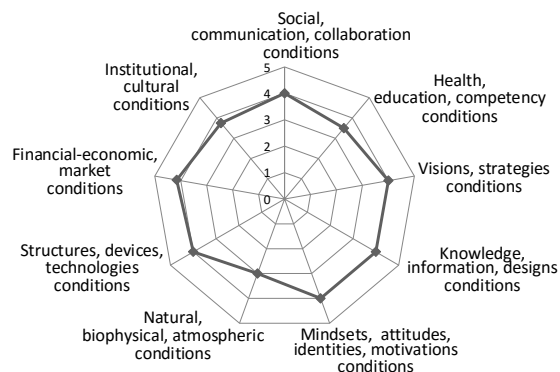


Figure 1. Scoring of dimensions which lock-in or stimulate transition towards green rubber. Values are the mean of twenty stakeholder assessments.

Lock-in and change factors relating to green rubber were identified and discussed by stakeholders, and are presented in Figure 2. Perhaps the most outstanding factors were the strength of the technological research capacity in Xishuangbanna, and the relative weakness of extension programs, particularly participatory extension programs. Relating to this is the narrative amongst government and higher level stakeholders that the opinions and decisions of smallholders must be respected; whilst smallholders express lack of expertise to make sound land use decisions, and village level decision making institutions are decaying into individualised decision making. Against this backdrop, the rubber price crash since 2010 has stimulated many stakeholders to search for alternatives.

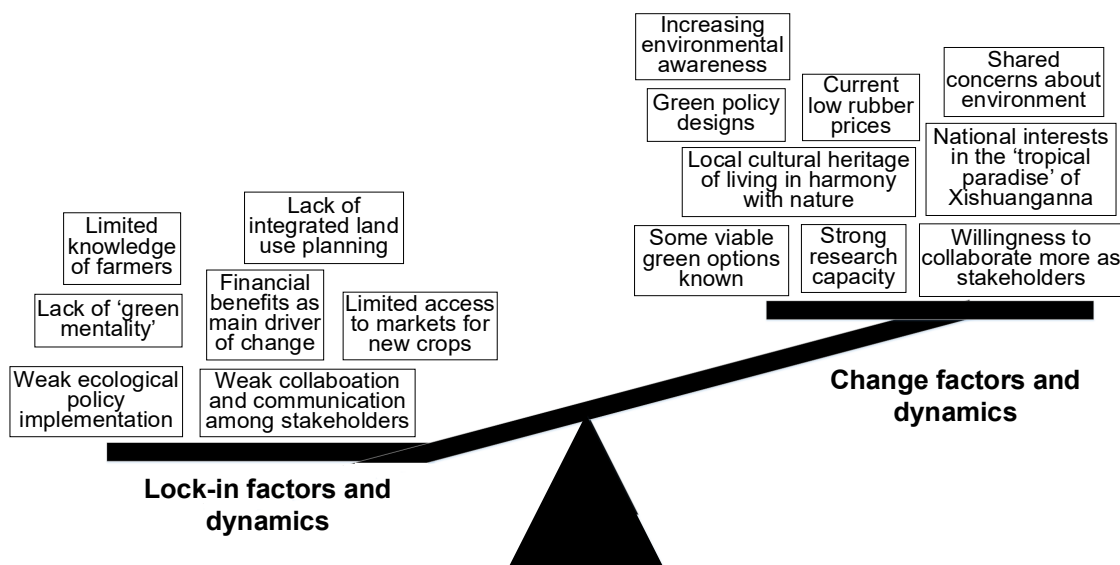


Figure 2. Lock-in and Change factors for the transition towards green rubber, as identified through stakeholder interviews and workshop.

# Towards a Plan of Action

From the interviews and workshop, priority actions were identified which could ‘tip the balance’ towards green rubber:

- Improved communication, collaboration and coordination amongst stakeholders, most notably between ‘experts’ and smallholders;
- Working (e.g. researchers and government agencies) with smallholders rather than for them;
- Enhancing availability/access to expert and local knowledge, including availability and access to improved technologies, in a ‘user friendly’ way for smallholder farmers;
- Enhancing (really short) vocational training opportunities aligned with agricultural season;
- Enhancing markets, routes to market and product processing for alternative crops;
- Collaborative land use planning at village and landscape scale;
- Capitalising on opportunities related to ecotourism, and boosting local pride in indigenous traditions and knowledge;
- Enhancing ‘green’ policies and regulations, notably in terms of implementation and enforcement;
- Compensation for ecologically sound practices, especially for certain target groups (e.g. high altitude rubber farmers);
- Enhancing environmental education (about environmental impact of common practices, and the wider concept of stewardship);
- All stakeholders agreed that any intervention must include a realistic assessment of the impacts on household income.

Many of these actions relate to the diffusion of knowledge between experts and smallholders, and notably few of these priority actions are directly technological in basis. This shows there is a recognition that the main sticking points now are organisational in nature. Indeed there is already a strong technical research capacity and there are numerous demonstration sites for alternative rubber management; the key issue now is how to make that knowledge available to small holders, how to empower those smallholders to make use of that knowledge, and ultimately how to engage those smallholders in dialogue with the scientists who generate knowledge, so that the new ideas can be targeted more successfully towards the needs of smallholders.

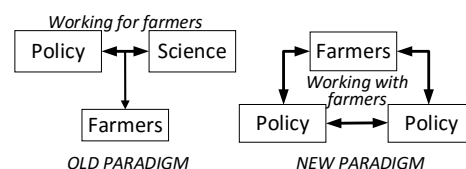


Figure 3: Illustration of a paradigm shift: working with farmers as opposed to working for farmers.

Technical and organisational changes are of course only the next steps to be taken, and in the medium to long term deeper institutional changes supporting more sustainable thinking and normalizing more reciprocal relationships between experts and smallholders are needed. The stages of transition are illustrated in Table 2. In the long term, modified institutional practices, environmental education and public information campaigns can lead to paradigms shifts in the way that all stakeholders think, act, and interact. This last stage moves beyond rubber and entails the whole nature of a sustainable relationship between humans, their host landscapes and the supporting ecosystems, aiming for a diversified economy which avoids the ‘rollercoaster’ of cash crop boom-and-bust.

		Increasingly difficult/slow to change →			
		Technical change	Organisational change	Institutional change	Paradigmatic change
Increasingly multi-stakeholder in nature ↓	Farm level	Alternative crops and management practices	New collaborations between smallholders and experts	Working with farmers instead of working for farmers; establishing a shared vision for ‘beautiful Xishuangbanna’.	
	Village level				
	County level	Improved land use planning, improved markets and value chains for alternative crops.		Green policy implementation, compensations and payments for ecosystem services.	
	National level				

Table 2: Illustration of steps in the process of transition towards green rubber.

