

## Challenges and opportunities for sustainable rubber in the Lao People's Democratic Republic

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### Key points

- The opportunities provided by rubber cultivation in the Lao People's Democratic Republic (Lao PDR) have been offset by sustainability challenges, such as low prices, food insecurity, land expropriation, deforestation and a loss of biodiversity and ecosystem services.
- Smallholder rubber has had the greatest success in alleviating poverty while limiting environmental impacts and should be the preferred form of rubber production.
- Improved and extensive credit, technical and extension services are needed to support a robust smallholder sector that cultivates rubber in ways that are economically, socially and environmentally sustainable.
- Large-scale land concessions for rubber should be limited and highly regulated to prevent expropriation of rural people's lands, unfair compensation, deforestation, agro-chemical pollution and exploitative labor practices.

### The expansion of rubber in Lao PDR

Rubber was first introduced to Lao PDR by the French colonial government in 1930, but was limited to 2 hectares (ha) in Champasak Province in the south (Manivong and Cramb 2008). The crop only expanded at a significant national scale in the mid- to late-1990s and early-2000s, in response to rising prices and the interest of Chinese and Vietnamese investors. Through exchanges of expertise, planting material and capital across the Lao-Chinese border, facilitated by kinship and ethnic ties, a small number of farmers in Luang Namtha Province in the north began planting rubber in the mid-1990s. However, plantations began expanding extensively and rapidly in the north after the entrance of Chinese rubber agribusinesses in 2003, enabling rubber cultivation to spread to Bokeo, Oudomxai and Luang Prabang provinces.

Most Chinese rubber companies in the north cultivate rubber via production contracts with Lao farmers, while only a small number were able to obtain land concessions from the provincial governments to establish estate plantations (Shi 2008). Land concessions in the north have been limited due to a 2005 agreement among the governors of three northern provinces to instead promote smallholder production and contract farming between farmers and companies (Vongkhamhor et al. 2007). Vietnamese investors in southern Lao PDR, in contrast, have mostly developed plantation estates via large-scale land concessions

granted by the central government, particularly since 2005. Data from the National Agriculture and Forestry Research Institute show that 281,772 ha of rubber were planted nationwide by 2014, of which 46% was developed as land concessions, 30% by independent smallholders and 24% under production contracts between farmers and rubber companies (Vongkhamhor 2016).

Rubber expansion in Lao PDR is partly a result of the government's push to intensify and modernize agriculture through cash crop production, to alleviate poverty and encourage rural economic development. As stated in the 7th National Socio-Economic Development Plan (2011–2015), the government aims to "systematically develop all aspects of agriculture and forestry in line with industrialization and modernization priorities" and to "promote commodity production for domestic use and export" (MPI 2010). Since 1986, the government has introduced market reforms, to encourage farmers and agribusinesses to invest in the production of key crops such as rubber, teak, coffee, sugarcane and eucalyptus. Rubber production is also in line with government efforts to stabilize and eventually eliminate shifting cultivation by replacing it with permanent tree crops (Shi 2008). While Lao government policy encourages smallholder rubber production, it simultaneously promotes large-scale estate production of rubber by granting concessions of state land to foreign investors, supported by the scheme 'Turning Land into Capital' (Dwyer 2007). Chinese companies, in particular, have taken up these opportunities, especially with support from China's opium substitution program, which gives subsidies and tax exemptions to Chinese companies that replace opium production in Lao PDR with other crops (TNI 2010).

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## Sustainability challenges for Lao rubber production

Rubber has the potential to alleviate poverty and generate rural development for Lao people by providing a regular flow of cash income. However, a number of economic, social and environmental challenges threaten the viability of such opportunities. The challenge identified by researchers and policymakers as currently most pressing<sup>3</sup> is the economic viability of rubber production considering the recent crash in rubber prices (Vongvisouk and Dwyer 2016). Other social and environmental challenges identified in earlier research continue to hold true for rubber production throughout the country (Alton et al. 2005, Shi 2008, Hicks et al. 2009, Fox et al. 2014): it takes seven years for the crop to mature and yield latex, thus creating a significant length of time when farmers are unable to profit from the crop and the need for labor is minimal; rubber is often planted on lands previously used for agricultural crop production or the collection of valuable forest products, thus jeopardizing food security; rubber often replaces forested areas, thus reducing the biodiversity and carbon sequestration potential of rural landscapes; herbicides are commonly used in rubber plantations and can run off into rural waterways; and extensive rubber plantations can lead to drier and hotter local climates. These economic, social and environmental challenges are relevant in different ways for each of the three main types of rubber production in Lao PDR: independent smallholders, contract farming and land concessions.

Independent smallholders are farmers who cultivate and sell rubber without the assistance of an external investor. Many such smallholders produce rubber in northern Lao PDR (Kenney-Lazar 2009). The main social and economic advantage of this form of production is that farmers retain all revenue from production, rather than sharing it with investors. However, they are directly exposed to all the market risks of production, including price crashes and the long wait between planting and maturation, which threatens food security (Nanhthavong 2012). However, smallholder farmers who use household labor have been able to continue earning money when rubber prices are low due to their low costs of production in comparison to agribusinesses that rely on wage labor (Shi 2015, Vongvisouk and Dwyer 2016). In addition, they have the freedom to abandon rubber and convert their land to other crops, except where they are constrained by government restrictions on land conversion, as were recently imposed by the Luang Namtha provincial government (Vongvisouk and Dwyer 2016). The environmental impacts of smallholder production are small in comparison to large-scale estate plantations, due to the smaller amount of land used and the lack of household finances to purchase agro-chemicals. However, when multiplied by a large number of smallholders across a whole landscape, the impacts can be significant.

Contract farming involves production arrangements between smallholders and agribusinesses in which the costs and benefits of production and trade are shared between both parties. This

is another common form of rubber production in northern Lao PDR. Two types of arrangement are predominant, known as “2+3” and “1+4” or what we refer to as “latex-sharing” versus “land-sharing” contracts.<sup>4</sup> In latex-sharing arrangements, farmers are not paid for their labor on the plantation, but they receive 60–70% of the latex at harvest (Kenney-Lazar 2009). In contrast, land-sharing arrangements provide a wage for plantation labor but transfer management of 70% of the plantation area to the company. Thus, land-sharing arrangements are more exploitative in that farmers reap little benefit from production. Additionally, long-term company control over farmers’ land is a threat to their land tenure. While latex-sharing arrangements hold greater potential for smallholders, research has shown that the terms of the agreement in practice tend to look more like a land-sharing contract (Shi 2008). The environmental impacts of contract farming are similar to those of independent smallholder production.

Land concessions are a common form of rubber plantation in central and southern Lao PDR, particularly for Vietnamese investors. State land is granted for 30–40 years to rubber companies that control the entire operation, only hiring local villagers as laborers. Despite the government policy of granting empty or unused land to companies, much of the land granted was previously used for agricultural and foraging purposes by local communities or provided important ecosystem services, and thus concessions have detrimental impacts on rural livelihoods (Baird 2010, Barney 2011, Kenney-Lazar 2012). While some compensation is provided to communities in the form of cash or infrastructure (e.g. roads and schools), and households find some employment on the plantation, these benefits have been shown to be inferior to the livelihood value of the lands, resources and ecosystems lost (Fullbrook 2009, Baird 2010, Molina 2011). In addition, many households do not receive compensation for their land because they do not have land titles or land use certificates (Kenney-Lazar 2010). Land concessions have also been shown to have devastating environmental impacts, including widespread deforestation (Schönweger et al. 2012), pollution of water sources with agro-chemicals (Obein 2007, Kenney-Lazar 2010), and the drying of streams due to heavy water use and blockage of waterways with debris from land clearing (NLMA et al. 2009, Kenney-Lazar 2010).

## Conclusions: Improving the sustainability of rubber in Lao PDR

Despite the economic, social and environmental challenges that rubber production faces in Lao PDR, a number of governance and policy measures can be taken to improve sustainability. We outline three key measures: support for smallholders and farmer groups, support for environmentally friendly production, and regulation of land concessions and contract farming.

<sup>3</sup> Based on consultations with key stakeholders and the presentations and comments from participants at the Consultation Workshop on Assessing Options for ‘Green Rubber’ Models held in Vientiane, Lao PDR, 5 August 2016.

<sup>4</sup> The names “2+3” and “1+4” refer to the inputs that each party provides. In a “2+3” arrangement the farmer provides land and labor while the company provides capital, technical expertise and market access. In a “1+4” arrangement the farmer only provides land. Following Dwyer (2011), we use the terms “land-sharing” and “latex-sharing” because they better represent the social forms of production.

### Support for smallholders and farmer groups.

Smallholder rubber cultivation should be promoted over other forms of rubber production because of its greater potential for poverty alleviation and its more limited environmental impacts. However, smallholders require extensive financial and agricultural extension support. Not only do farmers need access to credit on favorable terms in order to grow rubber, they need some form of price support to help them through years of low rubber prices. Technical extension is important for ensuring that farmers cultivate high-quality rubber in large quantities, and also for helping farmers grow in environmentally friendly ways. Stakeholders consulted suggested that these types of measures could be addressed by developing a national rubber board, supported by the Ministry of Agriculture and Forestry and the Ministry of Industry and Commerce. Farmer cooperatives can also help mitigate production and marketing problems by sharing communal resources and negotiating better prices, but the development of such groups needs to be supported by the state. The Department of Agricultural Extension and Cooperatives (DAEC) under the Ministry of Agriculture and Forestry (MAF) could play an instrumental role in facilitating the development of rubber production and trade groups.

### Support for environmentally friendly production.

While some negative environmental impacts from rubber production cannot be avoided, the impacts can be significantly reduced. Deforestation can be addressed by land-use zoning and planning to prevent rubber plantations from being developed on primary or secondary forest areas. It is important for the Lao government to harmonize land-use zoning procedures for agriculture and conservation at all administrative levels. Environmental impacts can also be lessened by planning rubber plantations at a landscape level, ensuring a mix of rubber with other agricultural and forest land uses, following approaches led by the joint government–donor Agro-Biodiversity Initiative. Finally, agroforestry models – particularly the mixing of rubber with other food crops, fruit trees, timber species and livestock (Viswanathan 2008, Somboonsuke et al. 2011) – can improve soil fertility and increase species diversity (Cotter et al. 2009, Cardinale et al. 2011), while also increasing latex productivity and providing diverse sources of income and subsistence. MAF's National Agriculture and Forestry Research Institute and the DAEC can play an important role in researching and implementing such models.

### Regulation of land concessions and contract farming.

Some of the most socially and environmentally destructive aspects of rubber production result from land concessions and contract farming. Better regulation could do much to limit unsustainable practices. Regulations should seek to achieve the following goals: prevent forested lands from conversion to rubber; give communities the right to decide whether to concede lands or enter production contracts by using a process of free, prior and informed consent; provide sufficient compensation for lost assets; ensure adequate and fair wages are provided for plantation work; make sure that contracts are fair and company responsibilities are upheld; and restrict or highly regulate the use of agro-chemicals to prevent water pollution. The government's current reconsideration of policies on land concessions provides

an opportunity to address these measures, which could be more adequately tackled in the National Land Policy and Land Law drafts that are under review, in line with recommendations set forth by the Land Issues Working Group.

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