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Effectiveness and Challenges of Chinese Enterprise's Alternative Planting Projects in Northern Laos: A Porter's Diamond Model Analysis

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ABSTRACT

Alternative Development has achieved substantial success in reducing opium poppy cultivation over the past two decades. However, evaluations regarding these development projects significantly varied between the Chinese and international perspectives. This paper employs Porter's Diamond Model to examine the case of Chinese-led alternative planting projects in northern Laos, with a focus on project implementation and their impact on agricultural environment in the region. Our analysis reveals that these Chinese-aid projects have played a positive role in reducing opium cultivation and promoting agricultural development in the region. However, aid projects are not a "cure-all" but rather a catalyst and instrument for fostering agricultural cooperation between China and Laos. To achieve sustainable effects, it is crucial to apply lessons learned from the exemplary aid projects, more importantly, Chinese enterprises are advised to take the lead in leveraging market mechanisms by collaboration with local partners for sustainable development.

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Introduction

The concept of "alternative development" emerged in the 1970s and gained eminence in the 1990s as contrast to mainstream economic development models that prioritize GDP growth. Alternative development advocates for a more equitable, participatory, and environmentally sustainable approach. In 1991, the United Nations International Drug Control Programme (UNIDCP) integrated this concept into its drug elimination initiatives, such as the alternative planting projects and rural development programs. Within the global drug control framework, the United Nations Office on Drugs and Crime (UNODC, incorporated into UNIDCP in 1997) declared the strategic objective of balancing law enforcement, drug demand reduction, and alternative development.

China's Alternative Planting Projects (APPs) refer to the agricultural projects implemented in its neighboring countries in Southeast Asia, particularly the "Golden Triangle" region. Given the geographical proximity, China actively assists these areas in replacing opium poppy cultivation and drug production with cash crops and other industries. This strategy aims to gradually reduce the region's reliance on the drug economy, substituting harmful economic activities with beneficial ones, and ultimately mitigating the global impact of narcotics. These projects are invested by both governmental aiding as well as Chinese enterprises, who have actively concerted efforts in collaboration with bordering countries where opium poppies used to grow. In terms of drug control, the Chinese APPs have yielded tangible success. According to data from Chinese drug control authorities, by 2006, Myanmar's opium poppy cultivation area had decreased by 108,000 hectares (83%) compared to 1998. The total opium poppy cultivation area in the "Golden Triangle" region had been reduced to 24,300 hectares. Furthermore, these alternative projects have enhanced local infrastructure, factories, power plants, hospitals, schools, roads, bridges, and irrigation have been constructed in all project regions. China's APPs have received recognition from organizations such as the UNODC and the aid recipient countries themselves.

Meanwhile, there has been a growing body of research in the West examining China's APPs. Many scholars argue that these Chinese-led projects disproportionately benefit China, offering little to recipient countries like Laos and Myanmar. Harsh critics even called these projects a form of Chinese expansionism. To provide a balanced and comprehensive assessment, in terms of both drug control and agricultural development, this study takes the case of Laos and investigates both the strengths and weaknesses of China's APPs.

Literature Review

Literature in both Chinese and English have produced extensive research on China's APPs, although the two literature bodies vary in more ways than agreement. Both recognize that one of the biggest challenges in implementing alternative development is to change the social environment that gives rise to drug production. However, there is significant divergence in the evaluations of impact and the disputes particularly centered around the production models employed in these APPs.

Both Chinese and foreign scholars agree that the persistence of opium poppy cultivation is driven by the deep-rooted dependence on the drug trade within the traditional economic structures in the "Golden Triangle" regions. Opium cultivation and trade have long been a primary income source for communities and have prevailing influences in these regions.

This dependence has prevented the development of other productive skills and fostered a widespread social acceptance of opium use. While it is ackonowledged that factors driving opium production are complex and multidimensional, ranging from economic and market demand, the evaluation of APPs is often oversimplified as a narrowed technical issue. However, it is unlikely to achieve sustained alternative development without addressing the underlying social and political factors that caused drug cultivation. Therefore, evaluating the effectiveness of APPs requires a comprehensive understanding of the political, historical, and social context of the region.

Chinese scholars generally view China's APPs favorably. Between 2005 and 2008, 198 Chinese enterprises from Yunnan Provice invested a total of 1.134 billion RMB in 231 projects, covering 146,100 hectares of land in northern Myanmar (78,700 hectares) and northern Laos (67,400 hectares). These projects spanned seven provinces in northern Laos and the Shan and Kachin states in northern Myanmar, introducing 41 alternative crops, including rubber, sugarcane, rice, corn, cassava, and tropical fruits. By 2013, the projects had reached 332 villages and nearly 70,000 people in the Special Region 2 of Shan State. 23,000 locals have been employed and their average incomes raised from 500-600 RMB to over 1200 RMB. Some Western scholars acknowledge that these Chinese projects have shown greater effectiveness than those led by the UNODC and other aid providing countries.

Chinese scholars also identify several challenges: First, the low profitability, high technical demands, and longer cultivation cycles of food crops make it difficult for farmers to adapt to new production models, leading to a persistent rate of opium replanting. Second, rising land rental costs and political instability in Myanmar have increased the risks and costs for Chinese SMEs, which limited project performance. Third, project distribution is imbalanced, with 84% of enterprises and 87% of investments concentrated along the boaders, where political risk is lower and infrastructure is better. Opium cultivation in these regions has generally been eradicated. However, remote mountainous areas in northern Kachin State, received less project coverage, and still struggle to sustain opium poppy eradication.

Foreign scholars, however, are more critical. Some completely dismiss the achievement of these projects and question China's motives, suggesting they serve to satisfy China's thirst for rubber. In some studies, Chinese companies involved in these projects are labeled as "land grabbers" exploiting Laos and Myanmar. Chinese APPs are often portrayed as "predatory" investment projects. Furthermore, critics argue that the large-scale plantation model employed in these projects is unsuitable for the rural context of underdeveloped countries like Laos and Myanmar. They argue that the resurging of opium planting is driven by factors including environmental impact, vulnerability to rubber price fluctuations (as seen after 2011), and the difficulties faced by former opium farmers in adapting to new plantation model. These scholars advocate for smallholder farming models as a more appropriate approach for rural development in northern Laos and Myanmar.

While these studies offer valuable insights, they often overlooked the fact that China is not the primary stakeholder but rather, the opium-producing countries themselves are. In combating drugs and reducing opium cultivation, local governments and enterprises need to take greater initiative in finding sustainable agricultural models that can replace opium poppy cultivation. China's involvement in alternative development aiding was initially a response to requests by the governments of Laos and other countries seeking assistance in transitioning to alternative cash crops and sustainable agricultural practices. Therefore, project evaluation must consider Laos's agricultrual development, including stakeholders (enterprises,

governments, and farmers), agricultural infrastructure, local markets, substitute crop suitability, farmer skills, and the market for alternative products. However, literature did not provide any analytical frameworks that encompass all these factors. This study aims to address this gap by employing Porter's Diamond Model to analyze the strengths and weaknesses of APPs implemented through cooperation between China and Laos.

Diamond Model and the Development Model of the Alternative Development Projects

The Diamond Model was developed by Michael Porter, the renowned strategy expert from Harvard Business School. It is a framework explaining why certain industries within a nation achieve international competitive advantage. Porter identifies six key factors that influence this competitive advantage: factor conditions; demand conditions; related and supporting industries; firm strategy, structure, and rivalry; chance; and government. This study uses these six factors to analyze the pros and cons of China's alternative development projects, from interactive perspectives between project implementation and the agricultural development environment in Laos.

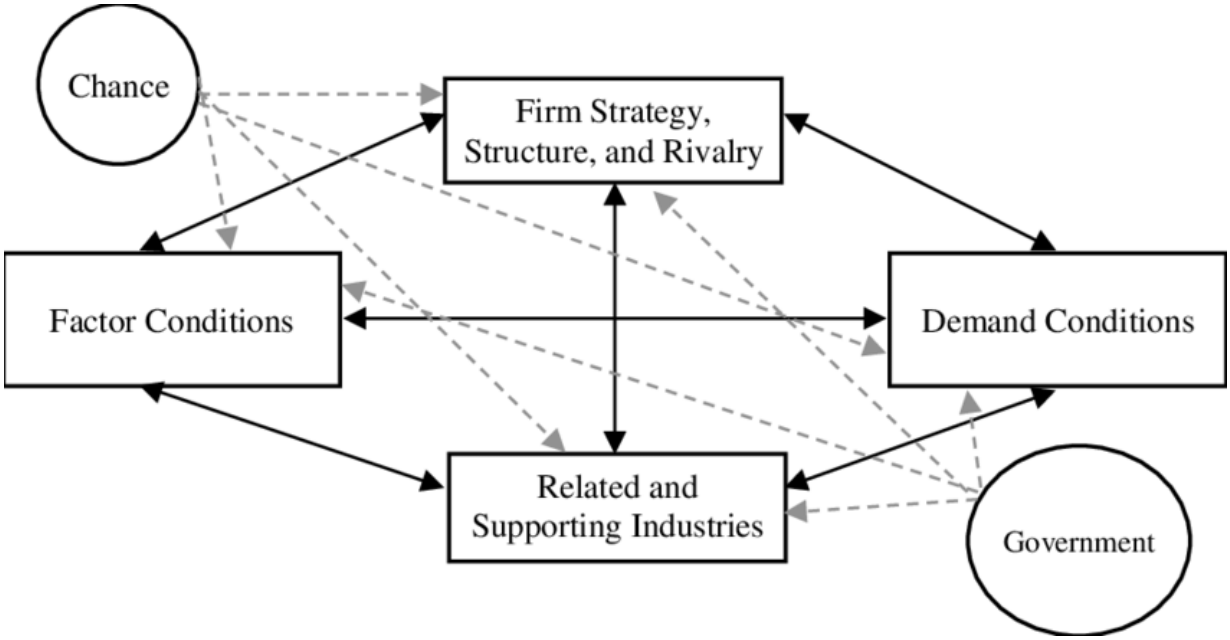

Figure 1: Porter's "Diamond" Model

Factor Conditions

Regarding factor conditions, Porter distinguishes between primary and advanced factors. Primary factors include natural resources, climate endowment, geographic location, and capital, while advanced factors encompass modern communication infrastructure and research institutions. Implementing alternative planting projects requires suitable natural conditions for crop cultivation, as well as relatively well-developed agricultural infrastructure, including transportation networks, irrigation systems, a skilled agricultural labor force, and access to capital for purchasing agricultural inputs.

While northern Laos possesses favorable ecological conditions for diverse crop cultivation with fertile land, a warm and humid climate, and sufficient sunshine due to its high altitude (1,500-3,000 meters), it seems to lack many other production factors. This imbalanced factor conditions requires APPs to be able to transform unfavorable conditions into advantages.

Infrastructure: the infrastructure in northern Laos is significantly inadequate, particularly in road transportation and communication networks. This makes delivery of essential supplies difficult. For example, seedlings, fertilizers, and plastic sheeting from China have to be shipped to project sites by roads in bad conditions. This lack of infrastructure limited project implementation. For project undertaking enterprises, it is an expensive challenge to improve local road infrastructure and irrigation systems. However, some enterprises have made efforts to improve local roads within their capacity. For example, by 2015, alternative development enterprises from Xishuangbanna Dai Autonomous Prefecture in Yunnan Province had invested 117.31 million RMB to construct or upgrade 9000 kilometers of local roads.

Human Resources: Northern Laos also faces a shortage of human resources. In 2014, the entire Laos has a registerd population of only 7 million, most of which concentrated in the south. Lao government requires all APPs use only labors from Laos. In such conditions, the projects grapple with two challenges: a limited workforce and even fewer with agricultural know-how. Chinese enterprises have addressed this by providing extensive technical training. For instance, they have conducted 120 practical technology training sessions for over 8,000 Lao participants. The China-Laos Agricultural Science and Technology Demonstration Park has expanded its training and technical services to cover multiple provinces in northern Laos. These trainings have improved farmer skills and increased crop yields. However, individual differences in ability and motivations have resulted in varying income levels among farmers involved in alternative development projects.

Capital: Preliminary estimates suggest that an annual investment of several hundred million RMB is needed for sustaining existing alternative development achievements and eradicating opium cultivation. Such capital investment exceeds the affordability of financial resources in northern Laos. Therefore, in terms of captial availability, the APPs heavily rely on grant funding provided through Chinese aid programs.

Demand Conditions

Porter argues that the continuous evolution of human needs drives market demand and promotes industrial restructuring and product innovation. He emphasizes that the quality of domestic demand is more important than its quantity. As sophisticated and discerning buyers push industries to attain competitive advantage, the overall quality of domestic demand is enhanced. In the context of APPs, this translates to two key considerations: first, whether the project itself addresses a genuine local demand, and second, whether the introduced alternative crops align with the specific agricultural development needs of the region.

Northern Laos has a strong demand for agricultural development. With 60% of farming households in its nine northern provinces still reliant on traditional subsistence agriculture, only 40% generate income by selling their own produce. Furthermore, the region's traditional farming and livestock rearing practices are low in productivity. Local governments have actively sought assistance from China to modernize agricultural practices and enhance productivity. Laos also demonstrates a high demand for foreign investment in agriculture. Although Laos has abundant resources, the utilization rate remains low. To attract foreign investors, the Lao

government promotes a “2+3” investment model, where Laos provides labor and resources while foreign investors contribute capital, technology, and market access, thereby stimulating local economic development. This indicates that China’s APPs align with the agricultural development needs in Laos.

Alternative crop selection prioritized cash crops suitable for northen Lao’s cultivaiton advantages. The project areas, including Luang Namtha, Luang Prabang, Bokeo, Xayabury, and Oudomxay, possess diverse agricultural strengths (as detailed in Table 1). Through consultations between China and Laos, over 40 regionally suitable cash crops were selected, including sugarcane, spices, tea, rice, rapeseed, corn, peas, and wheat. These choices align with the existing cultivation advantages of northern Laos. Furthermore, the Chinese government and enterprises have implemented initiatives to enhance agricultural productivity, as detailed in the “Related and Supporting Industries” section.

Table 1: List of Advantageous Crops in Various Parts of Northern Laos

Crops	Luang Namtha	Luang Prabang	Vientiane	Bokeo	Xayaburi	Oudomxay	Phongsaly
Rice	O			O	O		
Maize	O	O		O		O	
Starch							
Sugarcane	O						O
Mung bean		O	O				O
Tobacco	O		O				
Cotton	O	O				O	O
Soybean		O					
Sesame		O			O	O	O
Watermelon	O		O			O	
Casava			O			O	

Data Source: Gong, X., Zhang, S. and Zhang, Y., 2010, laowo beibu jiusheng zhuyao nongzuowu youshi fenxi yu quyu buju, (Analysis of regional advantageous crops in nine provinces of northern Laos)., Journal of Southwest Agriculture, Vol. 8, p.1211

Government

Government strategically determines the performance of the "Diamond System" by creating opportunities and applying pressure to drive development. Government intervention often targets areas beyond the scope of individual enterprises, such as infrastructure development, capital flow facilitation, and information integration. In the context of APPs, this requires both the Chinese and Lao governments to provide supportive policy framework and relevant regulations.

Acting as intergovernmental aid initiatives, the Chinese APPs have been benefited from both governments of China and Laos. Their roles have boosted the implementation of these projects, as evidenced by the various intergovernmental agreements outlined in Table 2.

Table 2: Bilateral or Multilateral Governmental Agreements Involving China-Laos Joint Efforts in Anti-Drug Cooperation

Year	Initiatives	Signatories	Main Contents
1992	*China, Myanmar, and UNDCP Trilateral Drug Control Cooperation Project*	China, Myanmar, UNDCP	Established cooperation on combating drug trafficking, reducing drug demand, and implementing crop substitution programs in Myanmar; marked the formal implementation of sub-regional multilateral drug control cooperation.
	Myanmar, Thailand, and UNDCP Trilateral Drug Control Cooperation Project	Myanmar, Thailand, UNDCP	
1993	*Memorandum of Understanding on Drug Control*	China, Myanmar, Thailand, Laos, UNDCP	Formed the basic framework for sub-regional drug control cooperation.
1995	*Beijing Declaration; Sub-Regional Action Plan on Drug Control*	China, Cambodia, Laos, Myanmar, Thailand, UNDCP	Strengthened international cooperation in drug production control, combating drug trafficking, drug abuse prevention, and alternative development; finalized the sub-regional multilateral drug control cooperation framework for the "Golden Triangle" region.
2000	*ASEAN-China Action Plan on Drug Control*	China, ASEAN	Established the "ASEAN+1" regional drug control cooperation framework.

Year	Initiatives	Signatories	Main Contents
2001	*Memorandum of Understanding on Drug Control Cooperation between China and Myanmar*	China, Myanmar	Defined cooperation details between China and Myanmar, and China and Laos, in areas such as combating drug-related crimes, alternative development, precursor chemical control, drug rehabilitation, technical collaboration, and intelligence exchange.
	Memorandum of Understanding on Drug Control Cooperation between China and Laos		
2006	*Joint Statement between China and Laos; Agreement on Economic and Technical Cooperation between the Governments of China and Laos*		Leveraged the Yunnan (China)-Northern Laos cooperation mechanism to conduct drug control cooperation and vigorously develop alternative development industries in border areas.
2007	*Action Plan for Alternative Planting between China and Myanmar; Minutes of the Ministerial Meeting on Alternative Development Cooperation between China and Myanmar*	China, Myanmar	Based on the principles of equality, mutual benefit, mutual respect, and shared responsibility, China and Myanmar primarily supported capable enterprises to strengthen cooperation in opium poppy replacement and development in northern Myanmar through project collaboration.
2011	*Memorandum of Understanding between the Government of the People's Republic of China and the Government of the Union of Myanmar on Strengthening Drug Control Cooperation*	China, Myanmar	Reached consensus on establishing a three-tiered drug control liaison mechanism, providing drug control equipment assistance, personnel training, and precursor chemical control from China to Myanmar.
2011	*Minutes of the Ministerial Meeting on Alternative Development Cooperation between China and Myanmar*	China, Myanmar	The establishment of a national-level drug control cooperation framework and mechanism provided strong support for the implementation of alternative development projects.

Data source: Bao, Y., Hu, M., 2018, Yinsu tidai zhongzhi de shishi kunjing yu fansi—jiyu miandian de shijiao (Dilemma and reflection on implementing the poppy substitute alternative development projects: from the perspective of Myanmar., Southeast Asian Affairs, Vol. 4, p. 69

In addition to intergovernmental agreements, the Chinese government has implemented a series of supportive policies, including financial incentives, credit access, tax exemptions, and simplified customs procedures for personnel and goods. These policies aim to encourage qualified Chinese enterprises to participate in APPs within the designated areas. Furthermore, the inclusion of alternative development in the *People's Republic of China Drug Control Law* provides a legal framework for the APPs. In December 2004, led by the Ministry of Commerce, the Chinese government established the "State Council Working Group 122" to organize and guide alternative development efforts from Yunnan Province in overseas opium poppy substitution. Since 2007, Chinese government has continued to introduce preferential policies related to fertilizer exports and the import of agricultural products generated through alternative development projects.

Yunnan Province plays a central role in executing China's alternative planting intitiatives overseas. In 2002, the Yunnan Provincial Narcotics Control Commission established the Overseas Alternative Planting Project Management Office. Six prefectures and municipalities bordering Myanmar and Laos also set up corresponding agencies and working mechanisms, and formulated the *Measures for the Management of Overseas Poppy Alternative Planting Projects in Yunnan*. The provincial government also developed the *Five-Year Plan for Overseas Poppy Alternative Development* which simplified procedures for the import of project-related agricultural products, which eased cross-border movements of people and goods. These policy guarantees facilitated the implementation of alternative development projects. Subsequent policies introduced by the Yunnan provincial government include the *Outline of the 2006-2010 Overseas Poppy Alternative Development Plan*, the *Interim Measures for the Management of Overseas Poppy Alternative Development Enterprises (Projects) in Yunnan Province*, the. *Operating Procedures for the Return of Agricultural Products under Overseas Poppy Alternative Planting Projects in Yunnan Province*, the *Measures for the Management of Special Funds for Overseas Poppy Alternative Development in Yunnan Province*, and the *Direct Subsidy Measures for Special Funds for Overseas Poppy Alternative Development in Yunnan Province*.

Despite these policy efforts, some implementation challenges remain. For example, smaller enterprises struggle to secure loans due to complex approval processes. Additionally, there is no government-backed insurance for companies engaged in overseas alternative development projects, leaving them vulnerable to various risks. Furthermore, current funding mechanisms primarily support APPs which is not adequate to transform the landscape of agricultural industry in Laos. Finally, Lao farmers prefer cash payments but the capital control regulations in China makes transfer of large-amount cash funds difficult.

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Porter identifies the related and supporting industries as the third key factor in achieving national competitive advantage. The industry growth cannot go without close collaboration between upstream and downstream industries. Infrastructure and communication technology also plays a important role in achieving national competitiveness. In the context of APPs, related and supporting industries can be understood as those related to the sales capabilities, processing, and market channelling, besides cultivating.

Prior to the alternative development initiatives, northern Laos had limited capacity in these supporting industries such as sales, processing and marketing. The Lao government hoped these projects would boost transformation of Laos' agricultural sector from its traditional subsistence-oriented, towards a more market-driven model. Through implementing aid APPs, this goal has been partially realized. However, to achieve a qualitative leap in

transforming the agricultural landscape in Laos, it takes substantial advancements in all related and supporting industries from crop cultivation, sales, processing, to market development. Given the complexity of this transformation, aid-based APPs can only contribute to localized improvements.

1. Positive Impacts of Alternative Projects on the Agricultural Development in Laos

APPs have positively impacted agricultural development in northern Laos, especially in produce sales, agricultural technology cooperation, and processing efficiency.

Increased produce sales: Due to limited marketing channels and consumer market for alternative crops in Laos, China has implemented preferential policies, including zero tariffs and VAT exemptions, for importing designated produce within specified quotas. In 2017, Xishuangbanna Dai Autonomous Prefecture had a quota of 537,400 tons of nine varieties of alternative produce import, and the prefecture actually imported 483,700 tons (89.99% of the planned quota), worth 1.25 billion RMB in import value.

Improved yields through agricultural technology cooperation: For instance, the alternative rubber plantation has developed in a scale of 2.5 million mu in northern Laos; other large projects such as the "China-Laos Ecological Agricultural Technology Demonstration Park", and the "Laos Vientiane Industrial Park", are under development. The China-Laos Agricultural Science and Technology Demonstration Park, jointly established by Yunnan Province and Oudomxay Province, has helped increase rice yields from 200 kg/mu to 400 kg/mu and corn yields from 150 kg/mu to 300 kg/mu.

Development of agricultural processing: Chinese agricultural processing enterprises in Laos have promoted local processing capacity. For example, between 2010 and 2014, the Oudomxay Yinong Agricultural Import and Export Co., Ltd. processed over 20,000 tons of grain. Yunnan Farms Group's rubber investment company has established a rubber processing plant with an annual production capacity of 20,000 tons in northern Laos.

2. Challenges

Despite these achievements, challenges still remain:

Firstly, as discussed earlier, project outcomes vary significantly across regions, with villages closer to the Chinese border exhibiting greater success due to better infrastructure and market access, which reduces implementation costs.

Secondly, APPs alone cannot establish comprehensive sales channels, increase local demand, or create local markets in northern Laos. As an aid initiative, alternative projects are implemented by Chinese SMEs, local governments, and farmers. Limited by scale and capacity, these SMEs cannot possibly make a mature market within Laos. Therefore, exporting agricultural products back to China remains the primary solution.

Thirdly, the agricultural processing industry develops at a low speed. While Chinese-owned processing plants operate in Laos, we have not yet seen local Laotian processing companies.

These issues are indeed building blocks for the ideal environment for agricultural development in Laos. In this view, although APPs contribute, their contribution is limited and localized in the broader agricultural industry transformation in Laos.

Firm Strategy, Structure, and Rivalry

Porter points out the importance of strong firms in achieving international competitive advantage. Competitive firms not only hold favorable positions in the global market, they also influence the economic development of other countries. Firms, therefore, significantly impact a country's industrial competitiveness. In the context of Apps, success depends on the ability of the implementing actors (both Chinese enterprises and Laotian farmers) to transform unfavorable local conditions into advantages. For example, APP undertaking firms should take advantage of existing factor conditions and supporting industries, such as processing, transportation, and sales channels, to improve farmers' livelihood through alternative crops and build up the firm's competitiveness in the region. This requires a relatively well-developed agricultural development landscape in Laos.

As discussed earlier, infrastructure in northern Laos is inadequate, especially in areas related to agricultural development, such as processing, transportation, and marketing channels. It is therefore difficult for the undertaking firms to find local partners providing these services. Consequently, the only source these undertaking firms can resort to is the local government. These governments, facing financial constraints, have adopted an investment model where they provide labor and resources while foreign investors contribute capital, technology, and market access. However, APPs are not purely commercial ventures but rather aid-driven initiatives supported by Chinese foreign aid. To ensure effectiveness, the performance of participating Chinese enterprises is strictly evaluated and screened. Only those meeting certain criteria can apply for aid funds for their projects. Due to the limited scale of funding, these projects are attractive only to SMEs rather than large enterprises. However, SMEs often have limited capacity for internationalization, and not all can meet the performance criteria, therefore, not all undertaking firms for the APPs in northern Laos sustain long-term operations.

Successful projects that sustain a virtuous cycle of development for both the enterprises and participating farmers demonstrate the advantages of the Chinese approach compared to other APPs in northern Laos. Projects led by the UNDCP and aid agencies from countries like Japan, Germany, and Denmark have indeed reduced opium cultivation but failed to adequately address livelihood improvement, leading to higher rates of opium replanting.

By contrast, successful Chinese projects have significantly expanded cultivation areas. Enterprises from Xishuangbanna Dai Autonomous Prefecture alone have cultivated about 6,700 hectares of cash crops, including rice, potatoes, and medicinal plants such as dendrobium stems, in Luang Namtha Province. Collaboration between agricultural departments in Yunnan Province and Xishuangbanna, and their counterparts in Oudomxay, Phongsaly, and Luang Namtha provinces, have resulted in over one million mu of land developed for the cultivation of crops like rice, rubber, sugarcane, and Sacha Inchi.

The APPs cooperated between China and Laos have significantly reduced opium cultivation and steadily increased the farmed areas in northern Laos. In 2007, opium cultivation in the region decreased to 1,500 hectares, with a total production of 9 tons. By 2015, over fifty Chinese enterprises have undertaken APPs in northern Laos, and developed nearly one million mu (approximately 67,000 hectares) of alternative plantation. These projects have significantly improved farmer incomes and livelihoods. Over the twenty years of project implementation, more than 1.5 million farmers in northern Laos and Myanmar have benefited, with average annual incomes increasing from 400-500 RMB to around 1,200 RMB in 2013. By 2015, thirty-

eight undertaking enterprises from Xishuangbanna had provided 664,000 jobs Laos and Myanmar. Some well-performing enterprises have also contributed in community development. For example, companies from Xishuangbanna have donated 14.15 million RMB in 205 drinking water projects, 14.55 million RMB in building 42 schools, and 6.93 million RMB in 52 medical service stations. Their donation through local goverments for public welfare activities registered another 17.26 million RMB. These achievements demonstrate the effectiveness and success of Chinese APPs in northern Laos.

In the meantime, two fundamental issues remain: firstly, some Chinese SEMs lack experience in overseas operations, leading to investment failures that negatively impact local farmers who rely on alternative crops for their livelihoods. A small number of companies have even engaged in fraudulent activities to obtain government subsidies.

Secondly, even successful enterprises cannot single-handedly transform the agricultural development landscape in Laos. The long-term sustainability of these localized achievements remains uncertain unless fundamental improvements are made in factor conditions and related sectors within Laos.

Chance

Chance, an unpredictable factor, can influence the four determinants outlined in Porter's Diamond Model. Chance can be both opportunities and threats, and it often shift advantages from established players to new comers. Only those who adapt to emerging needs can capitalize on these "chance" events. For China's APPs, chances include the global movement towards drug control and the ongoing development trajectory in Laos.

For northern Laos, the support from China, the UN, and other countries and organizations for alternative development presents a chance to break free from the opium cultivation cycle. This goal has been partially achieved in areas where Chinese enterprises and Laotian farmers collaborate on APPs.

Furthermore, these aid-based APPs can serve as a catalyst for broader agricultural development in Laos. However, as discussed earlier, limitations in capital, supporting industries, and lack of local firms pose great challenges for these projects. Recognizing this, China has increasingly focused on helping Laos in transforming its overall agricultural landscape. This is evident in the strategic approach to China-Lao agricultural cooperation in recent years across the country.

Conclusion

APPs are not purely commercial ventures but multifaceted economic cooperation between China and Laos that integrate aid, government support, and enterprise development. Through the lens of Porter's Diamond Model, this study demonstrates that the Chinese APPs in Laos have achieved their primary objectives of reducing opium cultivation and improving farmers' livelihoods. In this regard, as aid-projects, China' APPs in northern Laos are successful.

However, for the agricultural industry in Laos to achieve substantial competitiness, it requires fundamental improvements in the country's agricultural development landscape. In this regard, the Lao government and local enterprises are advised to prioritize three issues: (1) expand domestic demand, foster agricultural markets, and support local businesses; (2) increase investment in agricultural infrastructure; and (3) implement policies to attract foreign

investment for agricultural development, and collaborate with foreign enterprises to nurture local agricultural businesses.

For China's foreign aid projects, the goal should extend beyond simply facilitating market entry for Chinese enterprises. These projects should help Chinese companies identify pathways for win-win cooperation, value co-creation, and sustainable development with local partners. Through the market mechanism, experience learned should be put into practice, local partnerships should be fostered to achieve sustainable development. This might become a possible path for China to conduct agricultural collaborations with neighboring countires.

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